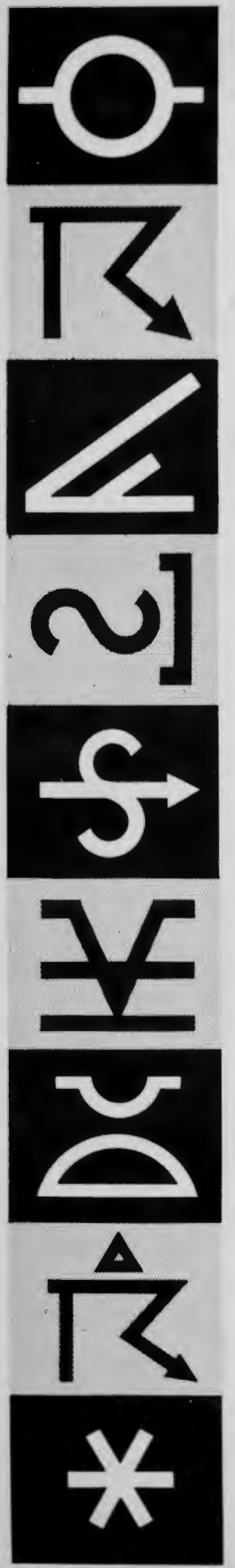

ZEPHYR

FEBRUARY 1973 FÉVRIER

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1972: A COLD YEAR

Morley Thomas

Weather reporting stations throughout the length and breadth of Canada reported colder than normal conditions during 1972. The greatest departures from normal occurred in the eastern sub-Arctic, where stations such as Fort Chimo, Que., Frobisher Bay, Coral Harbour, and Hall Beach, N.W.T., each reported annual temperatures an abnormal 7 degrees below normal. Furthermore, sub-normal temperature conditions were reported every month of the year throughout that Eastern Arctic area.

All Canada was Cold

Normal values of mean daily temperature on an annual basis in Canada range from about 50° in the Vancouver-Victoria area of British Columbia through the 30's across the southern prairies, the 40's in southern Ontario, Quebec, and the southern portions of the Atlantic Provinces, to values less than zero in the high Arctic. The 1972 annual temperature values were slightly below normal in southern British Columbia, 2 to 4 degrees below across the prairies, and 2 to 5 degrees below in southeastern Canada. In a vast area of the Arctic and sub-Arctic Canada including Labrador, northern Quebec, and the southeastern portion of the Northwest Territories, mean daily temperatures for the year were a record breaking 5 to 7 degrees below normal.

A Rare Year

The weather in a vast country such as Canada is so varied, that there is usually a balance, over the year, between areas with slightly below normal and areas with slightly above normal temperatures. How unusual was the nationwide colder than normal situation in 1972? An inspection of Canadian climatic data over the past fifty years fails to reveal another year when all departures from normal temperature were either above or below throughout the entire country. Other unusual years in recent decades were the almost nationwide warm years of 1953 and 1931, and the cold years of 1956, 1950, 1936, and 1933, but in not one of these was the entire country either warmer or colder than normal. For convenience in this study "normal" values were based on the 30 year period from 1941 to 1970.

Coldest on Record

In the large northeastern area of Canada where 1972 was the coldest year on record, meteorological records are available since the 1930's at some stations, and since the 1940's at others. Thus, it would seem that 1972 was the coldest year that has occurred in that area for perhaps the past forty or more years. Outside the Eastern Arctic several airport stations in the southern Yukon and in southern Ontario and Quebec, where observations began about 1940, also reported that 1972 was the coldest year on record. This was not the case at most stations in those areas, however, as in general the record negative anomalies were limited to the Eastern Arctic.

Persistent Cold

Following a warmer than normal October with temperatures generally 6 to 7 degrees above normal, a marked trend towards colder temperatures in the eastern Arctic began in November 1971. The winter of 1971-72 began with a vengence as mean temperatures were 6 or more degrees below normal in November, and more than 12 degrees below normal in December. In that part of the country monthly temperatures were below normal for every month of 1972 with the greatest departures from normal occurring in the general Hudson Strait area. The greatest monthly anomalies occurred in December 1972, when such stations as Fort Chimo and Schefferville in northern Quebec reported temperatures about 20 degrees below normal. While of course, the magnitude of the abnormal coldness varied from month to month, the departure from normal maps had an unusual appearance in six of the twelve months. In February, April and October practically the entire country reported below normal temperatures, while in January, September, and December only isolated regions, usually in Ontario, reported temperatures that were normal or slightly above. The persistent colder than normal conditions in northeastern Canada had not ended by the end of February 1973, as below normal conditions were again reported making a total of sixteen consecutive months with sub-normal temperatures in that area.

National Seasonal Patterns

On a seasonal basis practically all of northern and eastern Canada reported below normal temperatures in each of the four seasons. In the winter of 1971-72 negative anomalies of greater than 10 degrees were found in the eastern Arctic and sub-Arctic, and in the Yukon. Temperatures in the lower Great Lakes area of southern Ontario were slightly above normal. In spring, negative anomalies as great as 6 degrees were found in Labrador and the Yukon, while the three Prairie Provinces reported temperatures above normal. During the three summer months temperatures were again slightly above normal over most of the prairies, but again more than 4 degrees below normal in the eastern Arctic and sub-Arctic. Finally, during the three fall months of 1972 the entire country, with the exception of small areas of British Columbia, was bathed in sub-normal temperatures with negative anomalies as great as 6 degrees in the sub-Arctic west and north of Hudson Bay.

Precipitation Not Unusual

Throughout the country, annual precipitation totals in 1972 were not abnormally high or low. In the eastern Arctic and sub-Arctic, where temperatures were abnormally low, precipitation amounted to less than 75% of normal. Other dry areas with less than 75% of normal were extreme northern Ontario and the central portions of southern Manitoba and southern Saskatchewan. There were no areas reporting more than 150% of normal precipitation, although the northern part of the Prairie Provinces and areas in British Columbia and southeastern Canada reported in excess of 125%. One of these areas was southern Quebec and the lower Ottawa Valley of Ontario where particularly heavy rains occurred during the summer. Although not significant in annual precipitation totals, record heavy snowfalls were reported during the winter of 1971-72 in various parts of the country. Record falls for the snow season ending in the spring of 1972 occurred at such widely scattered stations as Whitehorse, Y.T. 82 inches, Banff, Alta. 179 inches, and Charlottetown, P.E.I. 212 inches.

