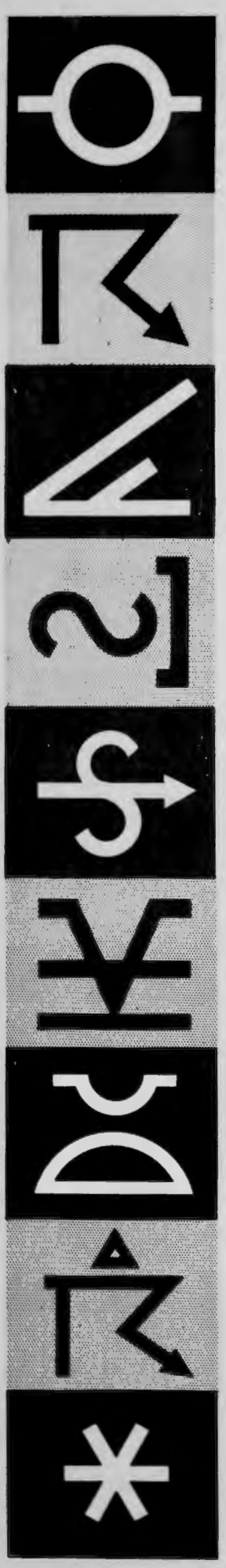

ZEPHYR

AUGUST 1973 AOÛT

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CAMP DE METEOROLOGIE A SEPT-ILES

par Normand Guérin

La Cité des Sept-Iles peut s'enorgueillir de posséder un Service des Loisirs des plus actifs et à l'avant-garde de bien des centres urbains.

Devant le succès rapporté l'été dernier par l'Atelier de Météorologie auprès des adolescents, le secteur Socio-Culturel crut bon d'innover encore cette année en offrant à sa jeune clientèle un Camp de Météorologie de deux jours.

Ce Camp s'est tenu au Lac des Rapides à une douzaine de milles au nord des Sept-Iles, les 13 et 14 juillet. Le but était de familiariser les jeunes avec quelques principes de base de la météo tout en profitant de la nature et des joies du camping. Quelques 25 garçons et filles (11 et 12 ans) y participèrent et l'expérience, bien qu'un peu épuisante, s'avéra une réussite.

Il n'était pas question de saturer l'ambiance de météorologie, mais seulement d'éveiller la curiosité de ces jeunes vis-à-vis des phénomènes atmosphériques qui influencent leur vie de tous les jours.

On monta les tentes et on en profita pour faire une "trempette" puis lorsque la nuit tomba, on se groupa sur la berge autour d'un feu pour apprendre comment se forment les nuages et le pourquoi de la pluie et du beau temps. Le lendemain, ce fut un grand concours de fabrication de baromètres. Ayant devant eux un exemple d'un baromètre construit à l'aide d'une boîte de minipouding et d'un boîte de lait, les météorologistes en herbe s'affairaient toute la matinée par petit groupe, à la construction de leur baromètre après quoi ils en apprirent le fonctionnement.

Les menuisiers de la Cité (toujours très complaisants), nous avaient fabriquer une magnifique "boite à nuages" qui devait servir à provoquer en vase clos la formation de petits nuages. Malheureusement, on ne l'acheva que quelques heures avant le départ ne permettant pas d'effectuer quelques expériences au préalable, de plus, le manque de matière refrigérante m'empêcha de conclure l'expérience pendant ce Camp. Ce n'est cependant que partie remise, car il y aura fort probablement un atelier de Météorologie dans le Centre Socio-Culturel l'hiver prochain, qui offrira aux adolescents la possibilité de se familiariser avec cette science un peu mystérieuse et d'effectuer quelques expériences.

L'auto de l'OIC servait de table de travail et de véhicule tout terrain.

C'est l'installation des tentes.

A l'extrême droite, on peut apercevoir "la boîte à nuages".

Photographies de Normand Guérin

On s'occupe à fabriquer des baromètres.

MOUNT FOREST BEGINS WMO AIR QUALITY OBSERVATIONS

On July 19, 1973, the AES Surface Weather Station at Mount Forest, Ontario, became Canada's first station in the world-wide air quality monitoring network of the World Meteorological Organization (WMO).

