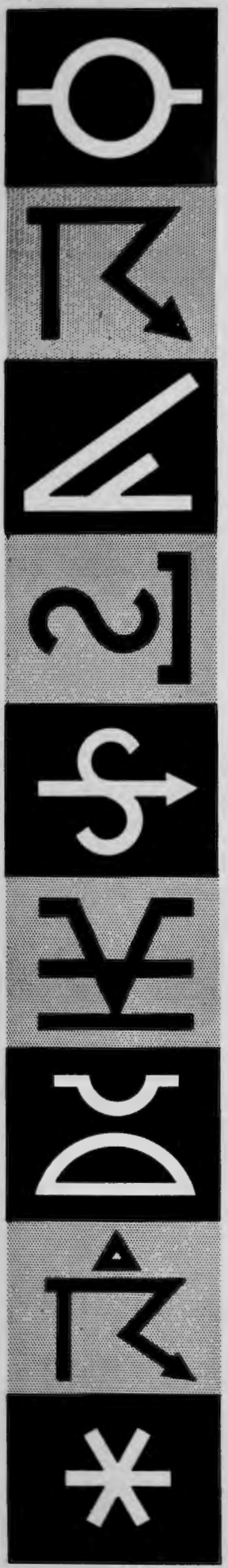

ZEPHYR

NOVEMBER 1974 NOVEMBRE

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STATIONS OCÉANIQUES DE L'ATLANTIQUE NORD

Le 18 novembre, l'Organisation météorologique mondiale (OMM) a annoncé qu'un accord de financement collectif des stations océaniques de l'Atlantique Nord (NAOS) avait été conclu. C'est à la suite d'une conférence qui s'est tenue à Genève sous les auspices de l'OMM et de l'Organisation de l'aviation civile internationale (OACI) que le nouvel accord a été mis au point.

Ce nouvel accord qui remplacera le présent accord conclu en 1948 sous les auspices de l'OACI, prendra effet au ler juillet 1975 et restera en vigueur jusqu'au 31 décembre 1981, avec prorogation annuelle facultative par la suite. Le nouvel accord prévoit l'exploitation de quatre stations météorologiques océaniques situées en des endroits stratégiques par rapport à l'Europe de l'Ouest.

Emplacements des stations océaniques	Exploitants
C 52° 45'N 35° 30'W	URSS
L 57°N 20°W	Royaume-Uni
M 66°N 02°E	Pays-Bas, Norvège, Suède
R 47°N 17°W	France

D'après le nouvel accord, les observations météorologiques (en surface et en altitude) et la transmission des résultats constituent les services principaux. Il y a également des services auxiliaires comme le relais des messages d'observations météorologiques transmis par les navires marchands, la transmission de messages de sécurité à d'autres navires et aux aéronefs, le lâcher, l'entretien et la récupération de bouées météorologiques et océanographiques ainsi que les observations océanographiques et autres observations scientifiques.

À l'origine, le réseau NAOS qui avait été établi pour assurer de bons services aux vols transatlantiques, comportait neuf stations océaniques. Les quatres stations réparties dans la partie ouest de l'Atlantique Nord étaient exploitées par les Etats-Unis et le Canada, le Canada étant responsable d'un navire météorologique, la station Baker (56°30' N, 51°W). Mais en pratique, les Etats-Unis s'étaient chargés de la responsabilité du Canada pour la station Baker tandis que le Canada assumait seul l'exploitation de la station Papa (50°N, 145°W) dans l'est du Pacifique en échange. Au cours du printemps 1973, les Etats-Unis et le Canada ont annoncé qu'ils se retiraient de l'accord NAOS à partir du 30 juin 1974. C'est à cette époque que le Canada signifiait également son intention de continuer à exploiter la station océanique Papa.

Le nouvel accord reflète l'évolution du rôle du réseau NAOS et il est bon que le programme se poursuive sous les auspices de l'OMM plutôt que sous les auspices de l'OACI. On prévoit que ni le Canada, ni les Etats-Unis ne signeront le nouvel accord.

NORTH ATLANTIC OCEAN STATIONS

The World Meteorological Organization (WMO) on November 18 announced the conclusion of a new Joint Financing Agreement on North Atlantic Ocean Stations (NAOS). The new Agreement resulted from a Geneva conference co-sponsored by WMO and the International Civil Aviation Organization (ICAO).

This new Agreement, which replaces the existing Agreement concluded in 1948 under ICAO auspices, becomes effective July 1, 1975 and will remain in force until December 31, 1981, with optional extensions thereafter on an annual basis. The new Agreement provides for the operation of four ocean weather stations, strategically located with respect to Western Europe.

Location of Ocean Station	Operators
C 52° 45'N 35° 30'W	USSR
L 57°N 20°W	United Kingdom
M 66°N 02°E	Netherlands, Norway, Sweden
R 47°N 17°W	France

According to the new Agreement, primary services are designated as the taking and transmission of meteorological (surface and upper air) observations. Ancillary services are also designated such as the transmission of meteorological observations from merchant ships, safety services to other ships and to aircraft, the release, servicing and recovery of meteorological and oceanographic buoys, and the making of oceanographic and other scientific observations.

The original NAOS network, primarily organized for the purpose of providing adequate air navigation facilities, consisted of nine ocean stations. The four stations, located in the western portion of the North Atlantic, were operated by the United States and Canada, with Canada responsible for one weathership for Station Baker (56°30'N, 51°W). In practice, however, United States took over Canadian responsibility for Station Baker in exchange for Canada assuming full operation of Station Papa (50°N, 145°W) in the eastern Pacific. In the spring of 1973, the United States and Canada served notice of withdrawal, effective June 30, 1974, from the NAOS Agreement. At the same time, Canada signified its intention to continue operation of Ocean Station Papa.

The new Agreement recognizes the changing role of the NAOS network, and it is appropriate that it will continue under WMO, rather than ICAO auspices. It is not expected that Canada and the United States will become signatories to the new Agreement.

THE ROBOTS ARE COMING TO AES

By D. S. McGeary

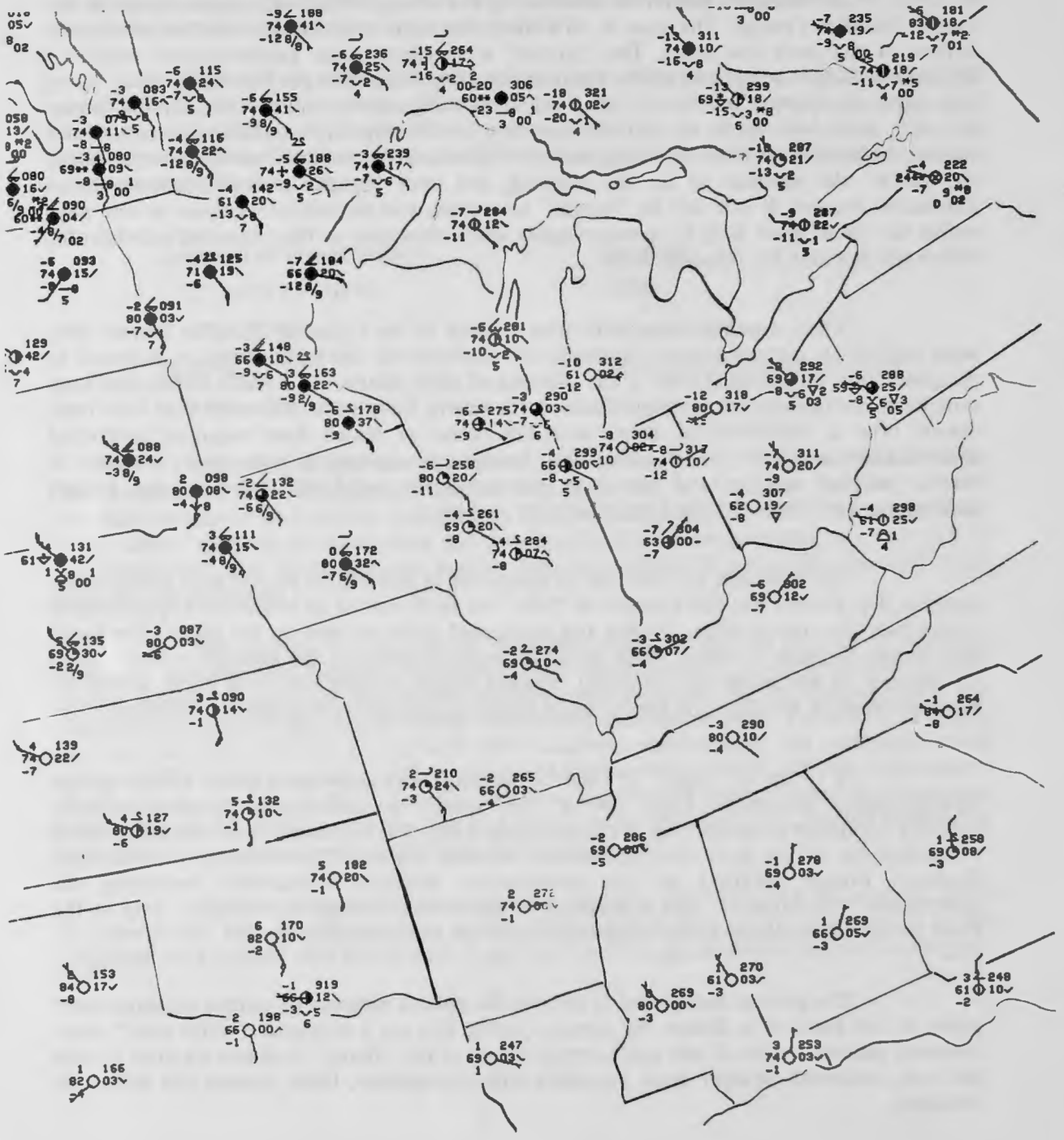
A "Robot" plotter is now taking over the plotting of weather maps in the Prairie Weather Central. The plan is to extend this kind of plotting to all the other main offices in the next few years. The "Robot" is an electrostatic printer/plotter used as a specialized output peripheral of the regional computer located in the Winnipeg office. Being a machine, the plotter is able to work 24-hours per day and to duplicate exactly the format for each output. It works at lightning speed on routine repetitive tasks and so can release human employees for more satisfying and more productive pursuits. One of those pursuits is to "teach" the machine to do the plotting, but once "taught", it will perform in an automatic manner. It can also be "taught" to process and display information in new ways which can be of great help to meteorologists and technicians in the expanded activities for which the machine has released them.