Some Effects of the Cold

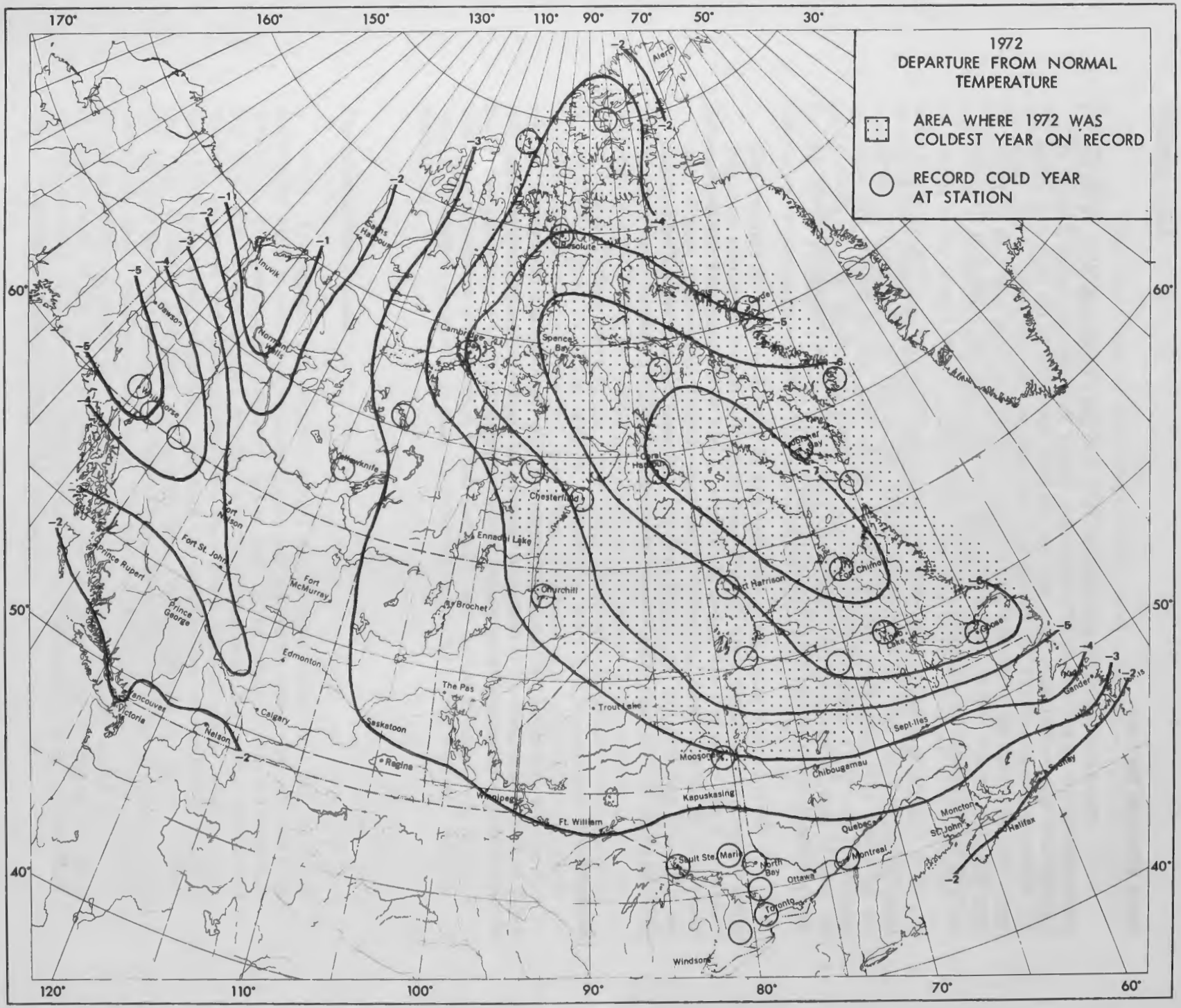
The below normal temperatures of 1972 have had a significant effect on the ice conditions off the eastern shores of the country. About ten times the normal number of icebergs were reported by early July, and this has been attributed to the unusually severe Far Northern winter of 1971-72. During the cool summer, the carry-over of old ice in Baffin Bay and Fox Basin was the greatest since such records were first kept in 1950. With the extraordinary cold December along the Labrador coast, the buildup of ice to the north of Newfoundland was extensive at the end of the year.

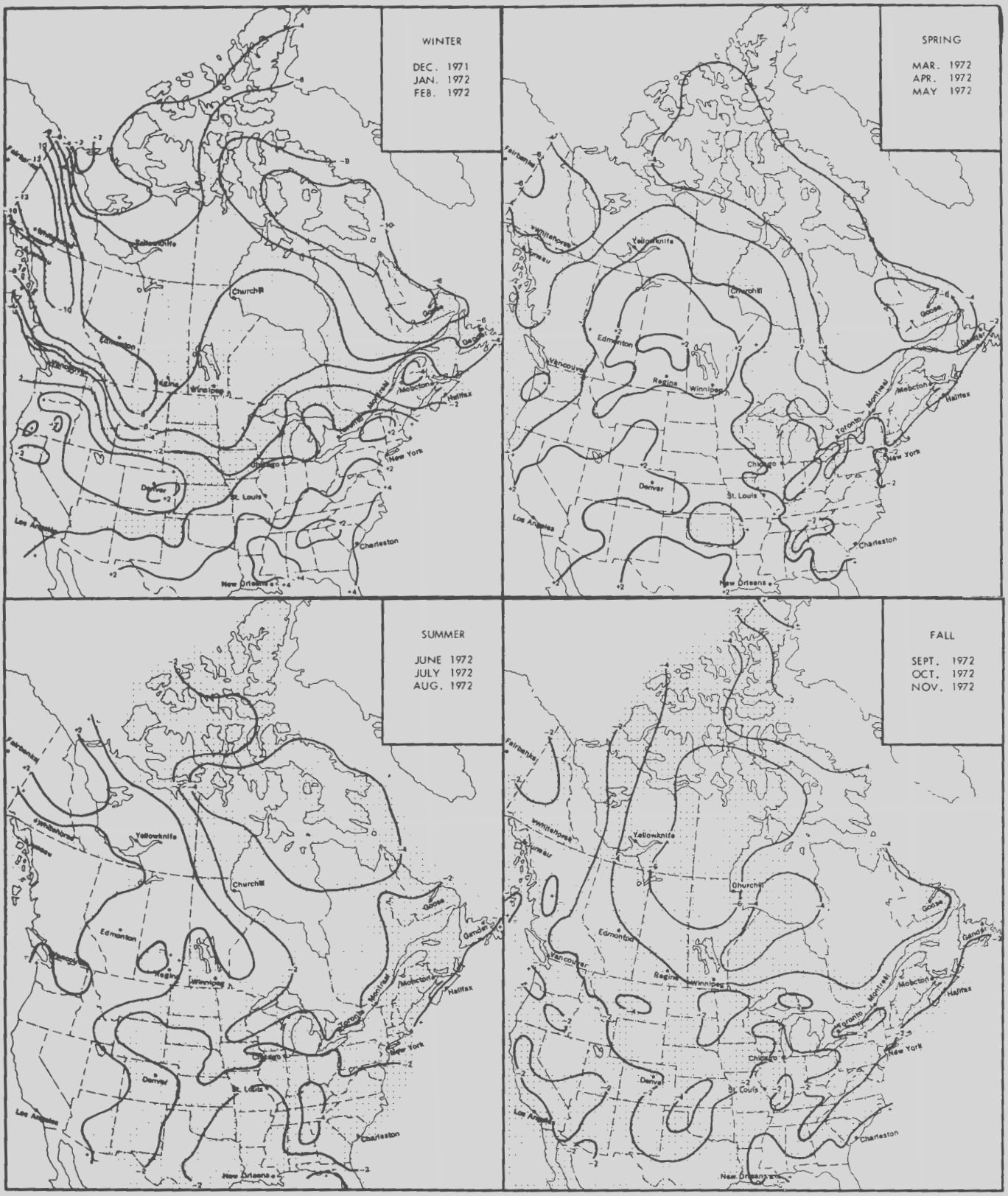
In the late summer of 1972 it was reported that the snow and blue geese failed to successfully nest in southwestern Baffin Island and on Southampton Island. On the other hand birds using nesting grounds on the west side of Hudson Bay were reported to have had a successful season. In both the spring and summer of 1972 areas to the west of Hudson Bay reported temperatures only slightly below normal in contrast to the significantly below normal conditions in the Baffin Island area.