The objective of this network is to identify long-term trends in the concentration of those atmospheric constituents which may cause climatic change. On the global scale, ten to twenty WMO baseline stations will measure "background" composition at sites far removed from any natural or man-made sources of pollution. On the regional scale, well over one hundred stations around the world will document long-term changes related to regional land-use practices and other activities.

The pollutants of most significance for climatic change are carbon dioxide and particulates. Detection of long-range trends in the concentration of carbon dioxide can be done only if short-term effects due to combustion and vegetation are minimal. Accordingly, carbon dioxide will be measured only at the baseline stations. Turbidity, a measure of the reduced transparency of the atmosphere due to particulates, will be measured at both baseline and regional stations. Also, both types of station will collect precipitation samples for subsequent chemical analysis.

At the Stockholm Conference on the Human Environment in June 1972, Canada promised to establish seven regional and three baseline stations. Siting of the baseline stations is extremely critical. Priority is therefore being given to the establishment of the regional program at ten stations. Two or three of these will subsequently be tested for suitability as baseline sites. Attempts will also be made to use Ship Papa as a baseline site, although the observational problems are formidable.

Mount Forest was selected as the first Canadian regional station for several reasons. AES stations are prime candidates because full meteorological records are a necessity and because daytime coverage by well-qualified observers is needed for the turbidity program. A station easily reached from Toronto was preferable because the Atmospheric Research Directorate at Headquarters is responsible for establishment of the program and it was anticipated, quite correctly, that the shake-down period would see frequent visits by Regional and Headquarters staff. Accordingly, an agreement was worked out between the Field Services and Research Directorate, and, following inspection visits to Mount Forest and Simcoe, a team from the Ontario Region and the Monitoring and Surveys Division of the Air Quality Research Branch selected Mount Forest as the station that best met the siting criteria for a regional station in southwestern Ontario.

Mr. Norm Seguss, Officer-in-Charge at Mount Forest, supervised the pre-installation work. On July 19, a team headed by Walter Halina of the Ontario Region and by Dave Colwell and John McLernon of the Monitoring and Surveys Division, installed the equipment and instructed the staff in its use.

The turbidity program involves taking three sunphotometer readings daily when the sun can be seen free of all cloud. The sunphotometer is a small box containing a photocell, a milliammeter, a diopter, and two filters. To take a reading, the instrument is carried outside, zeroed, and pointed directly at the sun to obtain milliammeter readings at wavelengths of 380 and 500 nanometers. The observer then levels the instrument and takes a diopter reading of the sun's elevation. These measurements, together with notes on

The precipitation sampler installed at Mount Forest, showing the lid in the closed position and, extending out to the right, the sensing head.

Norm Seguss, OIC at Mount Forest, and Al Moser and Dwight Brymer of the Monitoring and Surveys Division, Toronto, discuss operational procedures for the sunphotometer.

A close-up of the sunphotometer on its stand.

weather conditions, are entered on a form which is sent monthly to Headquarters for the computation of turbidity and size-distribution indices.

The precipitation chemistry program uses a raingauge which opens automatically during precipitation. Precipitation is stored in a plastic bottle which is removed monthly and shipped to Headquarters. There the sample is analyzed for sulphate, nitrate, ammonia, chlorine, calcium, manganese, sodium, potassium, electrical conductivity and acidity. With this program, AES observers enter the field of chemical sampling and care must be taken to avoid contamination. For example, a drop of perspiration, or even the salt particles accumulated on hands from the evaporation of perspiration, could seriously affect the sodium chloride content of a sample.

Meteorological, turbidity, and precipitation chemistry data will be sent monthly to the WMO air pollution data centre at Asheville, N.C.

While the sunphotometer and precipitation sampler have been in operation for some months at Headquarters, it was anticipated that there would be problems and that the Mount Forest staff would have a good deal to do in developing reliable methods of operation. This is turning out to be all too true. It was hardly anticipated that the precipitation sampler would go inoperative during the first minor rainfall, which occurred while the inspection team was driving back to Toronto! So far the problems have been easily corrected. Cold weather operations will no doubt bring some more serious difficulties.