When weather maps were first plotted in the Canadian Weather Service they were plotted by meteorologists. Gradually the demands on the meteorologists increased to the point that they sought help in the plotting of their charts. As a result technicians have now been performing the plotting function for nearly forty years. However they have been drawn into a multitude of other activities some of which have required individual specialization and new job classifications. Indeed management is now under pressure to further expand services and yet faces the constraint of fixed man-year and budget allocations. The "Robots" can help solve such problems.

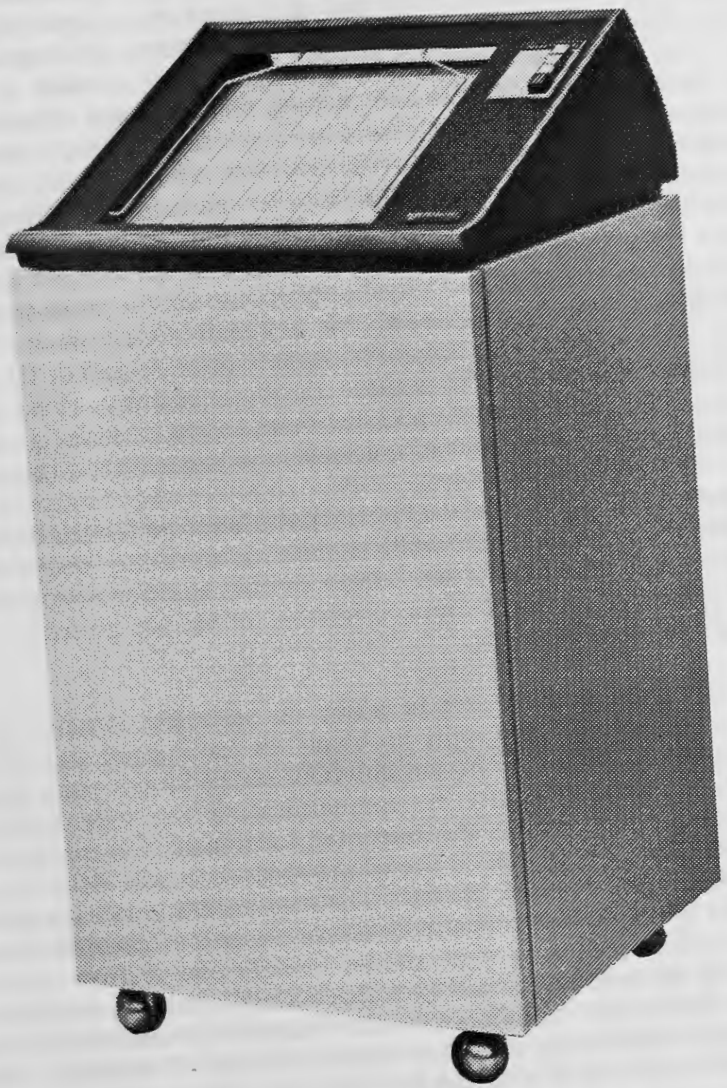
The principle and method of operation of the printer/plotter is of considerable interest. The plotter has 100 chargeable "nibs" for each inch of its width. As a special paper moves over the row of nibs, charged and uncharged spots are left on the paper. The paper then moves through a "toner" bath which deposits graphite on the charged points but not on the rest of the paper so the latent charged image is converted to a black and white representation. A fan dries the paper before it moves completely through the machine.

A 12 by 12 "array" or "matrix" is used to represent each of the desired special meteorological characters. Each dot of each matrix is individually programmable by complex computer programming. A chosen pattern can thus represent faithfully and in good resolution any of the more than 100 special weather symbols. The Meteorological Services Research Branch (MSRB) of the Atmospheric Research Directorate developed the appropriate "bit patterns" and a program to handle them. This was of great help to the Field Services Directorate in the implementing of the operational program.

The process being used is to have the plotter produce its output on translucent paper in the form of a flimsy. By superimposing this on a coloured "white print" map, coloured plotted copies of the weather map result. If the "flimsy" is drawn up prior to that last step, coloured weather maps complete with topography, lakes, isobars and fronts are obtained.



Surface Synoptic Data Versaplot.



Matrix Nonimpact Printer/Plotter.

SOME CHALLENGES FOR SCIENTISTS

*An abbreviated version of some notes prepared for SCOPE (Scientific Committee on the Problems of the Environment) by Dr. Martin Holgate, until recently, Chief Scientist of the United Kingdom, Department of the Environment.

The question of relevance of science to the future of mankind has been debated over a long period. There have been a number of attempts by scientific groups to determine the priorities, as they see them, in the application of scientific knowledge to world affairs. These endeavours have commonly taken the form of workshops, bringing together experts who have already achieved international standing in their own fields, in order that they can draft prescriptions for the world's ills and suggestions of ways to tackle them. The chief criticism of the results of these methods must be that they have generated catalogues and the reason they have done so is not hard to find. It is relatively simple to produce a list of potential problems. The more experts there are and the wider their range of expertise the more problems that will be catalogued. The difficulty comes in defining the inter-relationships between the problems and ranking them in some order of priority. The international community has been rather bad at this selective exercise because it inevitably involves the rejection of one person's expertise and the promotion of another's and the scientific community is reluctant to indulge in this process. Moreover, it involves a horizontal approach which is rare even in the scientific world. Science, like administration, is strongly sectoralised. The competence of an expert, say on the subject of the impact of industrial emissions on the chemical and physical processes of the stratosphere is restricted to his field and he is not generally regarded as able to debate the accuracy of judgment of a fellow specialist who is concerned with ocean-atmosphere interchanges or the significance of biochemical activity in human blood. The result is that these meetings of the world's experts can do no more than assemble what each specialist there judges to be the priority within his individual field and the more the number of specialists the larger will be the catalogue.

The assessment of priorities has in the past therefore tended to be done not by the scientific community (or at least not well) so much as by other groups which take the cataloguing of the scientific community and debate it from another standpoint, commonly that of political expediency, socio-economic priorities, or simply arbitrary waywardness. The result is clearly far from satisfactory.

There is however another area to which the scientific community has scarcely addressed itself. It is that even if the right problems are catalogued and their priority in scientific terms assessed in terms of the correct rank order of the risks posed by each, nonetheless there may be a difficulty in communicating the judgments to users in government. Government policy makers are concerned continually towards judging the right distribution of limited national resources in the whole socio-economic field. Such people are also organized in a highly sectoralised manner. The responsibility of each policy-maker is sharply defined on the principle that collectively the whole area of national endeavour must be covered but that within each area there should be only one decisive voice. Horizontal linkages are only slowly being incorporated into this system and the commonest horizontal linkage is in fact the short-term assemblage of the heads of all the vertical sectors into a committee at which some semblance of coordination is sought. Commonly, however, such committee operations are prone to a difficulty that arises because of the weight that is placed on the persuasiveness or eloquence of individuals rather than on the true value of the areas of concern brought forward by each. There is, however, an even greater problem in terms of the gap between such individuals and the scientific community which by and large is quite inexperienced in the kind of thought processes that policy-makers at the national

level have to go through. There is also a linguistic barrier between the two. The language of science and the processes of science tend to produce as output the scientific paper as a highly stylised (and commonly rather inefficient) way of communicating the results of scientific investigation and assessment. The format of the scientific paper has evolved in response to a selection which is entirely internal to the scientific community. The scientific paper is generally quite unsuited to assimilation by the policy-maker. To start with, it commonly deals with only a restricted field and is therefore only useful to those aware of the wider context within which it lies. To follow the ramifications of a reference system through to their ultimate terminal points would be an impossible task for any policy-maker. The scientific review, similarly, relies heavily on the assessment of copious literature to which reference is made and these reviews commonly deal with subject areas which are blocked out on scientific rather than policy grounds. The result is that the language of science is both largely unknown to administrative decision-takers and largely useless to them.

The result is that scientific information is only poorly incorporated in much national decision-taking and when a policy-maker requires scientific input, he commonly obtains it by initiating a new information assessment exercise because he cannot conveniently use the mass of knowledge already available. If the scientific community is to make a real contribution to world affairs, it must discipline itself to provide its output in a form which is usable by those on whom influence is sought. It is no good trying to retrain the decision-takers. The scientist has got to present his judgments in a form suitable for their use. This form will commonly be in terms of very brief statements unqualified by the usual scientific cautions, quantifying the likely error of a prediction but coming down fairly firmly on a first-approximation solution. The report may well advocate further conceptual or factual exploration of the field and the time scale for this can be allowed to be somewhat longer if a brief first-approximation report is generated. To do this, scientists will need to think in an entirely new way about the kind of information they assess and still more about their methods of analysis and expression of it. They may also have to maintain their data in a different form, for example, as a file which can be readily and rapidly consulted and used to generate alternative print-outs on a short time scale. Modern systems of data storage and retrieval are infinitely better than the scientific literature from this point of view and it may be questioned how long the scientific paper as we know it can in fact endure in the face of the mounting pressures on scientists to be relevant in their work.