In southern Canada spring was very slow in arriving in 1972. At Toronto mid winter temperatures persisted until the first week of April – in fact the airport minimum reading on April 7 was but one degree above zero – two weeks later than the previous record date for such a spring occurrence. There were marked cold spells in each of June and July, and the first half of August averaged 6 degrees below normal. The vacation season in southern Ontario and Quebec was considered "dismal" by many!

Summary

The year 1972 will be remembered not only for being the coldest year on record to date in large parts of northeastern Canada, but also for being a unique year when all stations in Canada reported below normal annual temperatures.

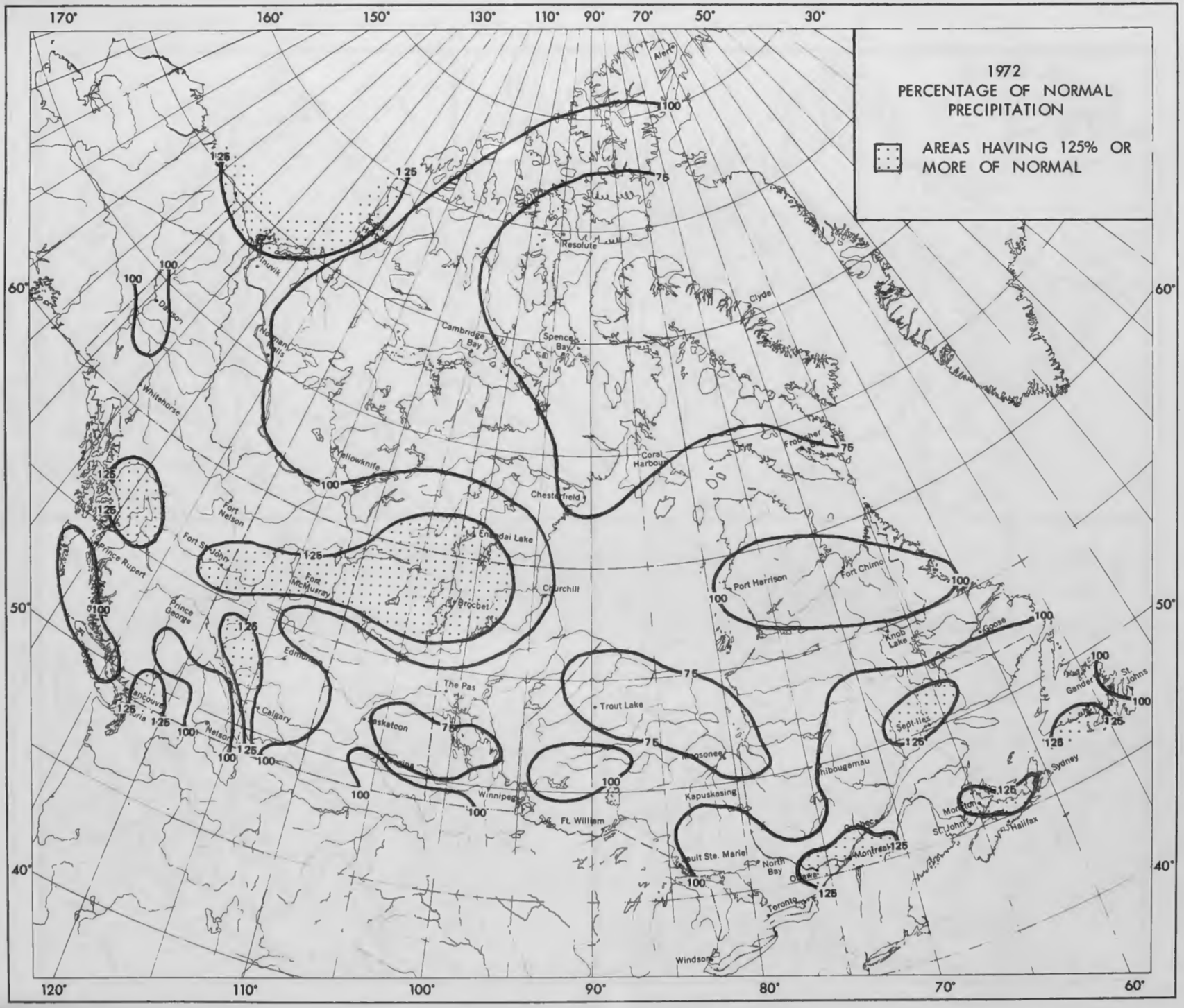

1972
DEPARTURE FROM NORMAL
TEMPERATURE
AREA WHERE 1972 WAS
COLDEST YEAR ON RECORD
RECORD COLD YEAR
AT STATION
170°
160°
150°
130°
110°
90°
70°
50°
30°
60°
50°
40°
120°
110°
100°
90°
80°
70°
60°
Alert
Resolute
Inuvik
Aklavik
Dawson
Norman Wells
Cambridge Bay
Spence Bay
Clyde
Baker Lake
Coral Harbour
Yellowknife
Chesterfield
Ennadai Lake
Fort Nelson
Fort St. John
Prince Rupert
Fort McMurray
Churchill
La Grande
Prince George
Edmonton
The Pas
Trout Lake
Vancouver
Victoria
Calgary
Saskatoon
Nelson
Regina
Winnipeg
Ft. William
Moosonee
Kapuskasing
Sept-Iles
Chibougamau
Quebec
Moncton
St. John's
Halifax
Stanley
Sault Ste. Marie
North Bay
Ottawa
Montreal
Toronto
Windsor



DEPARTURE FROM NORMAL TEMPERATURE (°F) SEASONS OF 1972

(U.S. portions from NOAA Weekly Weather and Crop Bulletin)

BELOW NORMAL


1972
PERCENTAGE OF NORMAL
PRECIPITATION
AREAS HAVING 125% OR
MORE OF NORMAL
170°
160°
150°
130°
110°
90°
70°
50°
30°
60°
50°
40°
120°
110°
100°
90°
80°
70°
60°
Alert
Resolute
Inuvik
Clyde
Cambridge Bay
Spence Bay
Whitehorse
Yellowknife
Coral Harbour
Chesterfield
Fort Nelson
Fort St. John
Prince Rupert
Fort McMurray
Churchill
Port Harrison
Fort Chimo
Prince George
Edmonton
The Pas
Trout Lake
Goose
Knob Lake
Gander
St. Johns
Vancouver
Victoria
Calgary
Saskatoon
Nelson
Winnipeg
Kapuskasing
Sept-Iles
Sydney
Moncton
St. John
Halifax
Ft. William
Sault Ste. Marie
North Bay
Ottawa
Montreal
Toronto
Windsor
100
75
125

WEATHER SATELLITE DATA USERS WORKSHOP

On February 26 and 27 AES HQ was host to approximately eighty scientists, engineers and other users of weather satellite data. The purpose of the Workshop was to allow the delegates to meet and exchange information on the interpretation and application of this type of data to a multitude of scientific fields. The discussions reflected the wide variety of uses to which this type of data could be applied, ranging from ice and snow to forestry, geographic and wildlife studies.

The Workshop opened with welcoming remarks by the Assistant Deputy Minister, Mr. J.R.H. Noble and Dr. J. Clodman followed to introduce the delegates to the main purposes of the meeting.

The first day of the conference was devoted to the Automatic Picture Transmission (APT) data. Mr. C.I. Taggart described the applications of these data in Canada while Mr. R.W. Popham (National Environmental Satellite Service NOAA) highlighted the applications in the United States and the rest of the world. Included was the use of satellite photography by Jacques Cousteau when the 'Calipso' was beset by ice in the Antarctic. These reviews were followed by an extensive discussion period lead by a panel consisting of Dr. McLain, Mr. Popham, Mr. Taggart and Mr. P. Aber. The late afternoon session discussion centred on the changeover from the vidicon to the scanning radiometer system and the technical aspects of receiving a more normal display of the scanning radiometer data.

