ENVIRONNEMENT CANADA

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SERVICE ATMOSPHERIQUE

ATMOSPHERIC SERVICE

ZEPHYR

NOVEMBER 1971 NOVEMBRE

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ZEPHYR

NOVEMBER 1971

Published under Authority of the Assistant Deputy Minister
Atmospheric Environment Service

Editor: B.M. Brent

AES HEADQUARTERS OPENED

On October 29, 1971, under cloudless skies an outdoor ceremony was held in Toronto at which the new headquarters building of the Atmospheric Environment Service (formerly Canadian Meteorological Service) was officially opened in front of a large gathering of invited guests. A special platform was set up at the front of the new building at 4905 Dufferin Street where, flanked by two scarlet-coated RCMP constables, the official party and special guests assembled.

The main speaker, the Honourable Jack Davis, Minister of the Department of the Environment, was introduced by the Honourable Arthur Laing, Minister of the Department of Public Works. Mr. Davis, in his remarks, drew attention to the vastness of Canada and the excellent work carried out by the national weather service in obtaining observations and providing services across the country. In the future, increasing emphasis, he said, would be placed on measuring and monitoring the quality of the air in order to ensure the protection of the atmospheric environment. Other highlights of the program were an official ribbon cutting and plaque unveiling by the two Ministers; the presentation of the Ceremonial Scissors to Mr. Davis by Irving Boigon representing the consulting architects and musical numbers provided by the North York Concert Band. A presentation of two Centennial Plaques was made by Mr. J.R.H. Noble, Assistant Deputy Minister, Atmospheric Environment Service. These were to Mr. Davis and to Mr. George Brown, one of the most senior employees of the AES, who joined the Service in 1930. Mr. Brown accepted the plaque on behalf of all former and present employees of the Amtospheric Environment Service. A tour of the building and a reception followed the ceremony.

The official opening and dedication of the building was one of several events held during the week of October 24, in conjunction with the opening of the building and the 100th anniversary of the "Met" Service. Among other events was a three-day international scientific symposium on October 26 – 28, a banquet on the evening of October 27, and an "Open House" for the general public on October 30 and 31. The latter event was an outstanding success during which an estimated 10 thousand people toured the building viewing the displays and equipment which had been set up for the occasion.

One of the highlights of the new Atmospheric Environment Service's headquarters is the modern 294 seat auditorium.

The appointments of the auditorium include upholstered chairs, broadloom, draperies and ceiling tile which produce excellent acoustics. An 80 watt amplifier in the public address system driving a speaker horn cluster produces equal volume anywhere in the auditorium. There are eight microphone jacks strategically located throughout the auditorium, all of which can be individually controlled from the projection booth. A tape recorder can be patched into play-back or record proceedings. Multiple chalkboard facilities are available.

Projection facilities are quite versatile. A motorized 12 foot screen is centered over the chalkboard for front projection and there is a 6½ foot square screen on either side for rear-screen projection. In the projection booth is a 16 mm sound projector with the audio patched into the public address system and a 35 mm slide projector. Both these items are theatre type arc projectors. Two standard slide projectors are mounted for use on the rear screens and an overhead projector is also available. A custom-built lectern includes remote controls for all slide projectors.

Translation facilities are available which will handle two languages. Eventually, a four language system will be installed.

Wiring is installed for originating TV programs in the auditorium or for distributing TV programs to it.

The new auditorium is a very modern, attractive, comfortable, and versatile facility.

UPPER AIR STATIONS – EAST AND WEST

On November 19 the most easterly upper air observing station in continental North America was formally opened at Torbay by Mr. J.R.H. Noble, Assistant Deputy Minister of the Atmospheric Environment Service, a component of the Department of the Environment. This important new facility carries out upper air investigations and it brings to thirty-five the number of such stations in Canada. It represents a vital addition to the hemispheric network which probes the atmosphere twice daily. This station completes the Newfoundland and Labrador network by complementing the information supplied at two existing sites in Stephenville and Goose Bay.

In his remarks Mr. Noble paid tribute to the contractor, Spade Construction Ltd. and the sub-contractors, Art Noseworthy Ltd., R.S. Rogers Ltd., and Newland Painters and Decorators Ltd. for their excellent work. The result is one of the finest upper air observing stations of its kind in North America. The site commands a superb view of the horizon which will help to ensure that each individual observation can be conducted through to the maximum altitude. Mr. Noble also pointed out that planning for this station commenced when the weather service was part of the Ministry of Transport, and that Ministry provided the necessary architectural services both before and during construction.

The upper air station consists of a plot of ground of about ten acres containing two buildings on the top of Dunne's Ridge. One building is used as an operations building and the other, which looks somewhat like a square silo, contains a hydrogen generator and balloon filling space. Hydrogen is generated electrically and stored in low pressure tanks, then transferred to the balloons which are filled indoors since an exact amount of hydrogen is required to produce a specified rate of ascent. A feature of this building is that provision has been made to open doors on three sides in order to aid the operator in releasing the balloon. The equipment is attached to the balloon by a cord usually fifty feet long and in strong winds it is a most difficult exercise indeed, Mr. Noble says, to get the balloon airborne before the equipment is smashed to pieces by the turbulent conditions that usually accompany strong gusty surface winds.

In reply to a question Mr. Noble elaborated on the actual operation of an upper air station. Twice daily at roughly 0730 AM and PM a hydrogen filled balloon is released which carries aloft sensors reporting on pressure, temperature, and relative humidity. The signals are relayed by means of a small radio transmitter to a receiving site in the operations building where the data are recorded and coded for relay to various offices around the northern hemisphere. In addition, the antenna of the receiving equipment tracks the balloon and the operators are able to plot its position at each minute of flight and determine the wind that has been blowing during each preceding minute. The maximum wind aloft that has been reported at St. John's since the new program began in June is 169 kts. at 31,000 feet. It is expected that data can be obtained to an altitude of at least twenty miles at each observation.

Mr. Noble emphasizes that in addition to the use made by this information at the various forecast offices in providing service to marine activities and other interests, the data are extremely valuable to the dense aviation traffic over the North Atlantic helping to ensure economical and safe operation. Besides the daily operational use of the observations, the information is used for research purposes in assisting scientists to improve their understanding of the complexities of the atmosphere.

For the immediate area, the station represents an important economic activity. It was built at a cost of a quarter of a million dollars, employs four skilled upper air technicians continually, and has an annual budget of about eighty thousand dollars. The Officer-in-Charge is Kenneth Leek who has been in Newfoundland for some years and has recently vacated a similar position at Stephenville.