Work on expansion of the network is continuing. In August, sites were selected in the Pacific, Western and Central Regions: Puntzi Mountain, B.C., Edson, Alta., Wynyard, Sask., Armstrong, Ont., Fort Simpson, N.W.T., and probably Mould Bay in the high Arctic. The Quebec and Atlantic Regional Headquarters will be consulted shortly in order to select sites in those Regions.

The WMO air quality network, designed for the study of climatic change over long periods, may well be a fundamental building block for other monitoring programs. This network, plus the AES stations collecting particulate samples for the monitoring of radioactive materials, will become part of the United Nations Environmental Monitoring System. This system will have a broader objective, namely to provide the information necessary to ensure the present and future protection of human health and safety and the wise management of the environment and its resources. Development of the many monitoring programs required to achieve this objective will be a long process. Meteorological networks could be involved in a variety of new activities, for example, collecting samples of dry deposition and suspended particulates for full chemical analysis, measuring gaseous pollutants such as sulphur dioxide, nitrogen oxides and oxidants, and monitoring airborne biological agents. The air quality observations at Mount Forest could be only the first step in a new and challenging program of environmental monitoring for the data-acquisition systems of the Atmospheric Environment Service.

Percy Saltzman
Productions Limited
39 Corwin Crescent, Downsview, Ont.

Tel. 638-3967

July 19, 1973

Mr. J.R.H. Noble
ADMA
Atmospheric Environment Service
4905 Dufferin St.
Downsview, Ont.

Dear Mr. Noble:

As you know I am terminating my weather broadcast on radio station CFRB today. I would like to express my thanks to you and your staff for the cooperation and assistance given me over the years – thirty in all.

I did radio weather on CFRB for 8 years, TV weather on CBC for 20 years, and numerous other broadcasts on a national, regional, local and international scale – in all of which you and your staff, both at headquarters and in the regions, went out of your way to be most helpful.

I would be pleased if you would convey my gratitude to all concerned.