In the evening an informal dinner was held at the Villa Nova Steak House and those attending were treated to an excellent after dinner address by Dr. Kenneth Hare on the changes in data requirement and availability brought on by advances in technology.

The second day was devoted to the new Very High Resolution Radiometer (VHRR) system now in operation on the NOAA 2 spacecraft. Dr. Paul McLain (NESS) lead off the discussion illustrating his remarks by slides that gave a startling demonstration of the power and salient features of the new system and particularly its potential applications when supplemented by the GOES spacecraft. The GOES is the first of the planned Stationary Meteorological Satellites (SMS) scheduled for launch in late 1973.

Mr. Charles Vermillion of NASA provided in understandable layman's terms, an excellent briefing on the technical details of a VHRR ground station. He indicated that the costs of the more sophisticated ground station and readout equipment was steadily decreasing and could be tailored both to the users requirements and quality of readout desired.

Dr. L. Morley, Director of the Canada Centre for Remote Sensing, covered the organization of CCRS and its ability to acquire and provide imagery from the (Earth Resources Technology Satellite) ERTS 1. He showed fascinating and beautiful composites of its output and covered some of the uses and potentials to which this data can be applied. Of importance were the "Quick Look" readouts which the Canadian ground station at Prince Albert has developed. This output is unique to Canada and of particular value where information in near real time is an essential requirement.

Dr. Paul McLain returned to lead a discussion of the application of VHRR that extended through to the afternoon coffee break.

The Workshop closed following a brief summary of the highlights by the Chairman, Mr. E.G. Morrissey.

L'INTÉRÊT POUR LA MÉTÉOROLOGIE EST AUSSI VIEUX QUE LE MONDE

par Monique Duval

"Quels que soient son époque, et son pays, l'être humain ne peut se dissocier du temps . . . Toute sa vie est, pour ainsi dire, accrochée à cet élément de base. On ne se surprend donc pas, en consultant les archives ou en étudiant l'Histoire, de voir que l'hiver, l'été, le froid, la chaleur, le vent, la pluie ont joué et continuent à jouer un rôle prépondérant dans l'existence de tous les peuples."

M. Jacques Bureau, météorologiste à l'aéroport de Québec, faisait ces réflexions en prenant connaissance d'un lot de documents dont viennent de prendre possession les Archives nationales du Québec.

M. Jacques Bureau, météorologiste à l'aéroport de Québec, a beaucoup d'intérêt à consulter les climatogrammes de George Thompson, propriété des Archives nationales du Québec.

(Photo Roland Marcoux)

Ces dernières, déjà dépositaires d'un fonds de documents de James Thompson, père (1732-1830) de ses trois fils James, John et William, respectivement intendant dans l'armée anglaise (1798), juge à la Cour supérieure du district de Gaspé et assistant

commissaire général, viennent d'ajouter à cette collection le fonds de documents de George Thompson, frère des trois autres. C'est un ingénieur qui retient particulièrement notre attention, aujourd'hui, pour avoir compilé, dans un livre, des climatogrammes relevés entre 1863 et 1870.

Ainsi, est-il possible à M. Bureau de faire des comparaisons entre les degrés enregistrés à cette époque et ceux d'aujourd'hui. Avant d'en tirer une conclusion, il nous donne quelques exemples: En janvier 1865, la température la plus élevée était de 34 degrés: en janvier 1973, elle fut de 40. La journée la plus froide du mois de janvier 1865 a connu 3 degrés sous zéro tandis qu'en 1973, ce fut 22 sous zéro.

Autres exemples: en 1877, pendant l'hiver, il est tombé 140 pouces de neige; 160 pouces en 1928; 167 pouces en 1942; 114 pouces cette année et l'hiver est loin d'être fini.

Situations extrêmes: entre 25 et 30 degrés sous zéro en 1874; entre 26 et 30 en 1935; entre 26 et 30 en 1943; entre 30 et 32 en 1957.

Du côté de l'été, à l'époque de M. Thompson, fils, le thermomètre se maintenait pour les jours très chauds entre 80 et 85. A l'aide de ses propres chiffres, M. Bureau nous dit qu'on a eu 90 degrés en 1938; 94 en 1947; 97 en 1953 et 94 en 1957.

Si le "temps qu'il fait" ou "qu'on croit qu'il fera" sert de point de départ pour alimenter une conversation et même pour prendre une décision concernant un voyage, une réception ou autres, il faut remarquer que le plus loin qu'on remonte dans l'Histoire de notre pays, il en est plus que fortement question.

Les récits de voyages de Cartier et de Champlain, les Relations des Jésuites, sans publier les batailles, partout et toujours, on retrouve la mention du temps et on sait l'importance des ventes, de l'hiver hâtif ou d'un printemps tardif pour l'arrivée et le départ des bateaux, source première de vie et de développement de la colonie aux 17 et 18e siècles.

"Le climat n'a pas changé mais il a subi des modifications apportées par l'Homme: constructions de toutes sortes, déboisements, création de lacs artificiels, édifications de barrages ou autres travaux de génie, recherches scientifiques et, fruit et conséquences de tout cela comme aussi des phénomènes sociologiques et physiques; la pollution" continue M. Bureau.

Ce qui a changé aussi, c'est non pas l'intérêt pour cette science, la climatologie puisque, depuis toujours, on l'a étudiée, mais les instruments pour ce faire. Alors qu'autrefois, on utilisait des moyens de fortune, aujourd'hui, on est muni d'appareils extrêmement perfectionnés et les jeunes peuvent étudier cette science et entrevoir d'en faire leur carrière.

Au Canada, c'est en 1873 que fut créé la première station météorologique conjointement à Québec et à Fort York à Toronto.

Cependant, avant Thompson, un savant du nom de Charles Smallwood enseigna la météorologie à McGill vers les années 1835 et établit un laboratoire météorologique à Saint-Martin (Isle Jésus) en 1841.

Nous trouvons dans le Dictionnaire biographique du Canada, sous la plume de J.S. Marshall, un intéressant chapitre sur le travail de ce scientifique qui peut être considéré comme le pionnier chez nous de cette science et qui est le fondateur de McGill Observatory à Montréal.

Pour M. Bureau le fonds de documents Thompson lui fait réaliser "que les météorologistes ne travaillent pas pour une chose passagère qu'il faut sans cesse étudier et suivre les développements et encourager, par tous les moyens, la lutte à la pollution qui constitue une véritable menace pour le genre humain".

AES IFYGL STATUS REPORT AS OF FEBRUARY 28, 1973

SHORELINE STATIONS

The six shoreline stations are still all operational and data processing is continuing.

RADAR/PRECIPITATION

There is a substantial gap in the radar data in February due to changing to a seven level CAPPI recorder. Processing of the rain gauge data continued and the distrometer data have been completely quality controlled.

RADIATION NETWORK

This network remained operational and data continued to be sent to Dr. Davies at McMaster University for processing.

ART PROGRAM

Three ART flights were carried out over Lake Ontario during the month.

X-3 EVAPORATION PANS

The three X-3 evaporation pans collected data through February. These data were forwarded to Mr. T. Nordenson of the Office of Hydrology, NOAA for processing.