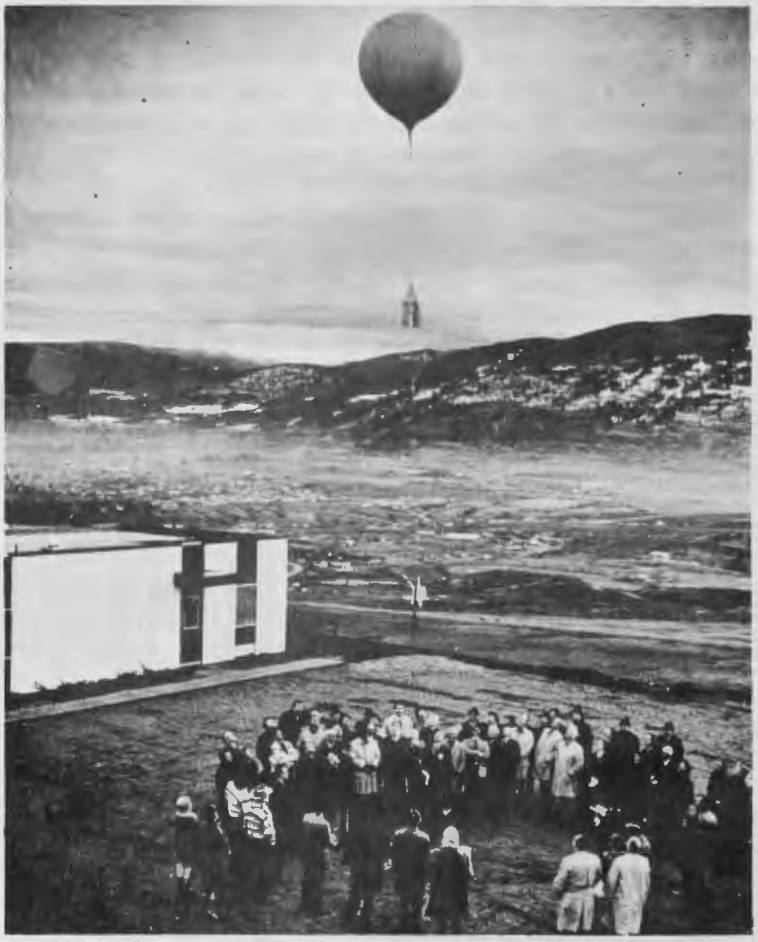
Mr. Noble pointed out that this new station is one of two operated by the Atmospheric Environment Service near St. John's. The first one under Mr. Frank Rowe will continue its responsibility for the surface weather program in the St. John's area. He has responsibility for providing surface data as well as keeping the public informed of what future weather developments are likely to be. Mr. Noble emphasized that the new site is a more specialized operation and is concerned with providing data on conditions aloft only.

In concluding his remarks, Mr. Noble pointed out that the Atmospheric Environment Service is the new name assumed by the Canadian Weather Service when it became part of the Department of the Environment. He stated that the Canadian Weather Service had just completed one hundred years of service to the Canadian public and thus is starting its second centenary under a new name. Mr. Noble emphasized that public and marine forecasting will continue to be an important responsibility; however, additional emphasis will be given to research activities on atmospheric phenomena including the determination and monitoring of air quality. He pointed out also that the new Department of Environment was well represented in St. John's. In addition to the two offices of AES, the Fisheries and Forestry services of DOE each had important Headquarters components locally with responsibilities to the citizens of Newfoundland and Labrador.

First in The Valley

UPPER AIR STATION WAS OFFICIALLY OPENED NOV. 26.

VERNON, B.C. – The Okanagan Valley's first atmospheric weather station has been completed in Vernon and becomes an important link in the world-wide network system of measuring upper air data.



RECENTLY COMPLETED Atmospheric Environment Department weather station near Vernon, B.C., is situated atop a small mountain and was designed by architects in the construction branch of Ministry of Transport. General contractor Gilmore Construction and Engineering of Westbank, B.C. levelled the rocky mountain top, built an access raod to the site and constructed the facility. Nine-foot hydrogen-filled weather balloons carrying sensitive radio transmitters necessitated installation of 16-foot overhead doors in the building. Balloons are filled with gas inside the building prior to being released to collect atmospheric data. Picture shows dignitaries at recent official opening ceremonies.

The station was located in the heart of British Columbia's southern interior in order to fill an upper level atmosphere data gap over western Canada. The nearest station to the north is Prince George and to the south, Spokane.

To mark the occasion, the Atmospheric Environment Service held an official opening ceremony for their new station at 11 a.m. Friday, November 26.

Douglas Stewart, M.P. for Okanagan-Kootenay riding, cut the ribbon to open the $200,000 fully instrumented station.

It is located on the Canadian forces base, turned over by the Department of National Defense for this purpose.

BALLOON CARRIES SENSORS

John Knox, Pacific Regional Director of the Atmospheric Environment Service, said the data makes possible more precise weather forecasts for the Valley and a means of measuring the structure of low level atmosphere for knowledge of pollution dispersal.

He described the technique for sounding the upper air.

"A hydrogen filled rubber balloon carries a package of instruments, called a radiosonde, into the atmosphere. Fastened to the balloon by a strong cord, it contains a radio transmitter, barometer, hygrometer and an electrical thermometer," Knox explained.

"The instruments measure pressure, humidity and temperature and this information is transmitted by radio signal to the radar antenna in the station dome. The station tracks the course for wind speed and direction.

"This information is recorder, analyzed and fed into the network of atmospheric stations." he said.

EXPLODE IN THE AIR

Knox said the six foot wide balloons will be a familiar sight over Mission Hill on their twice-daily fact finding flights.

They rise through the atmosphere at 1,000 feet per minute and expand as they rise. The limit of their strength is reached at a diameter of 20 feet and height of 80,000 to 100,000 feet when they burst.

The materials, including the instrument package, balloon, battery, parachute, and hydrogen cost about $35 for each ascent. They are rarely recovered as the radiosondes may drift several hundred miles in ascent, and usually float slowly down to earth in remote locations.

It takes two men working about five hours to complete one upper air observation, including the preparation of hydrogen, monitoring signals, computing and coding the data and checking the computations.

The information is sent by rapid radio and landline communication network to forecast offices where the results are analyzed on upper air charts by meteorologists.

STAFF IN CHARGE

Lloyd W. Bryant is Officer-in-Charge of the station, coming from Fort Smith, North West Territories to take the post.

Meteorological technicians on the staff include Donald McBain from Norman Wells, North West Territories. Clay Wheeler, Edmonton, Alberta and Russell Colville whose last posting was on the Pacific weather ship.

LONG HISTORY

Canadian investigations of the upper atmosphere have been carried out for more than 30 years. The original sounding equipment was carried aloft by balloons and the information registered on a smoked plate.

Other early experiments involved using kites and even airplanes which rarely got above 20,000 feet.

Upper air data, while costly from the standpoint of materials and time expended, has become indispensable to the modern day forecaster.

The data is also used for research into atmospheric processes and for studies of climate. A knowledge of the upper winds also has a defense value in the prediction of radioactive fallout from atomic explosions.

WEATHER INSTRUMENTS

The year 1971 marks the 100th birthday of the Canadian Meteorological Service (now the Atmospheric Environment Service) and numerous projects have been developed across the country to bring this historical event to the attention of the public. As part of this commemoration, the Atmospheric Environment Service, Pacific Region, developed a travelling display of weather instruments.

The display, which features a number of modern and antique instruments has been seen during the summer in several interior cities and at the Abbotsford Airshow. During the winter, it will be shown on the Lower Mainland and Vancouver Island. With the cooperation of Manager of the Vancouver Centennial Museum, the exhibit has now been placed on public view in the H.R. MacMilland Planetarium where it will stay until the end of December. The meteorological instruments, some of which are operating, demonstrate how the elements that make up our weather are measured and reported.