NEW MARITIMES WEATHER OFFICE

One of the recommendations of "The Mathieson Report" on "The Canadian Weather Services Forecasting System" (February 15, 1973) was that the Atlantic Weather Central and Maritimes Weather Office be combined.

On September 10, 1974, the first phase of this report was implemented with the move of the Atlantic Weather Central from the Dominion Public Building in Halifax to the Bedford Tower in Bedford, N.S. On that day, the designator "Atlantic Weather Central" was retired and the new office was renamed the (new) Maritimes Weather Office.

On September 17, 1974, the forecast component of the (old) Maritimes Weather Office moved from the Terminal Building at the Halifax International Airport to the Bedford Tower, and joined the staff of the (new) Maritimes Weather Office.

The aviation presentation and observation functions of the old Maritimes Weather Office remained at the Halifax International Airport as a WO4.

The relocation and amalgamation of the AWC/MWO to Bedford, N.S. involved changing the place of work for seventy-one employees, and transfer of the specialized furniture and equipment. These moves were carried out without interruption of service.

The Bedford Tower is a new six-story office building located on the bank of the Sackville River in the Village of Bedford, N.S. The exact location is 44° 44'N 63° 40'W which is about six miles due north of the centre of the City of Halifax.

The (new) Maritimes Weather Office occupies the sixth floor of the Bedford Tower Building. The new quarters are of the "Open Landscape" design and are Air Conditioned, well lighted and newly furnished. The fifth floor of the Bedford Tower is occupied by the Atmospheric Environment Services Regional Office and one-half of the fourth floor is occupied by an Atmospheric Environment classroom and workshop/stores.

LE NOUVEAU BUREAU MÉTÉOROLOGIQUE DES MARITIMES

Le rapport Mathieson sur le système de prévision des Services météorologiques canadiens (15 février 1973) recommandait la fusion du Centre météorologique régional de l'Atlantique et du Bureau météorologique des Maritimes.

C'est le 10 septembre 1974 que la première partie de ce rapport s'est réalisée lorsque le Centre météorologique de l'Atlantique a déménagé de l'immeuble Dominion Public à Halifax à la tour de Bedford à Bedford en Nouvelle-Ecosse. Le même jour, l'indicatif "Centre météorologique régional" fut changé et le nouveau bureau fut nommé (nouveau) Bureau météorologique des Maritimes.

Le 17 septembre, le service des prévisions de l'ancien Bureau météorologique des Maritimes a déménagé de l'immeuble Terminal qui se trouve à l'aéroport international de Halifax à la tour de Bedford pour se joindre au personnel du (nouveau) Bureau météorologique des Maritimes.

Les services d'observation et de présentation aéronautiques de l'ancien Bureau météorologique des Maritimes sont restés à l'aéroport international de Halifax et constituent un WO4.

La fusion du Centre météorologique régional de l'Atlantique et du Bureau météorologique des Maritimes et la réinstallation à Bedford, en Nouvelle-Ecosse, a entraîné un déplacement de leur lieu de travail pour soixante et onze employés et le déménagement de l'ameublement et de l'équipement spécialisés ce qui s'est fait sans interruption dans les services.

La tour de Bedford est un nouvel immeuble à bureaux de six étages situé sur les rives de la rivière Sacville, dans le village de Bedford en Nouvelle-Ecosse. La tour est située très exactement à 44°44'N et 63°40'W, soit à environ six milles au nord du centre de la ville de Halifax.

Le (nouveau) Bureau météorologique des Maritimes occupe le sixième étage de la tour de Bedford. Les nouveaux locaux sont des bureaux paysage climatisés, bien éclairés et équipés de meubles de bureau neufs. C'est le bureau régional du Service de l'Environnement atmosphérique qui occupe le cinquième étage de la tour tandis que la salle de cours et l'atelier/magasin du Service de l'Environnement atmosphérique occupent la moitié du quatrième étage.

WHY METRIC?

By A. Mair

I finally memorized how many square feet there are in an acre, and along come a bunch of boat rockers that propose to change the whole system. Gee whiz, you just get a good thing going, and some reform group or another has a better idea. Now you take your average acre with it's forty-three thousand five hundred and sixty square feet in it, what could be simpler than that? After all, it's the sort of thing, once you've got it, it sort of stays with you. Now, it's not all that easy to drop into an average conversation, but you can't have everything. Up to now, we've been dealing with fairly straightforward methods of measurement. A yard was the distance between your outstretched thumb and the tip of your nose, as in shooting with a bow and arrow, and that's a pretty handy way of measuring things. And of course we all know what a foot is, and even though there may be a little difference between your foot and mine, when you get that close to it why fuss over details? What you really need, you know, is a portable basis of measurement, just like the Greeks had. Most of the time a fellow has access to a finger and by conventional standards a Greek finger was three quarters of an inch wide. A knuckle was *two* fingers, or an inch and half. Archimedes had two fingers of the Greek good stuff you see, and *that's* how come he leaped out of the bath tub and went running up the street shouting, "Eureka! " Eureka is Greek for "I'll have another of the same, bartender." A Greek foot was 6 fingers, which is 12.2 inches, so you can see that things haven't changed all that much from the time of ancient Greece down to present day Canada.

And it's nice to know that the ancient Hebrews were about the same build too. Because a Hebrew pace worked out to about 35.4 inches, which is about where it should be, and just try and work *that* into your metric system. A pace was actually two cubits, and a cubit was 17.7 inches and you just try and build yourself an ark without a cubit and see what kind of trouble you get into. And by jingo, what's good enough for Noah is good enough for me.

The pro-metric types are always pushing the meter, which is defined by a decision of the 11th General International Conference on Weights and Measures on October 18, 1960, as 1,650,763.73 wave lengths of the orange-red line of Krypton 86 under specified conditions, and it's just that kind of wishy-washy thinking that gets a fellow into trouble in this world. Two to three days in a row I don't ever trip over the orange-red line of Krypton 86 under specified conditions, but I can usually get my arm out straight enough to check the distance from my thumb to the end of my nose, and that's the kind of good old

scientific know-how that puts men on the moon, striped toothpaste in the tube and roller towels on the washroom walls. I'm with the little dirt farmer from Iowa who squinted with one eye and a raised thumb at the Empire State Building and said, "Got her pretty plumb, didn't they! "

And speaking of setting man on the moon, when the astronaut said "One small step for man, one giant step for mankind", it was a *foot* that he put on the surface of the moon, wasn't it? And there is absolutely no significance in the fact that he was going backwards at the time, either.

JOHN MOAKLER RETIRES

John J. F. Moakler retires officially in December 1974. In view of his two-score years of service, he very much deserves the title 'old-timer'; nevertheless, he's still young at heart and full of energy. He began life in Canada's tenth province, so it's no surprise that much of his career was spent in Newfoundland. It all began in July 1935 making weather observations at Memorial University. In 1939, John moved to Gander when P.D. McT-C was OIC. During some of the years of WW II, John worked in headquarters in climatology with Keith McLeod and A.J. Connor. In 1946, he returned briefly to Gander where he met Hugh Bindon. Some years were spent in Antigonish, N.S. acquiring a B.Sc. degree from St. Francis Xavier University, followed by a meteorologist course in Toronto in 1948. John worked as a forecaster in a number of military weather offices (St. Hubert, North Bay, Cold Lake and Baden Soellingen in W. Germany). In 1961, he returned to Gander, and in 1967 he joined Training Branch where he spent seven years instructing meteorologists-in-training. John had a short tour of duty in Instruments Branch prior to his retirement.

John is widely known in AES, not only by Maritimers and recent graduates of meteorologists' courses, but also by colleagues across Canada for his devotion and hard work as a Professional Institute steward. In recognition of these extra-curricular activities, on October 18 in Ottawa, President E.S. Eaton presented John with an award for his "active service to the Meteorology Group throughout his career, and for his contribution to the Group's publication, The Forecaster."

On November 29, about seventy friends attended a luncheon to honour John, and to present him with several gifts, including the Economic Atlas of Ontario inscribed by Mr. Reg Noble with a bookmark listing contributors, Roget's Thesaurus, a carpenter's level, a home "met" station, a hand calculator, etc. Larry Campbell, Hugh Bindon, Bob Vockeroth, Clarence Penner and John McBride spoke briefly about different aspects of John's long and colourful association in AES. When it was John's turn to speak, he compared his career as a meteorologist to his years as a youth.

John and Marilyn were married in 1952. In addition to family matters involved in raising daughters, Marilyn is a real estate agent and John is undertaking a contract assignment with AES in 1975. The Moaklers have just moved into a new home (62 Chasters Road, Brampton, Ont. L6V 2S5). We wish them many happy years in Brampton!


1935
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CAPE DORSET WEATHER STATION

The Cape Dorset Weather Station was established in the summer of 1970 under contract with the West Baffin Eskimo Co-operative to handle the meteorological tasks which had previously been performed by a Marine radio station on Nottingham Island. It is one of the three observing stations in the North staffed by native people, and the only station for which the contract is held by an Eskimo Co-operative. Since there are many Eskimo Co-operatives throughout the North, this is a matter of some pride to the West Baffin Board of Directors.