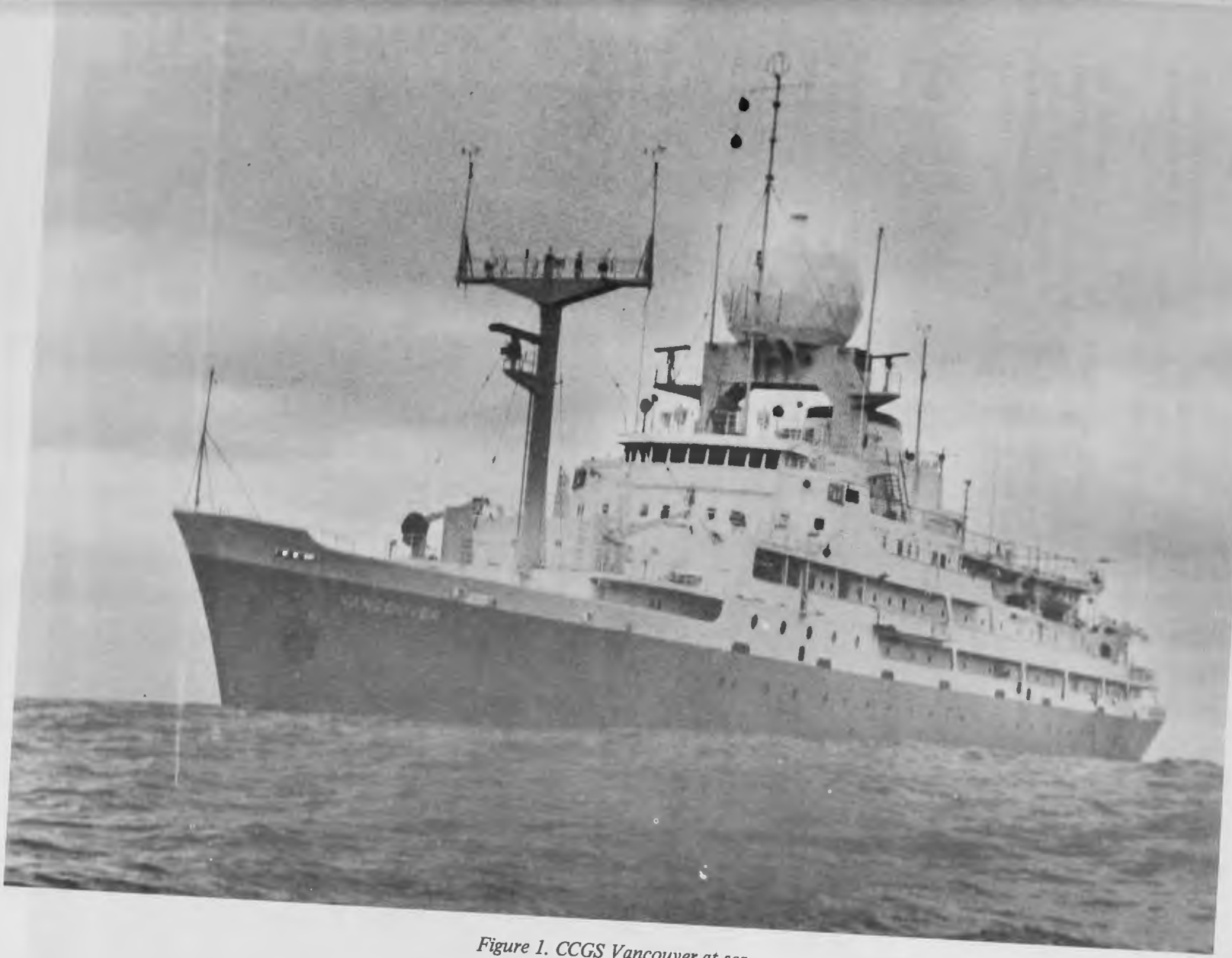


Figure 1. CCGS Vancouver at sea.

LIFE ON A WEATHER SHIP

What is life like on a Canadian Weather Ship? What do the crew members do to counteract the boredom of spending seven weeks on each patrol at one spot in the lonely North Pacific at 50N 145W (1200 miles due west of Vancouver)?

A full program of surface and upper air observations occupies almost all the time of the five meteorological officers on board. The Weather Ships also serve an important role in Search and Rescue, as a communications station and aid to air and marine navigation. Oceanographers measure water temperature and salinity and test the gaseous content of water samples to depths of 4000 metres (13,000 ft.). Plankton specimens are gathered for study.

Regular duties keep the Meteorological Officers busy for most of their daily 12-hour shifts (half a patrol on days, half on nights). But what of the off-duty hours?

Recreation facilities are available; bingo games, movies and bridge tournaments are held. A photo dark room, an amateur radio room and a wood working shop are all popular. A good supply of reading material is on hand (send more if you have it to spare).

When the rough seas of the North East Pacific calm down, fishing is a popular activity. Salmon can be caught for nine months of the year and, when the water is too warm for salmon in late summer and early fall, pomfret are abundant.

Meteorological Officer John Lozanski's interest in fishing has led him to a new and exciting hobby. He catches specimens of rare fish for the Vancouver Aquarium.

The Vancouver Aquarium is world famous as the first to exhibit a killer whale; it contains the world's largest collections of invertebrates and of northern Pacific fish; it is one of two aquariums in the world to exhibit sea otters and one of three showing the Beluga whale (the white whale of circumpolar waters).

John Lozanski is not the first member of Canada's Weather Ship staff to contribute to the aquarium's collection of rare fish. In 1958, a member of the Stonetown's crew brought in a fish that defied classification – this "mystery fish" was finally identified two years later by a Russian scientist as being a "skilfish" – a rare variety that can grow to 250 lbs. Mr. Lozanski and other members of the crews of the "Vancouver" and "Quadra" have supplied several skilfish in the past two years, much to the delight of aquarium curator Gil Hewlett. Other unusual varieties include boarfish, lantern fish and larval fish. A recent after-dark plankton tow produced an abundance of octupus-like creatures, one centimetre long with eight small tentacles of half a body length.

Mr. Lozanski reports that the biggest problem in assisting the aquarium is in keeping specimens alive during the long patrol and return to port. With the help of the aquarium, he is planning to obtain larger and better equipped tanks so that he will be able to "bring 'em back alive". An interesting hobby; and a valuable contribution to our knowledge of marine life in the North Pacific is being made by the staff and crews of Canada's Weather Ships.