AGROMETEOROLOGICAL INDICES

Forty scientists from all regions of Canada attended a work planning meeting at the Central Experimental Farm, Canada Department of Agriculture, in Ottawa, November 24–25, 1971. The meeting was convened by Dr. W. S. Ferguson, Soil Research, CDA, and a number of meteorologists and climatologists were invited indicating the importance attached to meteorological aid to agriculture. Three lectures, one each presented by G. A. McKay, W. Baier and R. B. Dickinson helped to clarify the role meteorology can play in agricultural planning. Afterwards the meeting split up into six working groups for discussion of the following topics:

(a) Is our understanding of the effects of weather and climate satisfactory, or is there a need for further study?

(b) What is the priority rating for various crops?

(c) Farm operations.

(d) Crop protection.

(e) Crop zonation.

(f) Pest prediction.

(g) Crop yield.

(h) Environmental protection.

Each group was requested to suggest a method whereby various climatological and other parameters could be utilized to devise an index. During this meeting it became clear that agronomists have to concern themselves with plant responses to the environment to a greater extent and with increased priority before climatologists can put the observed elements together to formulate the most relevant index for every need. One recommendation called for a phenological or biological observation network of crops like legumes, small fruit, tree fruit, forage grasses, etc. This would seem as a prerequisite to the best utilization of climatological data.

INTERNATIONAL FIELD YEAR FOR THE GREAT LAKES (IFYGL)
ATMOSPHERIC WATER BALANCE PROJECT

Following recommendations of the Canadian and U.S. project scientists the AES Management Committee approved the use of the LORAN-C LOCATE system for the IFYGL rawinsonde network which will be in operation from September to December 1972. The AES will purchase one unit for installation at the Scarborough Upper Air Training School in June 1972. Two leased units will be installed early in September, one southeast of Hamilton and the other southwest of Trenton. Three units will be purchased by NOAA and installed on the U.S. side of Lake Ontario. Three project meetings were held in the latter part of November, two involving representatives from the United States and a representative of the Department of Supply and Services. Information was exchanged regarding the

drafting of contracts for purchasing and leasing rawinsonde ground equipmentsand expendables. Visits to Beukers Laboratories, Long Island and VIZ, Philadelphia, were arranged for early December to negotiate contracts. The latter company will produce the meteorological instrument package for the project, incorporating tested modifications which should eliminate most of the recently discovered errors in the standard sonde observations. Details of the observational schedule have been agreed upon by both countries and site reconnaissance is continuing.

MANITOBA BLIZZARDS

by K. Clarke

A dismal greyness prevails. Vicious winds lash stinging needles of snow, cutting the flesh raw – blinding and suffocating. A burst of flames. Figures scramble in terror and confusion; desperate voices are lost amid fire, smoke and snow.

Then only the sound of sifting snow, the impressions covered as though it never happened.

Five lives were snuffed out at the Meadow Lea farm back in 1882, during what was termed the worst blizzard to hit Manitoba in recorded history. Some blamed it on an over-heated stove, but no one can be sure what caused the dwelling of the newly emmigrated Taylor family to burn down during the storm. Isolated like most farms then, the family had no refuge within several miles and so perished.

The blizzard has always been a crippling and destructive force on the prairies, affecting not only man and his domestic animals, but also the natural animal and bird populations which winter over. During the past hundred years a number of "great storms" stand out as examples of tragic, sometimes amusing struggles against what is still a remarkable event in the eyes of Westerners.

Manitoba has always been a major livestock producing area, so it is not surprising that cattle are among the commonest victims of winter blizzards. A whole herd might be found frozen at a corner of a field, the carcasses piled in a heap as grim evidence of their last vain strivings to seek warmth. At times even sheltered animals were endangered as fine granular snow sifted through every opening and crack in a stable. In the late 1800's at Carberry, Manitoba, a farmer's trustworthy mule was lost in a barn, panned up for sixteen hours during a storm which completely obscured the barn from sight. When the storm finally abated and the farmer entered his barn, he found it full of snow, with only a pair of frozen ears protruding. At Brandon, Mr. Howe, caretaker of the local fair-grounds had to be dug out of his stable where the snow marooned him as he did the milking.

In the early days, the railroads with long distances between stations and with crude hardware, were particularly susceptable to the vicissitudes of winter. One reads of great snow blockages in the early 1900's that jammed telegraph offices with enquiries concerning the progress of various trains. Bulletins would be distributed telling of "No. 5" had again started at Rosser; in one storm a report came through that could only say "No. 2" was somewhere between Moose Jaw and the Rockies.

Immobilized trains quickly ran out of supplies, and farmers close to blockades had no difficulty selling their surplus provisions at a good figure. When a Canadian Pacific train was lost for five days between Winnipeg and Brandon in 1903, the crew and passengers ate at a nearby farmhouse for twenty five cents a meal; when the coaches were finally on their way again, the happy farmer waved a cheerful goodbye with more money in his pocket than he had ever imagined.

Sometimes foraging expeditions around the countryside were necessary and heroes were made of those trainmen who by either skill or luck managed to break through the snow-blocked cuts along the right-of-way.

Meanwhile in town "you couldn't see your hand before your face and the snow and wind halted breathing". Drifts packed in so hard across Winnipeg's Portage Avenue that office renters could step out of a second story window onto a snowdrift and walk home from business. Shop doors would sometimes blow in during the night, and by morning three feet of snow would cover the shop from door to office.

With roads closed, a scarcity of necessary commodities such as wood, butter and milk often developed and premium prices then usually prevailed.

The storm of Friday March 4, 1966 still lives on the lips of Winnipeggers. Ask any of those who lived through the "Great March Blizzard" and you will be entertained by ecstatic gestures and grand descriptions of their experiences through the storm. Fifteen inches of snow, driven by gale force winds into mountains of drifts, paralyzed the whole city; it was so impressive that some conjectured an immobilization of this sort should be an annual event, like a mardi-gras or an exhibition.

The event was advertised well ahead of time, as storm warnings were issued from the Weather Office on Wednesday. Thursday evening rolled around and still no snow In the Weather Office a heavily pencilled surface map lay on a desk, depicting the intense storm moving lazily towards the city, and a duty forecaster paced the floor wondering when the inevitable would strike.

The onslaught began early Friday morning; heavy snow fell as winds whistled through power lines and resonated sign boards; public transportation slowed to a crawl. By noon, nothing was moving in the city; the streets were littered with abandoned cars, trucks and buses, some already disappearing under the accumulation.

Those who were downtown and contemplating the situation realized that the central business district was gradually becoming isolated from their homes. Shoppers who had intended to make a few purchases before lunch became a bit anxious; little did they know that they were going to be among the merchandise until late the following day.

When the situation became hopeless, bars, restaurants and hotels filled to capacity. By evening, at the height of the storm, even department stores resembled hostelries as they served meals for the stranded shoppers in their cafeterias and opened their furniture departments as dormitories. Every available couch and bed was occupied, with linen supplied and television and radio provided for entertainment. In one store three hundred and fifty snowbound customers forgot about the storm absorbed instead in an eight hour non-stop bingo game with prizes.