A new airstrip has just been completed at Cape Dorset, with the result that the weather station is now about 100 feet below airstrip level, making observations to some degree non-representative. Present plans call for the construction in 1976 of a new observing hut on the north side, west end, of the strip.

While the present station has provided and continues to provide useful services for aviation in the area, and is an important component of the national meteorological observing network, the meteorological records prepared at the station reflect continual station staffing problems. It is a matter of some disappointment that these records have proven to be of marginal value for archiving purposes. A possible solution to the staffing problem may be the proposed Inuit job training program at Frobisher Bay high school, presently under discussion, which may include training in the techniques of taking, reporting, and recording weather observations.

G. Salmon in front of the Cape Dorset Weather Station office – 12 September 1974. Mr. Salmon is an inspector with Quebec Region and has been associated with the Cape Dorset program since its inception.

Cape Dorset Weather Station office at extreme right; meteorological instrument compound at left – 12 September 1974.

Cape Dorset village from airstrip. Centre-left: ANIK ground station under construction, 12 September 1974.

One of the operational problems has been erratic radio communications with the station. This may become a problem of the past because an ANIK ground station is nearing completion at Cape Dorset, and it is expected to be in operation by January 1975. There is a good possibility that the AES may make use of the system for communicating the Cape Dorset weather observation.

VISITE ANNUELLE DU DIRECTEUR RÉGIONAL DU QUÉBEC AUX STATIONS ISOLÉES DU NORD DU 9 AU 13 SEPTEMBRE 1974

L'an dernier, notre tournée était aussi bien programmée qu'un voyage à la lune et nous avions pu visiter douze stations. Cette année nous craignions de ne pouvoir en faire autant, mais nous étions loin de prévoir toutes les difficultés qui nous attendaient.

Encore une fois, c'est le Service de l'environnement atmosphérique du Québec qui organisait ce voyage et en assumait les frais. Des représentants de plusieurs directions du ministère de l'Environnement et aussi du ministère des Transports y participaient.

Voici la liste de ces services et de leur représentant:

SPE-Montréal	J.J.O. Gravel	Chef des services techniques
Service canadien des Forêts-Québec	H. Leblanc	
MDT-Montréal	G.E. Aubut	Surveillant, Entretien des bâtiments
MDE-Québec	J. Angel	Agent de personnel
SEA, Direction centrale	H.B. Kruger	Chef, Division des systèmes d'observations
SEA-Sherbrooke	R. Franc	Chef de service Bureau météorologique
SEA-Frobisher Bay	E. Guimond	Chef de service Bureau météorologique
SEA-Bureau régional Montréal	J. Vanier	Surintendant régional des services d'observations
	J.Y. Lafontaine	Surveillant des services d'inspection
	A.B. Thistle	Surveillant des stations altitude
	G.B. Salmon	Inspecteur, surface

Dès le départ nous connaissons nos premières difficultés, puisque Nordair nous annonce un retard d'une heure. En réalité, nous devons attendre trois bonnes heures et demie avant le décollage de l'avion à 13 heures. Après une courte escale à Val-d'Or, nous atteignons Poste-de-la-Baleine à 16 h 15.

A notre arrivée, nous apprenons que le Twin Otter nolisé à notre intention ne peut se rendre à Inoucdjouac, car en plus du danger de givrage, des vents de côté de 40 milles à l'heure soufflent dans cette localité. A Poste-de-la-Baleine, l'observation en surface est assurée par le personnel de la Station aéradio maritime. Une fois la visite de ce poste terminée, les services du gouvernement provincial nous assurent le gîte et le couvert, grâce aux bons offices de M. Charles Saint-Onge, chef des télécommunications.

Mardi matin, nous sommes debout à 5 h 30, mais des vents forts retardent encore notre départ pour Inoucdjouac jusqu'à 9 h 45.

Sur la piste d'envol, nous rencontrons le surveillant régional du ministère des Affaires indiennes et du Nord qui s'oppose au déchargement d'une partie de la cargaison pour nous céder une place dans l'avion. La veille, le mauvais temps a empêché le départ de ces marchandises, et il estime que leur transport vient en priorité, même si nous avons retenu nos places depuis au moins un mois. Nous nous voyons déjà immobilisés à Poste-de-la-Baleine sans pouvoir réaliser notre beau programme, mais le surveillant finit par se rendre à nos arguments et nous nous envolons à destination d'Inoucdjouac.

Midi allait sonner, lorsque nous atterrissons. Accompagnés de membres du personnel, MM. Don Satkunas, chef des services météorologiques, et Gaston Morin, chef des télécommunications, sont venus nous accueillir. Nous avons droit à une visite complète du poste, où nous pouvons assister à une démonstration du groupe électrogène qui restaure automatiquement le courant en huit secondes lorsqu'une panne survient à la centrale. Le remplissage annuel du réservoir d'une capacité de 200,000 gallons d'eau se déroule justement ce jour-là. La pompe Wajax impressionne plusieurs d'entre nous. Deux fois la grosseur d'un poing, elle aspire l'eau 5500 pieds plus loin en amont de la rivière et à la moitié seulement de sa vitesse normale. Nous pouvons voir aussi la nouvelle génératrice de 250 kilowatts qui sera installée à la station électrique, pour fournir plus d'électricité au village. M. Jean Gravel, du Service de la protection de l'environnement, s'inquiète particulièrement d'un problème de pollution à la station et se propose de corriger la situation.

Le cuisinier, M. Jacques Boisvert, nous sert ensuite un excellent repas. Nous échangeons nos impressions pour conclure que la station météorologique d'Inoucdjouac est l'une des plus attrayantes du pays.

Nous quittons Inoucdjouac à 14 h 30, à destination de Cape Dorset avec escale prévue à Baie Déception pour faire le plein. A dix minutes de Povungnituk, nous frappons une ligne ininterrompue d'averses de neige. Nous découvrons alors que notre appareil est dépourvu de tout dispositif de dégivrage, ne serait-ce qu'un simple essuie-glace; ce n'est pas sans inquiétude que nous voyons le givre s'accumuler. Nous sommes donc contraints de faire demi-tour et de passer la nuit à Povungnituk. L'administrateur du ministère des Affaires indiennes et du Nord, M. Gérard Bélanger, s'occupe de nous loger. Le gérant du magasin de la Baie d'Hudson nous ouvre les portes de son établissement où nous nous procurons quelques boîtes de conserves dont certaines ne contiennent que quatre nouilles noyées dans beaucoup de liquide. Après le souper, nous parcourons le village et nous nous arrêtons au magasin coopératif des esquimaux qui renferme, en tout et pour tout, quatre sculptures.

Mercredi matin, nous sommes debout à 6 heures, mais à notre arrivée à la maison où devait loger l'équipage de notre avion, nous apprenons que ces messieurs ne s'y trouvent pas. Personne ne semble savoir où ils sont au juste. Nous frappons donc à la moitié des portes de Povungnituk, avant de les retrouver. Dans l'intervalle, des nuages de

convection ont commencé à se former et les averses de neige ont repris. Nous sommes à nouveau retardés, faute de pouvoir obtenir les prévisions de vol.

Partis de Povungnituk juste avant midi, nous réussissons à éviter les averses de neige jusqu'à Baie Déception. Les collines au sud de cette dernière localité nous donnent parfois l'impression de voler bien près du sol, jusqu'à temps que nous débouchions dans la vallée du Saglouc, que nous suivons jusqu'au détroit d'Hudson. Nous longeons ensuite la côte jusqu'à Baie Déception où nous atterrissons pour nous réapprovisionner de carburant et de café. Si ce n'était de l'absence de glace sur l'eau, on se croirait en janvier, à la vue de la neige au sol.

Deux heures plus tard nous partons pour Cape Dorset, mais après une quinzaine de minutes de vol le pilote apprend qu'il est impossible à un Skyvan de Nordair d'atterrir à Dorset; il doit donc diriger son appareil vers Frobisher où nous arrivons en fin d'après-midi. Tous se rendent au bureau météorologique et après souper, quelques membres de notre groupe visitent la station aérologique où se déroule une observation en altitude.

Malgré la rareté des arbres au nord de Poste-de-la-Baleine, M. Henri Leblanc du Service des forêts du Canada est captivé par le paysage environnant. Il scrute les brins d'herbe, les lichens et les mousses. Nous ne manquons pas de le taquiner en affirmant qu'il a pour mission dans cette tournée d'assurer la plantation d'arbres sur l'île de Baffin.

M. John Angel, du bureau du personnel du ministère de l'Environnement à Québec, visite l'Arctique pour la première fois. Il estime qu'il sera mieux en mesure dorénavant de régler les questions d'affectation dans le Grand Nord.

M. George Aubut, du ministère des Transports, inspecte tous les immeubles en vue de faire les réparations nécessaires.

Jeudi matin, nous tentons par deux fois de nous rendre à Clyde avec escale à Pangnirtung. Les deux fois, il nous faut revenir à Frobisher, faute de pouvoir contourner les nuages qui s'étendent du sol jusqu'à 12,000 pieds d'altitude à l'ouest du détroit de Cumberland. Nous décidons alors de nous rendre à Cape Dorset. Cinquante milles à l'ouest de Frobisher, les conditions sont excellentes même si nous nous trouvons presque au centre d'une dépression. Blotti au fond d'un fjord entre deux rangées de hautes collines, Cape Dorset est un village captivant et certes différents de ceux que nous connaissons. Nous visitons le bureau météorologique où le travail est exécuté à forfait, ainsi que le magasin coopératif des esquimaux où nous pouvons admirer de magnifiques sculptures en pierre à savon qui ne coûtent pas moins de $2000. Nous discutons avec le directeur adjoint de la possibilité de trouver de nouveaux observateurs météorologiques parmi la population locale, puis nous revenons à Frobisher juste à la tombée du jour. Nous sommes tous un peu tendus à la vue du givre qui recouvre progressivement l'appareil lorsque nous traversons la couche nuageuse pour atterrir. C'est un soupir de soulagement qui salue enfin la disparition des nuages à 1500 pieds d'altitude, car nous savions tous que des collines de 2500 à 3000 pieds nous entouraient.