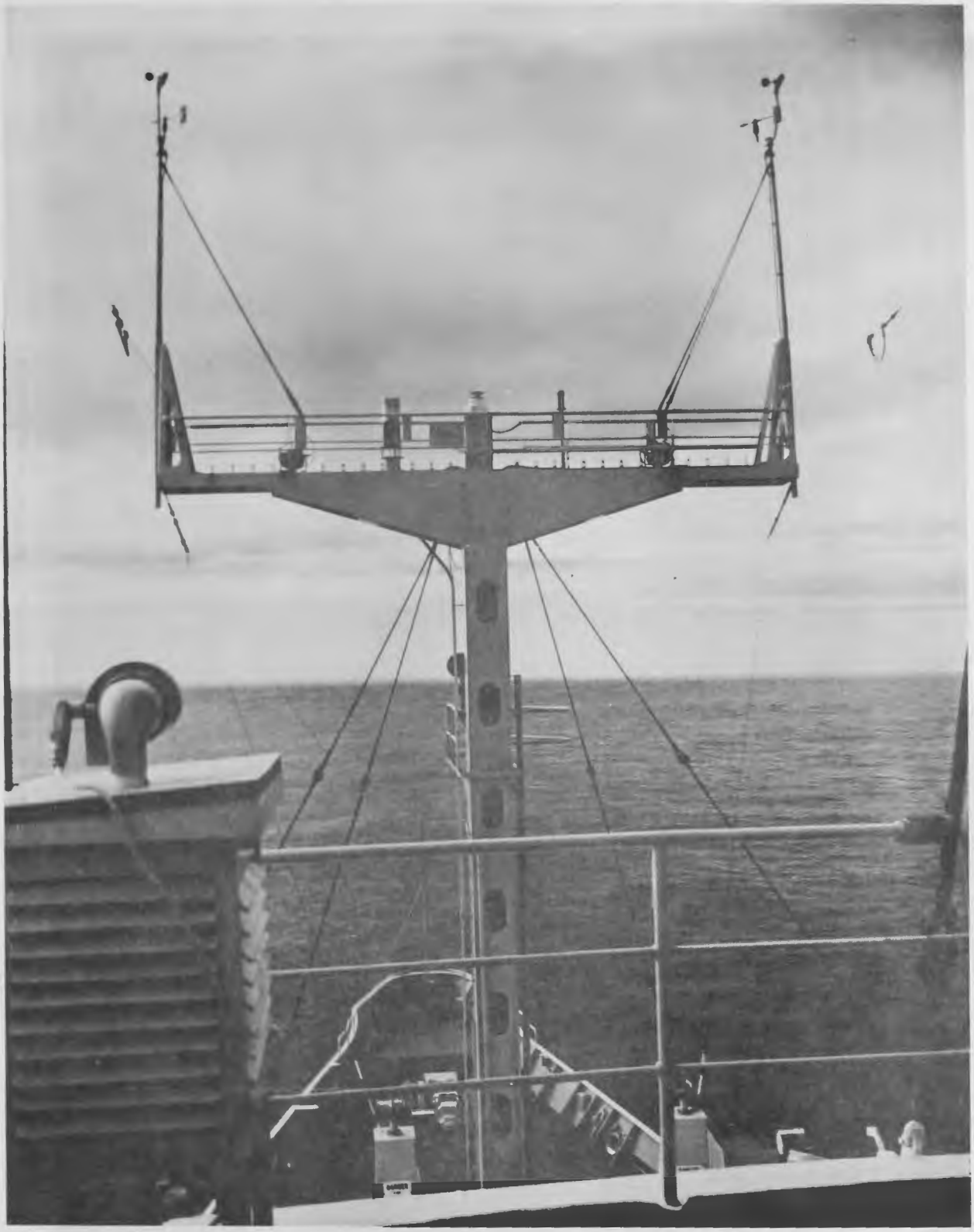


Figure 2. Some of the Met equipment on board the CCGS Vancouver.

Figure 3. Launching the radiosonde balloon for an upper air observation.

Figure 4. Storm – 40 ft. wave rolls by.

Photographs courtesy John Lozanski
Radiosonde operator Weathership, Station "PAPA"

WORKSHOP ON AEROBIOLOGY

The Atmospheric Environment Service is sponsoring a Workshop in Aerobiology to be held April 26, 27, 1973 at the Toronto Headquarters.

The World Meteorological Organization is organizing a global network of regional and baseline air chemistry monitoring stations, and Canada has agreed to establish 7 regional and 3 baseline stations.

As a result of the U.N. Stockholm Conference, an Environmental Governing Council has been established with Mr. Maurice Strong as Executive Director. One of the priorities of this Council is the establishment of Earthwatch, a global monitoring system for biological as well as for physical indicators of the state of the global environment. As yet, however, there has been no consensus on the nature of the biological monitoring program.

Thus, to provide a Canadian scientific input through appropriate channels to the U.N. Environmental Governing Council, and to examine the Canadian WMO monitoring network in the light of the requirements of the Canadian and international biological community this workshop has been planned.

D.. R.E. Munn, E.I. Mukammal and D.K. Smith of the AES are the organizing committee for this workshop. It will determine the need for a world-wide aerobiology monitoring program (aerobiology) is defined here in its very broadest terms to include pollen, bacteria, insects, birds, insecticides and fertilizers), and, if it is found that a need exists, will recommend a monitoring program (substances, frequency of measurements, spatial distribution of measurements).

Attendance at this workshop will be by invitation only as it is restricted to 24 members.

MA COURSE OF 49 REUNION

The six members of the University of Toronto MA in Meteorology Class 1948-49 still working for AES had a reunion recently, when all were at AES, H.Q.

Roy Lee, Morley Thomas and Bill Clink have worked at H.Q. for many years. Bob Stark and Herb Wahl are on temporary assignments and Hugh Fraser was in for the RSGWS meeting.

Another member of the class Page Knight of CAO, retired last year. Not a bad record of eleven who graduated, seven stayed with AES for 24 years.

DES ÉTUDIANTS DE SIXIEME ANNEE SE TRANSFORMENT EN MÉTÉOROLOGISTES

Le Droit

Baromètre – instrument servant à faire connaître la pression atmosphérique.

Aémomètre – instrument pour mesurer la vélocité du vent.

Hygromètre – instrument pour mesurer le degré d'humidité dans l'air.

Boussole – un cadran avec une aiguille aimantée qui nous oriente vers les points cardinaux.

Thermomètre – instrument qui fait connaître la chaleur et le froid (ça gèle à 32 degrés).

Il y en a d'autres qui sont trop compliqués pour nous.

Nous avons cherché dans plusieurs livres et encyclopédies. Ils parlaient aussi de nuages. Chaque sorte annonce un différent temps. Les cumulus sont de gros nuages blancs ressemblant à des paquets de ouate. Ils prédisent le beau temps. Le nimbus prend la forme du cumulus mais il est noir. Il apporte des orages. Le stratus est un nuage plat qui couvre le ciel jusqu'à l'horizon et qui annonce ordinairement de la pluie. Quand ce nuage est bas, on a de la brume. Les cirrus sont des petits nuages fins très hauts dans le ciel. Ils sont formés de cristaux de glace plutôt que de gouttes de pluie.

Les débuts de nos recherches n'ont pas été sans difficulté. Notre institutrice nous a d'abord demandé si nous connaissions le travail des météorologistes. Nous savions qu'ils prédisent le temps qu'il fera, c'est important pour que nous sachions comment nous habiller.

Tout le monde connaissait le thermomètre et ensemble, nous avons trouvé d'autres mots difficiles. On a pris conscience qu'il fallait faire des recherches au Centre de ressources pour trouver les termes fréquemment employés dans cette profession. Voici quelques découvertes:

Météo – une science qui décrit le temps.

Pluviomètre – instrument servant à mesurer la quantité de pluie tombée en un certain temps.

Nous avons parlé de nos découvertes et attendions une surprise. Lorsqu'on a reçu une grosse boîte d'instruments, on était intrigué. On sait leur nom et leur utilité mais on ne savait pas comment les utiliser. Il fallait le découvrir par l'expérience. Nous sommes sortis, toute la classe, pour les essayer à l'extérieur. Une petite bille se promenait dans l'anémomètre. Quand il ventait fort la bille montait jusqu'à trente mille à l'heure. Il ventait plus fort sur le banc de neige. A l'ombre et au soleil, la température n'était pas pareille. Il faisait plus froid au vent et moins froid à côté de l'école. La boussole nous disait que le vent venait entre le nord et l'est. Ça s'appelle le nord-est. Nous avons échangé nos instruments pour donner une chance à tous. Nous n'avons pu y demeurer longtemps parce qu'il faisait très froid.