While the general party atmosphere prevailed in the business area, preparations were being made for rescue and emergency services. Hospitals, police and fire departments

were coordinated with any other sources that could offer help. An overwhelming number of citizens volunteered various services; many with snowmobiles and power toboggans answered distress calls in parts of the city which would otherwise have been completely inaccessible.

The ordeal was especially acute for those who were depending on medical services and vital drug treatments. As well, a number of maternity cases developed during the storm and in one instance police assisted delivery by instructions over the phone.

Fortunately utilities were maintained and the availability of food was generally not a problem. There were a few exceptions; at the Assiniboine Park Zoo, attendants, trapped for two days, had to resort to the monkeys' bananas to satisfy their appetites; out in the country, a bus driver standed with a couple of passengers for thirty six hours rationed two soda crackers.

In rural areas the power toboggan was the only means of travel for three days. Cattle and sheep were smothered along with scores of wild game birds, all frozen in gigantic drifts of ten feet or more.

It was long after the winds calmed before Winnipeg returned to normal. Street clearing operations commenced and buried cars were uncovered. In the suburbs, sidewalks and driveways resembled trenches, with snow piled up to the eavestroughs. That the storm contributed to the loss of only a few lives, amazed everyone, considering its full force was lashed over a half million people.

A blizzard is defined as a snowstorm where for at least six hours the visibility is one half mile or less; the temperature ten degrees Farenheit or lower, and sustained winds are twenty five miles an hour or more. By a small technicality of about five degrees, this storm did not meet those requirements and thus, was not officially a blizzard. However, the Weather Office seems to be out numbered by half a million to one on this opinion.

INTERNATIONAL METEOROLOGICAL SYMPOSIUM

One of the main events in the round of activities associated with the official opening of the new Headquarters Building of the Atmospheric Environment Service was an international Symposium entitled "A History of Meteorological Challenges".

Since the AES is a scientific service it was only fitting that the opening be associated with a prestige scientific event. No pains were spared to make this a high quality symposium. Twelve speakers were arranged for the three-day meeting, each to speak on some facet of the science or practice of meteorology. They were asked to view their particular area as a series of challenges over the past century that have been faced and met with varying degrees of success, leading to the challenges that confront the science of meteorology at the present. It was fitting that this should be the theme since 1971 also marks the Centenary of the Canadian Meteorological Service, the forerunner of the Atmospheric Environment Service.

Among the Speakers were three members of the Department of the Environment, Dr. R.E. Munn, Supervisor of the Atmospheric Environment Service Micrometeorological

Research Unit; Dr. J. Clodman, Superintendent of Forecast Research in the Atmospheric Environment Service; and Dr. R.W. Stewart, Director of the Marine Services Branch, Pacific Region, who is also Vice Chairman of the GARP Joint Organizing Committee – a very large international meteorological research program. Other Speakers were Dr. P.D. McTaggart-Cowan, Executive-Director of the Science Council of Canada; Dr. B.J. Mason, Director-General of the British Meteorological Office; Dr. R.M. White, Administrator of the U.S. National Oceanographic and Atmospheric Administration (who had to have his Deputy read his speech due to last minute important business); Dr. G.P. Cressman, Director of the U.S. National Weather Service; and a number of leading international scientists including Dr. B. Bolin, Chairman of the GARP Joint Organizing Committee, Dr. J. Smagorinsky, Dr. F. Möller, Dr. V.E. Suomi and Dr. R.J. Murgatroyd.

One of the events associated with the Symposium was a banquet at which Mr. Alastair Gillespie, Minister of State for Science and Technology, spoke. The banquet was attended by more than 300 people.

Based on comments received from all sides it was clear that the Symposium and the associated events were highly successful both as to content and arrangements. Dr. Mason in some formal remarks stated that the Symposium was one of the best, if not the best of its kind, that he ever attended.

The proceedings of the Symposium will be published in a prestige high-quality book and anyone wishing to purchase a copy can write to the Atmospheric Environment Service, Attn: Administration Division.

MOVING DAY FOR THE SATELLITE DATA LABORATORY

Automatic weather picture reception was "off-the-air" only 12 days during the move of the Satellite Data Laboratory from Malton Airport to the new AES Headquarters where it is now located next to other Toronto Units of Forecast Research. A significant side-advantage of co-location with other FRS activities is the opportunity for collaboration in satellite technology development work with the University of Toronto Institute for Aerospace Studies, which now has access to signals coming from the new SDL antenna location on UTIAS property. A laser-beam photographic reproduction process is currently being developed at UTIAS for application to satellite data.

The actual moving day, September 29, was preceded by months of activity in locating and testing for a 'noise'-free antenna site as well as by detailed planning of the move itself, which involved, among other things, the permanent installation of important pre-tested components and modifications during the inevitable 'down-time'. Operation MOVE required a police escort for a 35 mile round-about route from Toronto International Airport at Malton that had to be carefully selected in order that underpasses and low-hanging wires would clear the antenna tower and receiver building. Deep trenching was required for several hundred yards of coaxial cables to bring signals from the antenna to UTIAS and the Laboratory, and to permit resumption of automatic remote control for pointing the antenna exactly at the orbiting satellite. An important assist in the moving operation came from the Toronto Region Engineering Construction Section of the Ministry of Transport.

CLIMATOLOGICAL SERVICES TRAINING

A Climatological Services course for meteorological technicians was conducted by the ASTS and the Climatology Division staffs at the Air Services Training School, Ottawa, from September 13 to October 8, 1971, and at the Atmospheric Environment Service Headquarters from October 12 to 15, 1971. The purposes of the course were to provide the technicians with a sound background and understanding of climatology and to give them a grasp of the complexity of the problems which arise in the provision of climatological services. Further, an important part of the course was the delineation of the resources in information, data, expertise, etc., available to Climatological Services specialists.

The course program consisted of a series of lectures on various meteorological and climatological topics, laboratory exercises, as well as tours of the facilities in the Climatology Division at the Toronto Headquarters. Many aspects of the course were based on the climatological courses given at Headquarters to meteorological officers in recent years. The meteorological instructors at ASTS were responsible for the major portion of the lectures and laboratory periods, and received assistance from visiting lecturers from the Climatology Division.

The course was attended by nine especially chosen meteorological technicians from the Regions and Headquarters who occupy positions where they are responsible for the provision of climatological services. The first four weeks of the course at the ASTS were largely devoted to subjects dealing with general climatology, regional climatology, applied climatology, and statistics. The last week at Headquarters was used for lectures on policies and procedures, and explanation of the philosophy behind the provision of climatological services throughout the organization and a demonstration of the information, data and technical resources available.

The Headquarters and ASTS staff responsible for planning and conducting the course are pleased with it and believe it to have been most successful. As a result of the course there are now a number of specialists/technicians throughout the country who can be counted upon to provide excellent climatological service to the Canadian public.

APPENDIX A

The course consisted of 86 lecture hours and 72 laboratory hours. The following paragraphs contain comments on the nature of subjects covered.

GENERAL CLIMATOLOGY – 25 HOURS

This subject, dealing with the elements of climatology and their distribution over the earth, provided a general background and was a prerequisite to the course in regional climatology. As no individual text book was found to be suitable for the course, copies of Haurwitz and Austin's Climatology, and Griffith's Applied Climatology were provided for reference and assistance.