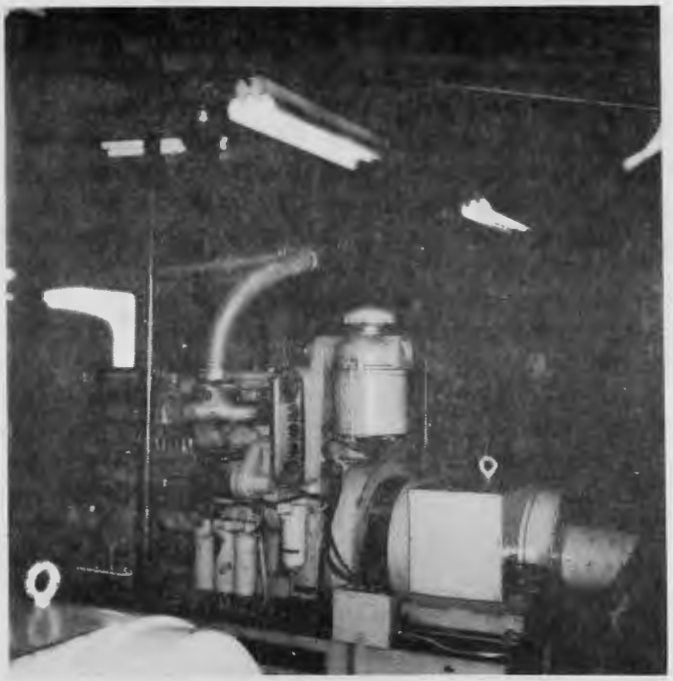
Comme la semaine touche à sa fin et que le temps est inclément, le voyage à Clyde est annulé. Vendredi matin, il fait très mauvais à Frobisher et les prévisions nous font croire qu'aucun Twin Otter ne quittera le sol pendant quelques jours. On nous retient donc des places sur un B 737 de Nordair à destination de Montréal. Le pilote du Twin Otter doit se rendre à Poste-de-la-Baleine, dès que le temps le permettra, car c'est là que devait se terminer notre vol.

Nous prenons place à bord de l'avion de Nordair à 10 h 30, mais toutes les dix minutes on nous annonce un retard pendant que l'équipage tente de faire démarrer le moteur de gauche. Apparemment, ce moteur partait tout seul, avant les manoeuvres de décollage. Enfin, nous nous envolons à 13 h 30. A notre arrivée à Fort Chimo, des vents de surface de 50 milles à l'heure ballottent notre B 737 dans tous les sens. A l'aérogare, nous sommes accueillis par M. Martin Bartczak, chef de service, et son personnel. Il nous dit ne pouvoir compter, en fin de semaine, que sur les services de deux observateurs, qui se préparent néanmoins à assurer bravement les observations en altitude et en surface. Un observateur est en congé de maladie et un autre s'apprête à partir pour cause de décès dans sa famille. Nous arrivons enfin à Montréal à 18 heures. Juste avant l'arrivée, nous constatons qu'il fait mauvais partout cette semaine, car notre appareil traverse une zone extrêmement turbulente.

Nul doute que cette semaine a été fertile en déceptions, même si ceux qui en étaient à leur première visite dans l'Arctique ont semblé apprécier énormément leur voyage. Nous aurions certes aimé nous rendre à Clyde. Il aurait été très intéressant aussi de pouvoir visiter la station de Border; son cuisinier, M. Juillard, n'aurait certainement pas manqué de se surpasser, car l'an dernier il nous avait servi un succulent repas qui a sûrement fait époque dans les annales de l'Arctique.

Même s'il eut été agréable de refaire l'itinéraire de l'an dernier, il n'en reste pas moins que le voyage de cette année était plus représentatif de la vie dans le Grand Nord. En effet, la loi Murphy semble régner dans cette contrée si bien que chaque fois qu'une anicroche quelconque est dans le domaine du possible, elle ne manque jamais de se produire.

L'heure du départ à Poste-de-la-Baleine.
Preparing for departure at Poste-de-la-Baleine.



M. Jean Lafontaine contemple le groupe électrogène à moteur diesel à Inoucdjouac.
Jean Lafontaine inspects the diesel electric plants at Inoucdjouac.

La salle de séjour du personnel à Inoucdjouac.
The staff house living-room at Inoucdjouac.

Le réservoir d'une capacité de 200,000 gallons d'eau à Inoucdjouac.
The 200,000 gallon water storage tank at Inoucdjouac.

M. Gerry Salmon fait ses emplettes à Povungnituk.
Gerry Salmon buys supper at Povungnituk.

Les instruments d'observation à Cape Dorset.
The instrument site at Cape Dorset.

Le bureau météorologique de Cape Dorset.
The weather office at Cape Dorset.

Notre groupe en marche vers la piste d'envol de Cape Dorset.
The group heads for the airstrip at Cape Dorset.

Paysage du sud de l'île Baffin.
Southern Baffin Island countryside.

THE QUEBEC REGIONAL DIRECTOR'S ANNUAL TOUR TO ISOLATED NORTHERN STATIONS SEPTEMBER 9-13, 1974

Following last year's tour to twelve stations which maintained a schedule comparable to an Apollo moon shot it was feared that we would not be so fortunate this year, however, little did we dream of the problems that we would encounter.

This year, as last year, the tour was organized and financed by the Atmospheric Environment Service, Quebec, but several branches of the Department of the Environment were represented, as was MOT. The various branches were represented by the following:

EPS-Montreal	J.J.O. Gravel	Chief of Technical Services
Canadian Forestry Service Quebec	H. Leblanc	
MOT-Montreal	G.E. Aubut	Supervisor-Building Maintenance
DOE-Quebec	J. Angel	Personnel Officer
AES Headquarters	H.B. Kruger	Chief-Observation Systems Division
AES Sherbrooke	R. Franc	OIC, Weather Office
AES Frobisher Bay	E. Guimond	OIC, Weather Office
AES Regional Office Montreal	J. Vanier	Regional Superintendent of Observation Services
	J.Y. Lafontaine	Supervisor of Inspection Services
	A.B. Thistle	Supervisor of Upper Air Stations
	G.B. Salmon	Surface Inspector

Our troubles began when we were informed by Nordair that our flight would be delayed for one hour. Three and a half hours later, we finally departed and following a short stop at Val d'Or arrived at Poste-de-la-Baleine at 4:15 PM.

Upon arrival we discovered that our chartered Survair Twin Otter could not proceed to Inoucdjouac due to icing and 40 MPH cross winds at Inoucdjouac. At Poste-de-la-Baleine the surface weather program is performed by the staff of the Marine Aeradio Station. Following a tour of the station, TSM Charles St-Onge made arrangements for meals and accommodation for us at the provincial government facilities.

We were up at 5:30 AM Tuesday morning but again strong winds delayed our departure to Inoucdjouac until 09:45 AM.

When we arrived at the airstrip to board the Twin Otter, we encountered the local DIAND district superintendent who refused to allow freight to be unloaded in order to accommodate our party. He had attempted to fly this freight north the day before but bad weather had prevented it. He felt that he had priority over us even though we had made arrangements for our charter at least a month before. We had visions of being stranded at Poste-de-la-Baleine and of course our schedule would be really shot. However he was finally persuaded to allow the aircraft to be unloaded and we departed for Inoucdjouac.

We arrived just before noon and were met by OIC Don Satkunas, TSM Gaston Morin and their respective staffs. A complete tour of the station was arranged which included a demonstration of the emergency power unit, which restores power automatically to the site in eight seconds, in the event of a power failure at the main power house. The annual filling of the 200,000 gallon water storage tank was in progress. We were impressed with the Wajax pump, twice the size of your fist, that can run at half speed, while pumping from a distance of 5500 feet up stream of the river. We also inspected a new 250 KW generator that will be installed in our power house, to provide additional power for the village. Jean Gravel of EPS was very interested in the station as a pollution source, and is making plans to correct the situation.

Cook Jacques Boisvert served an excellent lunch. The usual comments were heard, that Inoucdjouac is one of the most attractive meteorological stations in the country.

We departed Inoucdjouac at 2:30 PM for Cape Dorset with a planned fuel stop at Deception Bay. Ten minutes north of Povungnituk we ran into a solid line of snow showers and it was then that we learned that the aircraft was not fitted with de-icing equipment, not even a windshield wiper. Nervously, we watched the ice build up. This forced a return to Povungnituk where it was decided that we would spend the night. We were met by the local DIAND administrator, Gérard Bélanger, who kindly arranged accommodation for us, and the Hudson's Bay manager who opened his store so that we could purchase food. This of course consisted of tinned foods. After supper we made a tour of the village and visited the eskimo cooperative where we found a grand total of four carvings on the shelves.

We were up at 6 AM on Wednesday morning but on checking at the house where the aircraft crew were supposed to be staying, we found that they had stayed somewhere else, but no one was sure where. This necessitated our having to knock on half the doors in Povungnituk before we were able to locate them. By this time convective clouds had started to build giving local snow showers and we were further delayed due to problems in obtaining enroute weather.