Nous voulions comparer ce que nous découvrions chaque jour. Comment faire? Quelqu'un eut la bonne idée de faire des graphiques. Sur du papier quadrillé, nous avons écrit les jours de la semaine sur les lignes verticales et les nombres sur les lignes horizontales. Il fallait un graphique différent pour chaque mesure que nous voulions prendre. Nous en avons mis des petits dans nos cahiers et il y en avait des grands sur le mur. Chaque jour, on met un petit point et on le joint à celui mis la veille.

Avec cela, nous avons essayé de faire des prévisions. Croyez-vous que des jeunes peuvent le faire? Oui! Nous avions l'aide de quelques chartes. Chaque charte donnait une pression comme "30 et plus", ou "30 et moins". La charte dit si la pression est constante, si elle monte vite ou lentement, si elle descend vite ou lentement. Quand on sait ce que le baromètre nous dit, on sait quelle charte prendre. La charte donne aussi les vents sous la pression. Quand on trouve le bon point cardinal, on lit la prévision.

C'était plus difficile en fin de semaine, mais quelques élèves ont apporté les instruments à la maison et nous ont donné leur rapport le lundi.

Nous étions surpris que nos prévisions étaient semblables à celles des météorologistes à la radio et à la T.V. Ce qui est remarquable c'est que nous avons eu raison presque toutes les fois. Nous commençons à connaître nos nuages sans regarder sur les chartes.

Nous avons vu un problème. Si la pression change vite ou si le vent souffle dans une autre direction, comment faire une prévision? Ça doit être difficile pour les météorologues.

Nous avons vu dans des films qu'on fait des recherches beaucoup plus difficiles que les nôtres. Ils préparent des cartes que nous ne comprenons pas. Avant de faire une prévision pour Ottawa, ils examinent ce qui se passe loin de nous. Leurs instruments sont plus compliqués que ceux que nous avons étudiés. Les ballons-sonde et les satellites les aident.

Après nos recherches, nos observations, les films, nous nous intéressons plus à la météo à la radio, à la T.V. et dans les journaux. C'est plus intéressant quand on comprend et ce travail nous a appris beaucoup de choses.

RETIREMENT – C.H. SUTHERLAND

Presentation of retirement certificate to C.H. Sutherland.
Left to right: Mrs. Washburn, C.H. Sutherland, H.H. Bindon, Mrs. Sutherland, G.H. Washburn.

Over fifty friends and colleagues gathered at Magnetic Hill Inn, Moncton, on February 22, to mark the retirement of C.H. Sutherland, Regional Superintendent, Scientific Services, Atlantic Region.

Conn joined the Department of Transport in March 1941 after several years as a school principal in Nova Scotia. His early career was spent at the RCAF Aviation Forecast Office in Moncton. In 1948 he transferred to Gander where he was appointed Officer-in-Charge in 1955. During his 22 years in Newfoundland, Conn became very widely known and respected and was awarded the Canada Centennial Medal in 1967. He transferred to the Moncton Regional Office in 1970 as the first Scientific Services Officer and, shortly thereafter, was appointed Superintendent of the Unit.

A number of parting gifts were presented to Mr. and Mrs. Sutherland, ranging from the usual barometer to the birdwatcher's (sic) aid – binoculars.

SSO'S INTRODUCTORY COURSE IN AIR POLLUTION METEOROLOGY

The Air Quality Research Branch sponsored a course in Air Pollution Meteorology for the scientific support officers from the various regions across Canada. Two from each region attended the course plus several from AES Headquarters. There were in full-time attendance about 22 people, as well as some 10 part-time attendees.

The purpose of this course was to introduce the regional representatives to air pollution meteorology and to make them aware of the necessary procedures with regard to specialized studies and requests for assistance.

The opening day of the course provided information regarding the roles of the Atmospheric Environment Service (AES), the Environmental Protection Service (EPS), and the Provinces. Speakers from the AES, EPS, and the Ontario Air Management Branch discussed their specific roles and activities. This was the first such interrelating discussion of the various Services and Provincial responsibilities in air pollution at an operational level.

Following this introductory course there is expected to be a series of seminar type courses to create expertise in the various regions on the meteorological aspects of air pollution. A more advanced course is now being planned for those who attended the introductory course. In addition, courses for the technical support groups are also being planned.

ASSIMILATION OF SATELLITE VTPR DATA AT CMC

Toward the end of 1972, the U.S. National Oceanographic and Atmospheric Administration (NOAA) began transmission of global temperature and geopotential data processed from the vertical temperature profile radiometer (VTPR) instrument package mounted on the improved TIROS (television infra red observational satellite operational system ITOS-D) known as NOAA 2. The satellite data provides twice daily coverage of the ocean areas of the earth with a spacing comparable to that of continental radiosonde networks, although of somewhat higher error level. The CMC took immediate steps to incorporate this valuable information into the operational numerical forecast program.

Experiments had shown that economical methods of relocating these observations to standard 12-hr. synoptic periods resulted in an unacceptable loss in accuracy. The best operationally feasible approach was therefore a switch to a six-hour analysis cycle with no time relocation. The maximum time error in assimilation, 3 hours, does not seriously increase the observational error. The six-hourly cycle also permits the assimilation of 06Z and 18Z surface synoptic data which have previously been disregarded by the numerical model.

Assimilation of VTPR data centred on the main synoptic hours began in early February, with the implementation of the 6-hourly analysis cycle scheduled for later in the month. The additional computer time involved is about 40 minutes per day, but this should be justified by improved analyses and forecasts, especially over the Pacific.

VENTILATION INDEX FOR GREATER VANCOUVER

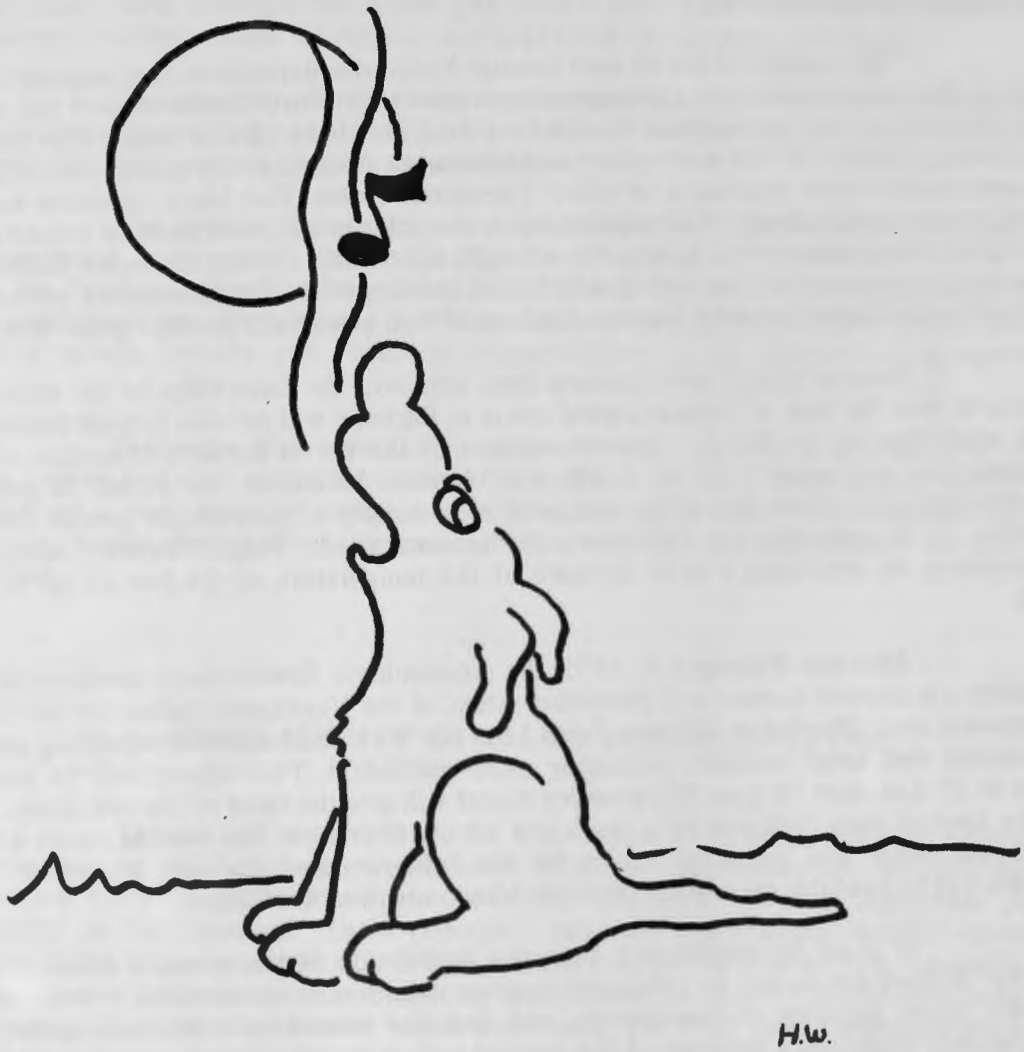
In order to assist those agencies and industries involved in air quality programs, the Atmospheric Environment Service proposes to issue, on request, a Ventilation Index for the Greater Vancouver Area.