REGIONAL CLIMATOLOGY – 8 HOURS

This course consisted of a detailed study of the climatic controls and climatic regions of Canada. References used were The Climate of Canada, the Climatological Atlas of Canada, Haurwitz and Austin's Climatology, etc. A number of the technicians felt that any future course should devote a greater number of hours to regional climatology and less to general climatology.

APPLIED CLIMATOLOGY – 21 HOURS

This subject, which may be defined as a scientific analysis of climatic data in the light of the useful application for an operational purpose, provided a useful insight into a number of fields served by climatology. Lectures were given by visiting specialists who are recognized experts in their field. Comments from students regarding participation by the visiting specialists were very favourable.

STATISTICS – 14 HOURS

This subject was designed to provide a general background in statistical methods and to demonstrate the application of these methods to climatological problems. Text books used as reference were Panofsky and Brier's Some Applications of Statistics to Meteorology, and Moroney's Facts from Figures.

POLICIES AND PROCEDURES – 18 HOURS

In this course the philosophy behind the provision of climatological services at Headquarters and in the Regions, as well as the policies and practices employed, were discussed. Visiting specialists from AES Headquarters, Climatology Division, handled most of these topics.

LABORATORY EXERCISES – 72 HOURS

In addition to the formal lectures, each instructor conducted laboratory sessions in his own specialty. Students found these presentations very interesting and informative. Several laboratory periods were also devoted to case studies which proved to be one of the most practical and useful portions of the training course. Requests for a wide variety of climatological information and data were studied, producing a considerable exchange of techniques and information between instructors and students. A number of technicians felt that discussions of case studies on any future course would be enhanced by introducing a short course in letter writing.

APPENDIX B

The candidates who attended the course were:

J.F. AMIRAULT	– Halifax Weather Office
G. CHAPLEAU	– Montreal " "
J. JUNSON	– Winnipeg " "
P.A. LADOUCEUR	– St. Hubert " "
K.J. PROKOP	– Winnipeg Regional Office
R.R. TORTORELLI	– Prairie Hydrometeorological Office
T.C. WILLSON	– Port Hardy Weather Office
J.A. YOUNG	– Climatology Division, AES Headquarters
I.E.T. ZILKIE	– Prince George Weather Office.

LE TEMPS ET SES CAPRICES

**PRESENTATION TO CAPT. C. A. BRADSHAW,
RETIRED CAPTAIN OF SHELL CANADIAN TANKERS LTD.,**

November 9, 1971.

The gift of a barograph to Capt. Bradshaw is in honour of his 21 years of involvement in voluntary marine weather observing for AES. His career in weather observing began in 1950 when he joined the Shell tanker PINNACLES as second officer. He acted as an Observing Officer, and later as Principal Observing Officer aboard the PINNACLES and RINCON HILLS from 1950 to 1961. In 1961 he became captain of the new Shell tanker EMERILLON. Although his actual participation in weather observing was necessarily curtailed, he continued to give support and encouragement to his officers in his ship's weather program.

Since 1953, when detailed records were first compiled, the three ships on which Capt. Bradshaw served have produced 20,562 weather observations. He has won our annual

"Excellent Awards" for marine observing on eight occasions as a Principal Observing Officer, and for eight years as Captain. This record is all the more remarkable, as the work was carried out with little personal supervision from our Service. The Shell tankers operated normally between Portland, Maine and South America; hence our Port Meteorological Officers had few opportunities to visit them.

Capt. Bradshaw's service to AES is the longest of any ships' officer, and this is the first such long service award for marine observing which we have presented.

Centennial Plaque

The Centennial plaque is awarded to the S.T. EMERILLON of which Capt. Bradshaw was the master since 1962. It is one of ten plaques awarded to ships whose length of service to AES and output of weather observations have been to greatest. In almost twelve years the officers of the EMERILLON have made 8,118 high-quality observations, again with little assistance from AES.

Captain C. A. Bradshaw Accepting Centennial Plaque from J. R. H. Noble, Assistant Deputy Minister Atmospheric, on behalf of The S. T. Emerillon

PRESENTATION TO ROMAN CATHOLIC MISSION AT FORT GOOD HOPE, N.W.T.

One of the Centennial Awards made by the Western Region was to the Roman Catholic Mission at Fort Good Hope, N.W.T. in recognition of records kept from 1897 to 1966. In a letter of acceptance received from the Most Reverend Paul Piche O.M.I. Bishop of Mackenzie – Fort Smith it was suggested that the plaque be awarded to the Missionaires with special mention of Reverend Father Alexis Robin O.M.I. who contributed to climatological data from Fort Good Hope for 33 years.

Father Alexis Robin is 85 years of age and is now retired at Fort Smith, N.W.T. and the following is his own report on climatological observations at Fort Good Hope.

RE: THERMOMETERS OBSERVATIONS AT FORT GOOD HOPE, N.W.T.

Rev. Father Y. Seguin O.M.I. Stationed at Fort Good Hope from 1860 to 1902, used to take the temperature every day on centigrade thermometers. His thermometer having been broken, he wrote to M. McFarlane of the H.B.C. to get a new one. To the best of my knowledge it must have been around 1890. M. McFarlane put him in relation with the Meteorological Office in Toronto, who sent him thermometers.

When Father Seguin left in 1902, Father G. Houssairs took the observation until 1903. From 1903 – 1907 he was stationed at Fort Norman. He took the thermometers with him. In 1907 he came back to Good Hope, bringing back his thermometer. He was in charge at Good Hope until 1915.

Around 1908–09 Stefanson brought to Good Hope a thermometer screen and a barometer. The barometer having been broken another was sent about 1914.

Father A. Robin O.M.I. having arrived at Good Hope in summer 1912 he took the observations twice a day at 8:00 a.m. and 4:30 p.m. until the summer 1929, when he was transferred to Fort Simpson. From 1929 to 1940, the observations were taken by Father L.L. Michel O.M.I. In 1940 Father Robin came back to Good Hope and was glad to take the observations until 1956 when he retired. Twice he observed -69° in February 1916? and February 1920? In 1914 a man from Toronto showed him to send balloons. We sent balloons and observed them from two places; from the front of the R.C. Mission and from the top of a hill south. We stopped when short of balloons. In 1921 Harold Bibby was sent to Good Hope, we helped him to send balloons regularly. Since 1956 I think the observations were taken regularly.

FIFTH SESSION OF THE WMO COMMISSION FOR AERONAUTICAL METEOROLOGY

The fifth session of the WMO Commission for Aeronautical Meteorology was held in Geneva 4–16 October 1971. This was the first time that the Commission has met in separate session without meeting conjointly with a constituent body of the International Civil Aviation Organization.

In his presidential address Mr. Lieurance of the United States reviewed developments in the field of aeronautical meteorology during the past four years. He expressed some concern over the advice given to developing nations as to the course they should follow in establishing and developing their aeronautical meteorological services, and stated that it would be better to start a service using modern day technology rather than the technology of years gone by. At the same time, he also expressed the opinion that the human forecaster is the focus of aeronautical meteorological services and the Commission should ensure that WMO does not neglect applied meteorology, particularly the man in the system in its desire to move ahead with the basic WWW programme.