We finally left Povungnituk just before noon and dodged snow showers all the way to Deception Bay. As we approached the high hills south of Deception, the ground appeared mighty close until we hit the Sugluk River valley. We descended this valley to the Hudson Straits and flew along the coast to Deception Inlet where we landed for fuel and refilled our coffee jug. Except for open water, one could have believed, by looking at the snow on the ground, that it was January.

Two hours later we left for Cape Dorset, but fifteen minutes out the pilot received a report that a Nordair Skyvan was unable to land at Dorset so we diverted to Frobisher where we landed in the late afternoon. Everyone made a tour of the weather office and after supper some members of the party visited the upper air station and were given an explanation of an upper air ascent, which was then in progress.

While trees are scarce north of Poste-de-la-Baleine, Henri Leblanc, of the Canadian Forest Service, was extremely interested in the surrounding countryside. He examined the grasses, lichens, mosses, etc., and was given some good natured ribbing by members of the tour as they thought the main purpose for his being on the tour was to plant trees on Baffin Island.

John Angel of the Department of the Environment personnel office at Quebec City, on his first trip to the Arctic, felt that now he would be much better prepared to handle staffing problems in the North.

George Aubut of MOT inspected most of our buildings at the various sites and made plans for any necessary repairs.

On Thursday morning two attempts were made to reach Clyde, with a planned fuel stop at Pangnirtung. Both times we were forced to return to Frobisher after encountering solid cloud from the ground to 12000' on the west side of Cumberland Straight. We then decided to go to Cape Dorset. Fifty miles west of Frobisher, although we were practically in the center of a low, conditions were perfect. Cape Dorset is certainly a different and interesting village nestled in a fiord with high hills on either side. An interesting visit was made to the contract weather station. A visit was also made to the eskimo CO-OP where some of the most beautiful, but expensive – $2000 plus, soapstone carvings were seen. Talks were held with the assistant manager re the possibility of finding some new, native, weather observers. We arrived back at Frobisher just as darkness was setting in. Everyone sat on the edge of their seats as we descended through cloud and watched the ice build on the aircraft. A sigh of relief was heard as we broke out of the cloud at 1500' knowing that there were hills at 2500'-3000' on either side of us.

As it was late in the week and the weather was unfavourable, the trip to Clyde was cancelled. On Friday morning the weather at Frobisher was poor and the forecast showed that further flights with the Twin Otter would be extremely doubtful for the next couple of days. Reservations were made for us to return to Montreal via the Nordair B 737 and the pilot of the Twin Otter was instructed to return to Poste-de-la-Baleine as soon as the weather improved to terminate our charter.

We boarded Nordair at 10:30 and were informed of progressive ten minute delays while the crew tried to start the port engine. Apparently the engine was trying to start by itself, before the normal start-up procedures could be carried out. We finally got away at 13:30. When we landed at Fort Chimo the surface wind was 50 MPH and it certainly bounced our B 737 around. We were met at the airport by OIC Martin Bartczak and his staff. He informed us that they were down to two observers for the weekend but were gallantly preparing to carry on the upper air and surface program. One observer was out on sick leave and another was leaving due to a death in his family. We finally arrived back at Montreal at 18:00. Even as we neared Montreal we were reminded that the weather was bad everywhere that week, as we encountered extreme turbulance.

No doubt for most of us it was a frustrating and disappointing week, but those on the tour for whom this was their first trip in the Arctic appeared to enjoy themselves immensely. To have been able to reach Clyde would certainly have been beneficial for all concerned. Border would have been a very interesting station to visit and we are sure that cook Juillard would have tried to out do last year's performance, when without a doubt he served the most exceptional and excellent meal ever served in the Arctic.

However, while it would have been nice to repeat last year's schedule, this year was more representative of life in the north, where Murphy's law seems to predominate. "If there is anything that can go wrong, it probably will."

NOT A FISH STORY

Carp? What has the Atmospheric Environment Service to do with fish, particularly Cyprinus Carpis, a common denizen of inshore shallows of the Great Lakes – especially those most degraded (from a human point of view) by sewage pollution. Most likely that's about all the name Carp brings to mind to our readers outside Southeastern Ontario.

Well, let's get one thing straight right at the beginning. The Carp we're going to talk about is a little community 8 miles northwest of Ottawa. Its importance to us derives from the existance there of the Electronics Systems Training Centre of the Ministry of Transport. So when a site was needed for one of our five new weather surveillance radars, namely the one destined to replace an old unit now operated in the Canadian Forces Weather Office at CFB Uplands, the place with the fishy name was selected as providing just what the doctor ordered. It is far enough from the urban area and the airports of the capital city to put them outside the central ground clutter on the radar screen, it should give coverage on the average upwind side of the Ottawa area so as to catch precipitation patterns approaching from far enough out to give adequate warning, and last but not least the Telecom Branch maintenance experts and the electronic techs who will be taught to service our radars will be right on the spot in case of trouble.

In case you haven't heard before, A.E.S. is having manufactured five new radars for weather surveillance. After the Carp installation (expected about February) the others will follow at Staffa, near London, Ontario to replace the old set at London Airport, at Abbotsford B.C. to replace the very ancient unit at Vancouver airport, a fourth near Quebec city replacing the one at Ancienne Lorette airport, and the fifth to go in at a site in southeastern Newfoundland to give coverage over St. John's, the Grand Banks, and the new industrial development area around Placentia.

The new sets are being built to specifications determined by A.E.S. with expert advice from Telecom M.O.T. radar specialists. The manufacturer who obtained the contract is the Raytheon Company, headquarters at Waltham Mass., who are doing the actual construction at their Canadian plant in Waterloo, Ontario. All five units are expected to be delivered by Summer 1975, and all should be on their sites (Quebec and Newfoundland yet to be chosen) and operating by the end of the year.

Now getting back to Carp again since this will be the first one to start up. The equipment for it passed its factory tests in November and at the time of this writing (early December) is being prepared for shipping to its location on a plot of ground to one side of the Carp airfield, less than a mile from the training school buildings. The components to be assembled there include a transmitter-receiver operating at an output of 250 thousand watts at 5450-5825 megahertz frequency – this represents in more familiar radar terminology a

"C" band system at 5.5 to 5.2 centimetres wavelength. When this output is radiated from the 12-foot diameter dish antenna it will produce a beam of radiant energy of one degree circular cross-section. The beam will be pulsed at 324 pulses per second. The receiver is specified to be capable of detecting precipitation (echoes from rain, hail, or snow) at distances up to 200 nautical miles (370 kilometres).

As in all weather surveillance radars the pulsing beam will rotate like a searchlight at about 6 revolutions per minute, and at the same time be capable of being tilted upward in elevation from 2 degrees below horizontal to an angle of 45 degrees. The antenna on its pedestal, together with the powerful driving mechanisms, and the receiver-transmitter unit will be sheltered from wind and weather inside a fibreglass dome perched atop a steel tower 65 feet high (that's 19.5 metres).

The unique feature of the Carp radar and its four companions at the other sites will be that the operation of the equipment will ordinarily be completely automated, and unattended except for maintenance visits. The set will continuously scan its field of view under the control of a computer whose program will rotate the antenna and step it vertically at predetermined angular intervals in such a way that at each revolution the radar will see whatever is in its field at successively higher altitudes. While this is going on mechanically, the computer's electronic "brain" will be registering the precipitation echoes in a very complex memory pattern to assemble in quantized digital form what is called a "CAPPI" – for Constant Altitude Plan Position Indicator. The basic principles of this system were worked out by radar specialists at McGill University in the 1950's under the direction of Dr. J.S. Marshall. The A.E.S. version of it is called "SCEPTRE" – for System for Constant Elevation Precipitation Transmission and Recording – and is distinguished from other modifications of CAPPI by its capability of making a magnetic tape record of the digitized radar data while at the same time transmitting over a telephone line a computer-composed picture of the scans at the successive levels for facsimile reproduction at a distant receiver. Credit for the development of this pioneering venture in weather radar operation is shared by a number of engineers and meteorologists, both in AES and in Telecom Branch of the M.O.T. But all would agree, probably that the initiation of the design project and its first impetus in the early 60's was due to Henry Belhouse, then in our Instrument Branch and now recently retired – ably supported by E. F. Try who is still with us and continues to contribute to the on-going design of radar systems.

Due to an unfortunate series of mischances (not the least being the inflation we all know so well) the procurement of the computer based SCEPTRE systems for the new Raytheon WSR807's will be delayed for a year or more after the installation of the radars. It has been necessary therefore to initiate a separate development of a much simplified version which can be obtained at dates close to the completion of the radars themselves and at a much smaller cost. However it will retain the basic feature of SCEPTRE, the transmission of a facsimile picture of the radar scan over telephone line from the unmanned radar to a distant receiver. It is expected that this "Interim Sceptre" as it is called will be working from the Carp radar by the end of this Winter. It will put its picture of the precipitation echoes within a radius of 120 miles (about 220 km) on a facsimile receiver in the Ottawa Weather Office at the International Airport, at 10 minute intervals. Installations on the other four new radars will follow as each comes into service during the year. Looking further ahead it is possible that the Interim Sceptres will be moved to our older Curtiss-Wright radars at Toronto, Winnipeg, Edmonton, and Halifax when the complete SCEPTRE units are finally operational.

où va le climat

Par Benoit Drolet

Tiré de 'Québec Science'

L'ACTIVITÉ HUMAINE

La météo doit aussi tenir compte d'un nouveau partenaire: l'homme. Sa soif d'or noir le conduit maintenant jusque dans l'Arctique. Cela ne va pas sans graves implications climatiques. MM. W.J. Campbell et S. Martin, de l'Université de Washington, s'inquiètent que l'éventration d'un seul pétrolier dans l'océan Arctique n'entraîne des conséquences à l'échelle de la planète. Le pétrole provoquerait une fonte accélérée d'une grande portion de la calotte glaciaire (voir QUÉBEC SCIENCE, novembre 1973) en augmentant l'absorption du rayonnement solaire par les banquises.