The quality of the air over Greater Vancouver depends on two separate factors. One is the concentration of contaminants produced by source emissions and the other is the capacity of the atmosphere to dilute them. The latter factor might also be called ventilating capacity of the atmosphere and this can be determined by purely meteorological measurements which produce a so called *Ventilation Index*. This index combines low level wind speed with the depth of the mixing layer, the latter being determined by examining the change of temperature with height. For example light winds drifting through a shallow mixing layer (a situation of low index) will inhibit the dispersal of contaminants, while strong winds blowing through a deep layer (a situation of high index) will produce good ventilation.

Several recent developments have improved the knowledge of the atmosphere in depth over the city. A meteorological tower in Burnaby will provide data on temperature and wind flow up to 300 ft. Instrumentation on the top of Burnaby Mountain will add temperature and wind flow at 1,300 feet. Grouse Mountain Ski Resort is providing temperature data from the lodge and will soon supply a temperature profile from the gondola as it proceeds up and down the mountain side. Pacific Western Airlines are cooperating by providing a daily measure of the temperature of the free air up to 5,000 feet.

Effective February 1, 1973 the Atmospheric Environment Service will make available on request current and predicted values of the Ventilation Index for the Greater Vancouver area. The index will vary from 1 to 100 with small numbers signifying stagnant conditions and large numbers indicating good ventilation. Two reports will be prepared daily at 10 a.m. and 10 p.m. The morning report will give the value of the ventilation index at the time of issue followed by a prediction for the afternoon. The evening report will give a current value and predicted values for the following morning and afternoon. These reports will be available on request from the Vancouver Weather Office.

It must be emphasized that the Ventilation Index is not a measure of air quality. It does not in any way measure existing pollution concentrations. It will however provide those agencies of Government and Industry concerned with the regulation of atmospheric emissions a measure of the current and predicted dispersal capacity of the air over Greater Vancouver.


H.W.

PERSONNEL

The following transfers took place:

B.R. Ramsay	From: CFB Winnipeg To: 22 NRWC North Bay
E.C. Birch	From: 22 NRWC North Bay To: CSD AES HQ
A.D.J. O'Neill	From: AES HQ To: SSO Atlantic Region, Moncton
P.Y.T. Louie	From: CSD AES HQ To: Toronto Weather Office
R.J. Mills	From: Weather Office, Frobisher Bay To: Maritimes Weather Central, Halifax

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

72–AES–CC–160	Meteorology MT9 Officer-in-Charge Arctic Weather Central Edmonton D.B. Fraser
72–AES–CC–161	Meteorology MT9 Officer-in-Charge Atlantic Weather Central Halifax G.M. Shimizu
72–AES–CC–162	Meteorology MT9 Officer-in-Charge Weather Office/Weather Central Vancouver G.H. Muttitt
72–AES–CC–146	Meteorology MT5 Officer-in-Charge Resolute R. Winterer
72–AES–CC–276	Meteorology MT9 Chief, Air Quality Survey Division AES Headquarters D.K. Smith

72–AES–CC–319 Meteorology MT6
Base Meteorological Officer
CFB Summerside
L.T. Millar

72–AES–CC–191 Meteorology MT7
Scientific Support Officer
Atlantic Region
Moncton
P.C. Haering

APPOINTMENT

Mr. W.F. Ganong has been appointed Chief, Ice Division, Central Services Directorate, AES Headquarters.

He is presently Superintendent, Plans, Requirements and Training at DND Headquarters, Ottawa but will be taking up his new duties in the near future.

The following transfers for career development purposes were recommended:

1. B.F. Stenton from C.F.B. Esquimalt to WO Goose depart mid June arrive after leave mid July.
2. O.S. Lange from C.F.B. Moose Jaw to WO Gander depart July arrive after leave August.
3. F.S. Porter depart C.F.B. Summerside to WO Gander early July.
4. Miss C.E. Klaponski from C.F.B. Winnipeg to WO Malton early September.
5. B.W. Bowkett from C.F.B. Cold Lake to WO or AWC Edmonton early July.
6. V. Puss from C.F.B. Winnipeg to WO Vancouver late summer.
7. M. Shewel from WO Gander to AWC or WO Edmonton early August.
8. A. Leganchuk from WO Goose to AWC or WO Edmonton late September.
9. O. Braun from WO Goose to AWC or WO Edmonton August.
10. B.D. Lawson from C.F.B. Moose Jaw to WO Regina in September.
11. Miss M. Regan from C.F.B. Greenwood to C.F.B. Cold Lake early July.
12. D.F. Cameron from C.F.B. Bagotville to 22 NRWC North Bay mid June.
13. J.F. McKee from 22 NRWC North Bay to C.F.B. Edmonton late June.

Summer assignments for meteorologists now on Education Leave (Inventory B) were decided as follows:

1. S.R. Hollett	22 NRWC	North Bay
2. D.S. King	AES HQ	project 12 or 13
3. V.R. Swail	C.F.B.	Trenton
4. L.T. Winston	Montreal Region	

TRIVIA

AURORAL DISPLAY ON NOVEMBER 4, 1322 A.D.

Mathew of Westminster . . . on the fourth day of November at the first hour of the night in the Western parts beyond the city of London near the village of Uxbridge, there appeared in the air to many beholders, a wonderful sign. For a certain pile of fire of the size and shape of a small boat, pallid, but of a livid colour, rising up from the South and crossing the firmament with a slow and grave motion, set its course towards the North. Out of the front of this pile another very fervent fire of a red colour and of greater quantity, similar in shape to the former, burst forth immediately with bright beams and great speed, flying through the air, which were seen quickly meeting against each other by many beholders. And by turns frequently approaching with collisions and engaging in fearful combat, the blows of which conflict and the sounds of the crashes were heard at a distance from the beholders.

from "A Meteorological Chronology to A.D. 1450."

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"By the time you have money to burn, the fire has gone out."

* * *

"The present was once the future from which we expected so much in the past."

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