The agenda for the meeting included a review of new developments in a number of areas including terminal forecasting, clean air turbulence, supersonic transport and qualification and training of aeronautical meteorological personnel. In addition a revised text was prepared for WMO Technical Regulations Chapter 12–3 concerning briefing and documentation.

P. Duverge of France and R.R. Dodds of Canada were elected president and vice-president of the CAeM for the next four years.

R. R. Dodds – New Vice-President of CAeM

THE CLIMATOLOGICAL NETWORK OF THE YUKON

By H. E. Wahl

The intent of a climatological network is to provide data to adequately describe the climate of an area both in space and time. The more complex the topography, the more dense should be the supporting network. The greater the seasonal variations in climate, the longer is the reference period required to establish mean and extreme climatic references. Using these terms of reference the climatological network of the Yukon must be considered as only in its infancy both in size and age. A search for available climatological data revealed the close correlation with the history of northwestern Canada and to a degree explains the climatological records that are so meagre.

This northwestern part of North America was the last part of the continent to be penetrated and explored. The Russians under Vitas Jonas Bering first discovered coastal Alaska in 1741. Alexander MacKenzie in 1789 had skirted the eastern edge of the area by descending the river that now bears his name. Hudsons Bay Company employees in the expanding fur trade penetrated the Liard and Dease River systems of northern B.C. in 1823. It was however not until 1840 that the area now known as the Yukon Territory was reached by the white explorer when Robert Campbell entered the territory via the Francis River tributary of the Liard. The river system of the Liard, the Pelly and the Porcupine saw activity until 1815 when the Hudsons Bay Company withdrew its posts, the lines of communication and transportation were too long to be profitable.

Not until 1870 did the white man return to the Yukon, this time in search of gold. In 1882 the first scientific exploration reached the outskirts of the Yukon Territory. Dr. Arthur Krause of the Bremen Geographical Society of Germany investigated and mapped the rugged terrain of the Coastal Mountains at the head of the Lynn Canal and penetrated to the headwaters of the Yukon River, Lt. Frederick Schwatka of the United States Army led the next scientific exploration in 1883 and followed the Yukon River from Lake Lindeman through the Yukon Territory into the through the interior of the territory of Alaska.

Canada to establish its soveriegnty commissioned the Yukon Expedition in 1887. Under George Mercier Dawson, Assistant Director of the Geological Survey of Canada, Richard McConnell, Geological Survey and William Ogilvie, D.L.S., it was the most complete and thorough scientific exploration to that time but was of necessity confined to the Yukon, Pelly and Liard Rivers.

The discovery of gold and the ensuing Klondike Gold Rush of 1898 was however the key to the establishment and exploration of the Yukon Territory. With the building of the railroad from Skagway to Whitehorse and the riverboats regularily plying the Yukon River system, a form of modern civilization had arrived. Although activity had decreased by 1904, the continual search for gold led men further afield and the Yukon and northern BC became known in greater depth and detail. Further mines developed, frequently collapsed but the availability of supplies along the Yukon River allowed man to explore and develop from a not too distant base. Even the Hudsons Bay Company returned.

World War II was to set the stage for the next major exploration and development of this northwestern portion of the continent. Japan's attack on Pearl Harbour forced the United States to look to the defence of Alaska. The construction of the Alaska highway and its associated airports of the North West Staging Route and the communications network

through northeastern B.C., the southern Yukon and Central Alaska during 1942 in itself resulted in an unparalleled increase in the knowledge of the Yukon. Of even greater significance was the transportation and communication now available for lateral penetration of the country. The United States Army Air Force from 1941 to 1944 (and later the RCAF) through high level photography allowed for the first time the mapping of this unknown country. The Canol Road and Pipeline in almost a direct line from Whitehorse to Norman Wells, although not fulfilling its goal did briefly allow an informative glimpse northward through the eastern part of the Territory. The Haines Road constructed to give road transportation from tidewater to the Alaska Highway gave another informative route, this southward through the Coastal Mountains.

The late 1940's and early 1950's saw a levelling off to decline in development of the Yukon as the impetus of war had vanished. The late 1950's however began another surge of development that still continues. The White Pass Railway of goldrush vintage and the Alaska Highway now allowed a means of transportation to the world markets. This availability was recognised and the feasibility of transporting raw materials (mainly minerals) to the outside was studied and developed. With these two arteries as support, the scheme of Roads to Resources opened the Yukon. This continued with the road to Dawson and Mayo, the reopening of the Canol Road as far as Ross River, the Dampster Highway north of Dawson to its eventual goal of Ft. McPherson, the construction of the Watson Lake – Ross River Road with its branch road to Tungsten, NWT, the present construction of the Ross River – Carmacks Road. In the planning stage are further arteries, Carmacks to Snag, the reopening of the Canol Road from Ross River to the North West Territories Border, from the N.W.T. Border westward down the Hess River to Mayo and another through the MacKenzie and ogilvie Mountains via the Bonnet Plume.

The accessibility of the Yukon is therefore in a rapid stage of development. Corresponding with the opening of the road arteries, has been an equal advancement of air travel in the Territories since 1942. To keep pace there is of necessity a continual review of the philosophy towards the Territory, its physical features, natural resources and climate.

There has been a close correlation of the history of meteorology and climatology in the Yukon with the various stages of exploration and exploitation of the Yukon and northern B.C. A scattering of climatological stations were established along the gold trails. World War II saw the next meteorological surge in support of the masses of aircraft moving westward against Japan or in support of Russia. Since the mid fifties however, the development of the Yukon has become more diversified geographically and technically. The role of meteorology has had to keep pace. The sources of Meteorological data had to be explored in space and time in order to meet present requests and anticipate future requirements. The history of the available meteorological data had to be defined.

References to climate were made in the notes of early explorers, traders and gold seekers; the unexpected oppressive heat with temperatures of 90 to 100 above in the lower Yukon Valley during June and July, the temperatures of 60 to 70 below during the winter, the heavy coastal precipitation, the dates of freeze up and break up of lakes and rivers, etc. The first known reference to a systematic climatological procedure was that of R. W. Nelson at Ft. Reliance in 1880–81. Ft. Reliance was one of the original trading posts set up by Harper and McQuesten and was located some 6 miles below the present site of Dawson City. According to his reports, mean temperatures were given as December -31°, January -7°, and February -29° and that for a 35 day period temperatures remained between -40 and -66°F. He made the further comment "Any single winter may be considerably warmer or colder than is here calculated, but the means are particularily correct and afford a good idea of all intervening points in the valley of the Yukon."

From August 1895 to November 1896, William Ogilvie established a climatological station at Forty Mile, forty miles down Yukon from Ft. Reliance. The note made by Gen A. W. Greely, in his "Climatic Condition of Alaska" as published in the U.S. American National Geographic Magazine, April 1898 was "whose scientific standing and ability are guarantees of their worth." Within this period, Ogilvie noted that July was the only month in which Freezing temperatures were not recorded. During June, July and August, temperatures of at least 70 above were recorded on 29 days and at least 80 above on three days. However from December 1, 1895 to February 1, 1896 below zero temperatures were recorded every day. It was below -40° on 28 days, below -50° on 14 days and below -60° on 6 days. The mean temperatures of January 1896 was -40.7°F and February -35.4°F. He then remarked that "With the coming of the middle of May, summer comes at once, the Yukon breaks up, the snow vanishes as if by magic and vegetation develops with astonishing rapidity until opening September brings sharp frosts almost daily."