Toujours à cause du pétrole, le développement des sables bitumineux de l'Athabasca pourrait avoir de fâcheuses conséquences climatiques. Le gouvernement albertain a d'ailleurs commandé une étude de cet aspect de l'exploitation des sables bitumeux. Le problème est de taille, comme l'explique le Dr P.W. Summers, du Service de l'environnement atmosphérique de Toronto. Il croit que la vapeur des processus de combustion et les émanations de bioxyde de soufre pourraient se combiner pour dérégler les mécanismes de formation des nuages. Étant donné que les importantes cultures des prairies sont à la merci de pluies déjà maigres, et qu'on anticipe déjà une sécheresse pour l'année prochaine, il faudrait bien s'assurer que l'extraction du pétrole des sables ne compromettra pas la vocation première du Grenier du monde. Au moins, décidera-t-on alors d'ajouter d'importants systèmes d'épuration aux mines de pétrole.

Encore pour de l'énergie, dite propre cette fois, nous construisons de grands barrages qui créent d'immenses lacs artificiels. On ne peut encore prévoir exactement qu'elles seront les répercussions climatiques d'un système de barrages hydroélectriques comme celui de la baie de James, mais nous pouvons faire des parallèles avec d'autres ouvrages de ce type. Par exemple, le Columbia Basin Project, dans l'État de Washington, est particulièrement éloquent sur ce point. Près de 10 000 kilomètres carrés y ont été irrigués de 1930 jusqu'à 1945. On note depuis une augmentation systématique des précipitations en juillet et en août. De plus, cet effet, s'étend à plusieurs kilomètres autour du bassin de Columbia.

Que dire du projet de la baie de James qui inondera quelque 13 800 kilomètres carrés. Le Dr Vowinckel, du département de Météorologie de l'université McGill, souligne que la tâche dépasse les possibilités de la météo actuelle. Nous devrons probablement nous contenter de ressentir les effets climatiques bons ou mauvais et en prendre pour notre rhume. En quelque sorte, le projet hydroélectrique de la baie de James servira involontairement de laboratoire climatique. Une chose est certaine, nos étés seront encore plus pluvieux qu'ils avaient l'habitude de l'être!

Après les compagnies de service, voilà maintenant que les militaires américains travaillent à mettre au point l'arme météo. En mars dernier, le ministère de la Défense des États-Unis, rendait compte des résultats de sept années de lutte contre les nuages vietnamiens. Consolation, malgré les millions investis contre le temps, rien n'est survenu qui puisse faire croire qu'on peut ensemencer les nuages à volonté.

DES VILLES CHAUDES

De par sa seule présence, l'homme chauffe peu à peu son navire la Terre. La contribution est faible par rapport à la contribution du Soleil. Tout de même, des régions aussi étendues que l'entière côte est de l'Amérique pourraient voir leur comportement climatique affecté si la pollution atmosphérique n'est bientôt stoppée. Le Dr James T. Peterson, météorologue de la National Oceanic and Atmospheric Administration du ministère du Commerce américain, affirme que les émissions de chaleur et les modifications infligées au couvert végétal en le tapissant de béton ont déjà commencé à modifier le climat local. À Washington, par exemple, la saison des cultures dispose d'un mois de plus que l'été des régions rurales avoisinantes. En général, les précipitations de neige et la brume sont moindres au-dessus des grandes villes, tandis que le vent et la pluie augmentent d'environ 5 à 10 pour cent, que la direction du vent est altérée et que les étés y sont plus chauds et plus humides.

Tout cela vient de la pollution thermique: les automobiles, le chauffage des maisons, l'industrie et la génération d'électricité par les centrales thermiques. Selon M. Peterson, les simulateurs permettent déjà de chiffrer les perturbations climatiques des villes. Divers modèles indiquent que lorsque la chaleur produite de main d'homme atteindra un pour cent de celle que nous recevons du Soleil, la température globale moyenne augmentera d'environ 1 degré Celsius. En l'an 2000, on prévoit produire tout au plus, un dixième de un pour cent de la chaleur reçue du Soleil sur Terre. Mais, malgré sa faiblesse, l'effet se sera propagé sur de très grandes étendues et ne sera plus limité aux centres urbains. En l'an 2000, plusieurs régions de quelques millions de kilomètres carrés produiront plus que un pour cent de la chaleur qu'elles reçoivent du Soleil. De plus, aux élévations de température de ces régions correspondront des abaissements de température des régions adjacentes. Les villes chaudes sont situées sur la côte nord de l'Amérique, au sud des Grands Lacs, en Floride, en Californie, et sur une partie de l'Europe de l'Ouest.

Il est donc important de diminuer le niveau de la pollution thermique qui affecte déjà, de façon significative, le climat local et qui perturbera bien le climat global de la Planète.

CHAUFFER À L'OZONE

Certains gaz polluants se comportent comme de véritables éponges à chaleur. La concentration d'ozone (une molécule faite de trois atomes d'oxygène) habituellement détectée au niveau du sol dans les villes n'augmente la température moyenne de l'air urbain que d'un millième de degré Celsius par jour. Parfois, par contre, la concentration de ce gaz extrêmement réactif se situe à une partie par million. La seule augmentation de température attribuable à l'ozone atteint alors un dixième de degré Celsius par jour. De son côté, le bioxyde d'azote absorbe lui aussi fortement les radiations visibles du soleil. À la surface de la terre, ce stockage d'énergie par le bioxyde d'azote entraîne une élévation de température de 0.12°C par jour. Dans les villes, ce taux atteint parfois 1°C par heure! Il a déjà été mesuré à Los Angeles.

1 – SECOUSSE SOLAIRE – Cette éruption solaire, vue de Skylab, le 19 décembre dernier, est la plus spectaculaire jamais photographiée. Le voile de gaz éjecté s'étend sur plus de 588 000 kilomètres de la surface.

2 – À L'ABRI DES TEMPÊTES – Le satellite météo SMS-1 a croqué cette image de la Terre alors qu'il se dirigeait vers son orbite, le 28 mai dernier. Cinq noyaux de

tempête sont clairement visibles de l'ouest du Canada jusqu'au dessus de l'Atlantique. Sur la côte est de la Baie d'Hudson, on voit le couvert de glace se briser. Au-dessus de la Floride et de la mer des Caraibes, de petites formations de cumulus apparaissent clairement et permettent aux météorologues de déduire la direction du vent.

À l'échelle de la planète, le bioxyde de carbone issu de la combustion des carburants fossiles capte aussi le rayonnement visible du Soleil pour le convertir en chaleur. On doit donc s'attendre à un échauffement du climat à cause de cet effet de serre. Effectivement, de 1880 à 1940, la température moyenne de la terre a grimpé de 0.6°C. Cependant, depuis 1940, elle a baissé de 0.3°C.

Beaucoup croient que cette diminution de température est attribuable aux particules de poussière introduites dans l'air. Le rayonnement qu'elles réfléchiraient dans l'espace serait alors supérieur au surplus de rayonnement emmagasiné par le bioxyde de carbone. De plus, le professeur John Hampson, de l'université Laval, soutient que le gaz carbonique entretient un processus qui augmente encore l'ampleur de son effet de serre. Sa concentration augmentant, le gaz carbonique provoquerait une augmentation de l'ozone dans la stratosphère. Or, comme ce dernier gaz capte lui aussi la chaleur du Soleil, l'éventuelle destruction de l'ozone par des avions SST, Tupolev et Concorde serait alors une bonne chose.

IL NE FERA PLUS FROID DEMAIN

Les statistiques météo indiquent un refroidissement général de 0.3°C, depuis 1940. Il semble donc que nous revenions peu à peu aux conditions climatiques plus froides qu'ont connues les Québécois au cours des années 1920. Toutefois, rien ne sert de s'alarmer. C'est loin d'être une dégringolade, tout au plus une petite glissade le long d'une faible pente. En ce qui concerne les précipitations, l'avenir s'annonce moins clément. Comme on l'a vu, la périodicité des sécheresses dans les Prairies en laisse prévoir une pour l'été prochain. Dans l'Est du pays, par contre, ce sera l'inverse. Nous, qui ne connaissons guère les jours sans nuage devons nous attendre à un hiver plus neigeux et à un été encore plus pluvieux. Notre sort est toutefois moins dramatique que celui des habitants du Sahel qui seront aux prises avec une impitoyable sécheresse jusqu'en l'an 2030.

Dans ce tableau général, les villes se détachent. De 1915 à 1965, par exemple, la température moyenne annuelle du centreville de Montréal est passée de 5.8 à 7.2°C. Ce n'est qu'une mince consolation. Le tunnel du métro et les galeries souterraines garderont toute leur utilité puisque les aménagements hydroélectriques de la baie James nous promettent plus de précipitations. Mais on a que ce qu'on mérite. Et, qui sait, peut-être que la planification de l'Hydro-Québec devra bientôt inclure dans ses estimés les surplus d'électricité exigés par l'impact de ses barrages sur le climat?

Suggestion Award Winners
January/June 1974

EMS - T. Desrosiers
and T. Egan ($250 each)
Reducing Costs of Photocopying

AES - R. Walls ($15)
Plastic Slide Rule

AES - T.A. Howard ($15)
Reducing Distribution

EMS - K.W. Backhaus ($165)
Better Steam Distribution

EMS - Dr. A. Radvanyi ($35)
Poisoned Bait Feeder

AES - D.D. Lynch ($15)
Installation of a Vent

AES - B.J. Zollen ($15)
Installation of a Pay Phone

EMS- R.E. Milne ($330)
Calculator to Replace Hand-Kept Books

AES - Mrs. M.E. Fox ($30)
Punching Soil Temperature
Cards

AES - H.W. Mosher ($15)
Installation of Eavestrough

EMS- J.A.G. McPherson
($35) Integrated Filing –
($30) Reducing Postal Costs
of Interlibrary Loans

Gagnants De Primes A l'Initiative
Janvier/Juin 1974

SGE - T. Desrosiers
et T. Egan ($250 chacun)
Réduction des frais de photocopie

SEA - R. Walls ($15)
Règle à calculer de plastique

SEA - T.A. Howard ($15)
Réduction de la distribution

SGE - K.W. Backhaus ($165)
Meilleur distribution de la vapeur

SGE - Dr. A. Radvanyi ($35)
Mangeoir à appats empoisonnes

SEA - D.D. Lynch ($15)
Installation d'un évent

SEA - B.J. Zo-len ($15)
Installation d'un téléphone payant

SGE - R.E. Milne ($330)
Remplacement des livres tenus par une
préposé par une calculatrice

SEA - Mme. M.E. Fox ($30)
Le poinçonnage des cartes de
température du sol

SEA - H.W. Mosher ($15)
Installation d'une gouttière

SGE - J.A.G. McPherson
($35) Classement intégré –
($30) Réduction des frais
d'expédition postale des prêts
inter-bibliothèques

PERSONNEL

The following transfers took place:

R. Winterer (Capt.)	From: Resolute To: HQ 12th Squadron, Colorado Springs
M.J. Koroluk	From: Dew Line Inspector To: Technician, Arctic Weather Central
J.C. Reynolds	From: AIB, Installation & Maintenance Division To: AIB, Design & Development Division
J.T. Woods	From: ACIR, AES HQ To: ACCL, AES HQ
R.D. Code	From: Toronto WO To: Air Services Training School (Ottawa)
E.W. Elliotson	From: Toronto WO To: PSC, Toronto
A.W. Morrison	From: CFB Cold Lake To: NRWC, North Bay
B.J. Konzelman	From: CFB Comox To: CFB Shearwater
N.B. Waller (Miss)	From: Maritimes Weather Office To: Information Services Office, ISO, AES HQ
J.T. Woods	From: Ice Branch CSD To: Applications and Consultation CSD
A.J. Gallant	From: Ice Branch, CSD To: Air Quality and Inter-Environmental Branch ARD

The following are on Project Assignments:

P. Dutchak (Mrs.)	From: Arctic Weather Central To: CSD – Beaufort Sea Project, Edmonton
B.P. Marois	From: Montreal WO To: Air Services Training School
J.G. Cantin	From: Montreal WO To: Responsable du cours de météorologie à l'Université du Québec

G. Desautels	From: Montreal WO To: Professeur à l'UQAM
J.R. Gagnon	From: Montreal WO To: Professeur à l'UQAM
G.H. Allard	From: Montreal WO To: Professeur à l'UQAM
C. Fortier	To: Technicien de présentation à Sept-Iles
C.D. Folks	To: Urban Air Pollution Study, Edmonton
H. Turchanski	To: Urban Air Pollution Study, Edmonton
G.D. Hawthorne	To: Dew Line Inspector
W.G. Sullivan	To: Mechanical Inspector, AIB
R.T. Tsuda	To: Supply Administration, AIB
R.S. Bourke	To: Biometeorological Research Support, AIB
C.F. Spelchak	From: Edmonton WO To: ARD, AES HQ
B. Wallworth	From: Maritimes WO To: ARD, AES HQ
Dr. H. Martin	From: ARD, AES HQ To: ISO, AES HQ
D. Dueck	From: Toronto WO To: ARD, AES HQ
E. Wilson	From: Toronto WO To: FSD, AES HQ
G. Rideout	From: Toronto WO To: Ontario Regional HQ
N. Dressler	From: CFB Edmonton To: Instruments Branch
R.H.W. Hill	From: Maritimes WO To: CSD, Ice Branch, AES HQ
S.A. Hattie	From: WO Gander To: ARD, AES HQ
J.N.J. Hallé	From: WO Montreal To: ARD, AES HQ

D.L. Dockendorff	From: WO Maritimes To: NRC, Ottawa
M.H. Wilson	From: Lethbridge WO To: AFRC, AES HQ

Temporary Duty

G.E. Anderson	From: WO Winnipeg To: Churchill WO

Retirements

J.W. Bews	AIB, AES HQ
J.J. Gillis	CMC, Montreal
A. Lenahan	Regional Administrator, Pacific Region, Vancouver

The following have accepted positions as a result of competition:

74-DOE-TOR-CC-275	Meteorology (MT4) Duty Forecaster Metoc Centre Halifax L.M.D. Burns
GENOT 015	Meteorology (MT7) Officer-in-Charge Edmonton WO S.M. Checkwitch
74-DOE-CC-12	EG-ESS6 Technicien Présentation Région du Québec C. Jollet
74-DOE-CC-11	EG-ESS5 Technicien Présentation Région du Québec J. Miron
74-DOE-WC-940-1615	EG-ESS5 Technicien Présentation Région du Québec A. Jacques

74-DOE-CC-10	EG-ESS6 Technicien Présentation Région du Québec A. McCullongh
74-DOE-CC-10	EG-ESS6 Technicien Présentation Région du Québec J. MacClean
74-DOE-CC-10	EG-ESS6 Technicien Présentation Région du Québec L. Allard
74-DOE-TOR-CC-357	PE1 Job Description Writing AES HQ J. Godding
73-DOE-WPNH-CC-099	EG-ESS6 Officer-in-Charge Inuvik WO H.J. Wilson
74-DOE-TOR-CC-204	EG-ESS6 Instrument Design Technician AIB J.J. Skalski
74-DOE-TOR-CC-287	EG-ESS7 OIC London WO B.W. Finch
74-DOE-TOR-CC-238	EG-ESS6 Surface Meteorological Inspector Ontario Region D.J. Law
74-DOE-TOR-CC-238	EG-ESS6 Surface Meteorological Inspector Ontario Region A.M. Purves

TRIVIA

OUR NEW TITLE?

Canadian Pathological Meteorological Service.
(Pathological meaning – something abnormal! ! !)

Friday Nov. 12, 1974

THE FIRST SNOWFALL

One day near 3:30 pm there was one little snowflake. Outside it was 20 degress. Inside the snowflakes home wich was a cloud there was another snowflake. She was pregnant. 1 hour later you could hear soft little cries coming from the nursrey. Then papa went inside the nursrey room and looked the babies. There were thosands of snowflake! ! ! babies. Two minutes later the snowflakes were old enough to go sky diving. So then thosands of snowflaks jumped of the cloud. Jan Waymann looked and said its snowing and when he got home he had to do his paper route. When he was finished his paper route he said the snow wasn't that fun because I had to do my paper route.

Grade 4, Age 9
Jan Waymann

THE NORTHERN ENVIRONMENT
WEATHER OFFICE YELLOWKNIFE

Swimming in Great Slave Lake is not considered an inducement for recruiting personnel for service at Fort Reliance on the east end of the lake. In mid summer the water is frigid and by Nov. 18 any such activity is certainly involuntary. This year's late season dip in the lake occurred when two Meteorological Technicians on a snowmobile towing a load of freight broke through the ice about a mile up the bay from the weather station. The East Arm of Great Slave Lake is over 2000' deep and swimming depth is assured in most areas. The men were fortunate in being able to climb out and to get a ride immediately to the station on another snowmobile that was assisting in the freight hall. Although the temperature was -5 degrees F, men, machine and freight were all recovered with little lasting damage.

A man knocked at the heavenly gates,
His face was scarred and old,
He stood before the man of fate,
For admission to the fold,
What have you done? St. Peter said
To gain admission here?
I've worked at DOE he said,
For many, many a year.
The Pearly Gates swung open wide,
St. Peter touched the bell,
Come in and choose your harp, he said,
You've had your share of hell. . . .

Une liste d'expressions diverses

Expression	**Signification ou équivalent**
Il travaille comme un chien	Il travaille dur
Il va s'y faire	Il va s'habituer, s'adapter
Je ne suis pas dans mon assiette	Je ne suis pas en forme
Battre son plein	Etre en activité
Se faire de la bile	Se tourmenter
Faire dure	Faire mauvaise impression
Etre racké	Très fatigué
Partir en peur	S'énerver
Je suis mort de fatigue	Je suis très fatigué
Je tombe de sommeil	Je m'endors
Elle a le coeur sur la main	Elle est généreuse
Il se met les pieds dans les plats	Il fait une gaffe

* * * * * * * * * * * *

With head rests, seat belts, girdles and chin straps, today's driver does more hitching up than when he used a horse.

* * * * * * * * * * * *

A lie is a poor substitute for the truth, but its the only one discovered to date.

* * * * * * * * * * * *

Nothing is more infuriating than the chap who thinks he knows it all – and does.

* * * * * * * * * * * *

Your morning smile

When the Lord told Moses that he was destined to lead the Israelites out of Egypt, He said:

"Moses, I have some good news and some bad news for you. The good news is that you will divide the waters of the Red Sea. Now the bad news is that before you do, you'll have to file an Environmental Impact Statement in triplicate."