The first climatological station recognized and published by the Canadian Meteorological Service within the Yukon and northern B.C. was Tagish in 1900. As to be expected, this station as well as those for the next twenty years were associated with the Klondike Golf Rush and covered only a narrow band along the Yukon River from its Atlin Lake and Bannett Lake headwaters to Dawson City.

Tagish was one of the check points along the water route taken by the early stampeders at which they were required to report in order that some control and record of progress could be maintained. The reports as taken by Mr. J. Keenan are available only for January through to August of 1900.

The Dawson climatological station established in January 1901 and still continuing has the most continuous record of climatological data in the Yukon. As of this year, there is available 69 years of complete data, a most unusual record compared to most of the stations in the Yukon. The original station was opened by Mr. T. A. Stewart.

Sporadic records are available from Whitehorse during the years 1905, 1907, 1909 and 1910. Systematic climatological reports were then discontinued and although references to temperatures and precipitation can be found in newspapers and various company reports their validity for comparative purposes cannot be confirmed. The continuous climatological reports from Whitehorse begin as of 1914 when the Royal Canadian Corps of Signals established a station in downtown Whitehorse. The weather station was however relocated a distance of approximately 1 mile and 200 feet higher as of April 1, 1942 when the Dept. of Transport began their program. Legitimate comparative records should therefore be taken only from this latter date. Climatological stations were manned in downtown Whitehorse from February 1959 to July 1960 and again in October 1966. These "Downtown Whitehorse" climatological reports however were overshadowed by the reports received from the climatological station established in Riverdale, Whitehorse as of February, 1959. The Riverdale site is a subdivision located in a natural bowl and was found to have a temperature regime much more extreme than the downtown site. The two stations Whitehorse Airport and Whitehorse Riverdale best describe the climate of the Whitehorse area. The reports from Riverdale are relatively complete since 1959.

In order to describe the climate of the Yukon, it is of necessity to go beyond man's artificial boundaries and utilize data from Alaska, northern B.C. and the MacKenzie Valley. The history of available data in B.C. north of 57.5°N is therefore also included in this review. The records available from Atlin from 1906 to 1946 are therefore most valuable. A few months of data from 1963 to 1964 are also available but a continuous program was not again developed until December, 1966.

Various stations with varying lengths of records are included with the listing below of all the stations in the Yukon and northern B.C. from which official climatological data is available. To a high degree these stations portray the scenes of activity within the area, the establishment of gold mining operations the abandoning as the minerals ran out or costs became too high, etc.

The majority of consistent data however dates back to 1942–43 when the Dept. of Transport manned the airports of the North West Staging Route. A great detail of coverage along this same route is available for the years 1944–45 when the mass ferrying of military aircraft to the Russian Front via Alaska necessitated a detailed weather network through the mountains of northern B.C. and the southern Yukon.

The period 1955 to date hopefully is the most productive with regards to a climatological network to depict the climate of the Yukon in breadth. As stated previously, a general economic resurgance in the Yukon and northern BC associated primarily with base metals and Asbestos has resulted in a much more complete transportation and communication network. As to be expected, industry and development spawns further industry and development. The result has been that since 1965, the climatological network has been unabashedly cultivated and expanded.

It was recognized in 1956 by the Weather Office, Whitehorse that aviation as well as public requirements were such that detail was required not only on the climatological side but that meteorological information from the sites on a daily basis would be invaluable support for the present synoptic network. The reporting procedures developed for the cooperative network is of the aviation weather report format but not including pressure and dewpoint. A Yukon Weather Observer's Manual has been developed and circulated as well as a companion Weather Message Form. Generally speaking the reporting has been good, and it has been of invaluable assistance in the movement of aircraft and in analysis and forecasting.

Perhaps the most unique portion of our cooperative weather network is that of the Icefield Ranges Research Project. This project under the auspices of the Arctic Institute of North American and the American Geographical Society is a study of the total environment of the St. Elias Mountains. Graduate and post graduate students from American and Canadian Universities are carrying out summer studies for these to the master and doctorate level in this project. The site was chosen since the glaciation of the Icefield Ranges is stated to be third in size only to the polar ice caps of the Antarctic and Greenland. The studies are of these glaciers and their effect on the surrrounding environment. Some 5 meteorological stations have been developed in this project with the most interesting and scientifically difficult being the Divide Station at 8,500 feet and the Logan station at the 17 thousand foot level on the 19,850 foot peak.

The sites from which climatological data is available and the period in which these sites were active are listed below. Those sites which are still active are marked *and those from which we receive reports daily are marked**.

Site	*Period*	*Location*	*Elevation*
Tagish	1900 1900	60 17 134 15	2150 approx
Dawson City	1901 **	64 04 139 26	1062
Whitehorse	1905 1910	60 43 135 03	2083
"	1941 1942	"	
"	1959 1960	"	
Whitehorse Airport	1942 **	60 43 135 04	2289
Whitehorse Riverdale	1959 **	60 42 135 02	2103
Atlin	1906 1946	59 34 133 42	2103
"	1906 1964	"	
"	1967 **	"	
Carcross	1909 1960	60 11 134 34	2171
Swede Creek	1919 1929	64 06 139 45	1071 approx
Mayo	1925 **	63 36 135 53	1625
Engineer	1926 1929	59 30 134 15	2160
McDames Creek	1938 1941	59 12 129 16	unknown
Lower Post	1938 1938	59 50 128 30	1913
"	1961 1961	"	
Watson Lake	1938 **	60 07 128 49	2248
Francis Lake	1942 1949	61 17 129 24	2425
Snag	1943 1966	62 22 140 24	1925
Aishihik	1943 1966	61 39 137 29	3170
Teslin	1943 **	60 10 132 45	2300
Telegraph Creek	1943 1948	57 56 131 09	550
"	1955 1956		
"	1961 1962		
"	1967 *		
Summit Lake	1944 1945	58 39 124 38	4146
Muncho Lake	1944 1945	58 55 125 46	2724
"	1970 **		
Coal River	1944 1945	59 40 127 15	1660
Rancheria	1944 1944	60 05 130 10	2770
Canyon Creek	1944 1946	60 52 137 08	2130
Log Cabin	1944 1947	59 46 134 59	2900
Fish Lake	1945 1945	60 10 132 03	2845
Brooks Brook	1945 1945	60 30 133 23	2365
Orchie Lake	1945 1945	62 10 131 45	unknown
Dease Lake	1944 **	58 27 130 03	2678
Smith River	1944 **	59 52 126 30	2208
Haines Junction	1944 **	60 46 137 35	1960
Swift River	1945 1946	60 01 131 12	2924
"	1967 **		
Carmacks	1950 1954	62 06 136 18	1710
"	1964 *		
Elsa	1950 1963	63 55 135 29	3000
Old Crow	1952 1956	67 58 139 38	900
"	1968 *		
Cassiar	1955 **	59 16 129 46	3500
Fort Selkirk	1955 **	62 49 137 22	1490
Haines APPS No. 2	1956 *	59 31 136 28	1310
Shingle Point	1957 *	68 57 137 12	120

Site	*Period*	*Location*	*Elevation*
Iron Creek	1959 1960	60 01 127 53	2850
Komakuk Beach	1960 *	69 35 140 11	30
Johnsons Crossing	1964 **	60 28 133 15	2270
Ross River	1964 1964		
"	1967 **	61 58 132 261	2262
Tulsequah	1965 1966	58 42 133 38	400 approx
Burwash Landing	1966 **	61 22 139 03	2628
Clinton Creek	1966 1967	64 25 140 40	1100
Faro	1966 1968	62 21 133 24	3650
Anvil	1967 **	62 22 133 23	3850
Dempster	1967 **	64 27 138 13	3250
Quiet Lake	1966 **	61 09 133 04	2665
Tungsten	1966 **	61 57 128 15	3500
Watross	1967 **	60 55 129 15	2490
Icefield Ranges Research Stations summer only			
Kluane		61 03 138 22	2580
Divide		60 47 139 40	8650
Fox		61 10 140 15	6900
Chitistone		61 36 142 03	5825
Logan		60 36 140 30	1700
Stations added to the network since 1968			
Beaver Creek	1968 **	62 23 140 53	2165
Wolf Creek	1968 **	60 35 134 57	2450
Haines APPS No. 4	1968 **	60 49 137 44	2775
Drury Creek	1970 **	62 12 134 23	1998
Muncho Lake	1970 **	58 55 125 46	2770
Macmillan Pass	1970 *	63 10 130 12	4622
Sheldon Lake	1970 **	62 37 131 16	2900
Mile 75 Haines Road 1	1970 **	59 47 136 36	2900

SUGGESTED NAMES FOR HEADQUARTERS SCULPTURE

(1) The Elements

"Sun – Air – Water"

(2) Don Quixote of The AES

"It is suggested that the allegory of Don Quixote tilting at the windmills of oppression and slavery of his era could be considered analagous to the position of Meteorological efforts to probe the still unknown truths of "Nature" in aid of Mankind."

(3) Elemental Triskelion

"Triskelion – Noun – Greek Triskeles – three legged from 'tri' – three + 'skelos' – Leg. Webster Dictionary description – "a design, *usually symbolic*, consisting of three branches – bent legs or curved arms radiating from a centre."

PERSONNEL

The following have accepted positions as a result of recent competitions:

Competition 71-MET-CC-1 Meteorology (MT) 7
Forecast Research Section
R & T, AES HQ.

– A. L. Bealby

The following transgers took place:

D. J. Bentley	– To:	W.O. Edmonton
	From:	DND – Lahr, Germany
D. Makowsky	– To:	Arctic W.C. Edmonton
	From:	METOC Centre, Halifax
J. B. Merrick	– To:	Arctic E.C., Edmonton
	From:	AES Headquarters
J. R. Miller	– To:	AES HQs (AES Bilingualism Co-ordinator)
	From:	W.O. Montreal
T. F. Mullane	– To:	Ice Forecasting Central, Ottawa
	From:	CFB Uplands, Ottawa
M. J. Newark	– To:	W.O. Malton
	From:	AES HQs
M. N. Parker	– To:	W.O. Edmonton
	From:	Arctic W.C., Edmonton
F. J. Unrau	– To:	CFB, Edmonton
	From:	Arctic W.C., Edmonton
G. E. Wells	– To:	Arctic W.C., Edmonton
	From:	CFB, Edmonton
W. D. Wyllie	– To:	SS Unit, Ontario Regional HQs
	From:	W.O. Malton

Certification – D.P. McIntyre

The Board for Certified Consulting Meteorologists of the American Meteorological Society has designated Donald P. McIntyre as a Certified Consulting Meteorologist. The formal investiture will take place in New Orleans in January 1972.

RETIREMENT OF MR. J.R. FOWLER FROM THE METEOROLOGICAL SERVICE OF CANADA

A dinner was held in the cafeteria of the Atmospheric Environment Service Headquarters on the evening of November 15, 1971; to honour Mr. J.R. (Jim) Fowler on the occasion of his retirement from the Meteorological Service of Canada. The Master of Ceremonies was Mr. R.E. Vockeroth, Superintendent Instrument Research & Development and guest speakers were Mr. J.R.H. Noble, ADM, A.E.S., Mr. H.H. Bindon, Mr. J.S. Dickson and Mr. S. Bane.

Jim entered the Meteorological Service in September 1940 and served at Liverpool, N.S., Moncton, N.B., Charlottetown, P.E.I., Suffield, Alta. and Meteorological Headquarters in Toronto. During his period of service at Meteorological Headquarters Jim was working in the area of meteorological instrumentation. Apropos of this he was presented, at the dinner, with a barograph, appropriately inscribed, and two oil paintings.

TRIVIA

A Wee Wiggle Waggle Can Wriggle Up a Storm –(by Gary Lautens)

I envy academics.

Take Prof. R. List at the University of Toronto.

He's a weather expert and very big on clouds.

In fact, he was in Moscow recently delivering a paper to the Cloud Formation and Dynamics session of the XV Congress of the International Union of Geodesy and Geophysics.

And he also chaired two sessions on "hail suppression" in Canberra.

So far – nothing.

But listen to the next part.

According to the University of Toronto Bulletin, staff notes:

"On the way back, Prof. List studied the technical and choreographic feasibility of improving the efficiency of the rain dances of the North American Indians by including features of the Tahitian and other Polynesian hulas."

In other words, Prof. List stopped in Tahiti and saw a girlie show.

Isn't that terrific?

If you or I came home and reported watching some native gal wiggle her hips, we'd get slugged.

The good professor says he's been studying "the technical and choreographic feasibility, etc., etc.," – and he gets a write-up in a scholarly journal.

Not only that, Prof. List advises, "another field trip to the South Pacific may be necessary to arrive at conclusive answers."

I'd like to volunteer for the job.

This is the kind of research I could really dig my teeth into.

All I'll need is a plane ticket, hotel reservations, a front row seat, and a cold cloth for my forehead.

Frankly, I'd have offered my services earlier but I didn't realize North American Indians were interested in picking up rain dance tips from dusky maidens in faroff Polynesia.

Look. I've got two eyes, sweaty palms, and a drip-dry suit.

What more do you need to study a rain dance at close hand?

Perhaps Prof. List will give me a little advice.

Which part of her body does a girl shake when she wants a cloudburst, and what does she wiggle if she's only interested in a little thunder?

Should I pack a lightning rod?

Never mind the danger.

If Pasteur was willing to sniff germs for science, the least I can do is watch a sensuous doll dance up a storm, even if it means going to Tahiti.

Our Oldest Employee – by R. G. Stark

A recent survey on the age that employees expect to retire turned up this information in one reply:

Age expect to retire	1985
Expected year of retirement	1980

Which gives the year of birth as 5 BC.

Noted on a recommendation for write-off:

"Overboot, flying, size 9 worn since 1968 by J. Z. Smith"

Fancy wearing these all this time, it must have been tough in bed.