Yours sincerely,

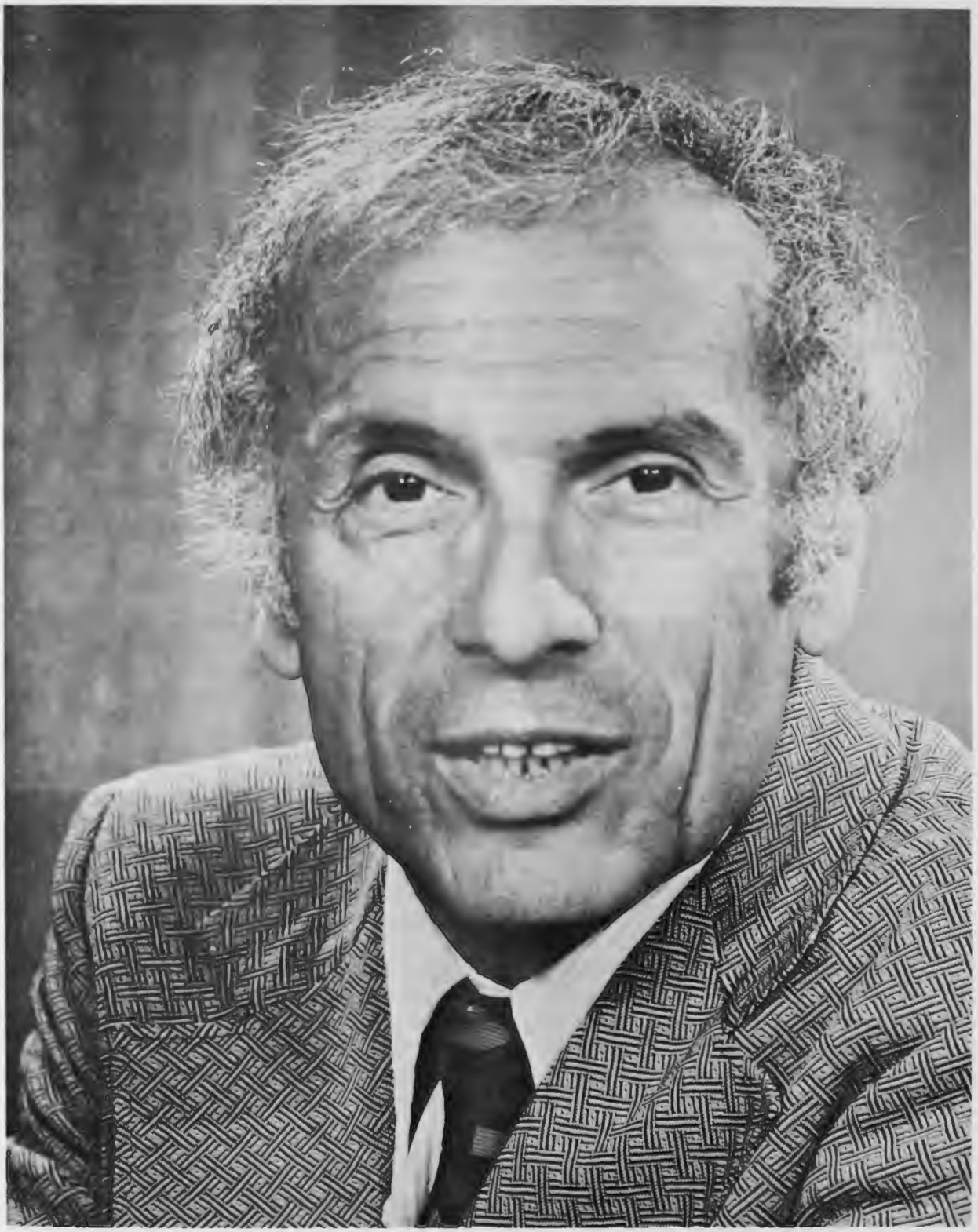
Percy Saltzman

NO MORE WEATHER FOR PERCY

by Keith McGlening

On July 19, 1973 Percy Saltzman did his final weather program on Toronto Radio Station CFRB, thus terminating more than twenty years of continuous association with weather broadcasting. Percy resigned his post as CBC-TV weathercaster last year to become co-host of the Canada-AM Show on CTV, but he continued his late afternoon radio broadcast which had commenced some eight years before. Thus July 19 marked Percy's last regular appearance as a weatherman.

Although Percy began his TV weather show with the advent of Canadian television in 1953 it was not his first broadcast program. In the late 1940's Percy and Gene Hallman (another government meteorologist) did a series of science programs on radio station CKEY (no money, just experience!). The highlight of the series was Percy's detailed review of the then sensational "Kinsey Report." Percy did a masterful resume of the book,



Percy Saltzman

using a vocabulary that had never before been used on staid Toronto airwaves! It is to his credit that his approach was so obviously sincere that his frank terminology did not cause offense. Gene Hallman is now a senior vice-president of the CBC while Percy is well-established as continuing host on CTV's big-budget prestige show – perhaps one should conclude that working for free can pay later dividends.

I was closely associated with Percy throughout the period he conducted his daily TV weather show and continued his full-time meteorological duties. In fact, for most of those twenty years we shared the same office. I was constantly impressed by the thoroughness and diligence with which he prepared his telecast. He carefully scanned reams of weather data and when being briefed by forecasters from the Toronto Weather Office questioned them closely to ensure he was well-informed on latest developments. He was always careful to give credit to the Weather Office for the information he received, but his multitude of fans nevertheless were convinced that the information came directly from him and certainly it was Percy's clear and "down to earth" explanations that made the official weather forecasts and data "live" for his viewers.

Percy always had a talent for immersing himself in every subject that caught his interest. When there was an argument as to whether Hudson Bay freezes over in winter he read all the published reports on the subject, then arranged to fly over the Bay to see for himself (it doesn't freeze over completely). When his work involved knowledge of aviation meteorology he decided to learn to fly – and gained his pilot's license. When his program was scheduled to originate from Montreal he took a crash course in French and delivered his weathercast in "franglais."

For approximately ten consecutive years Percy was the genius behind the Canadian National Exhibition Weather Display (aided and abetted by Fred Page and myself). As plans were developed each season Percy's vivid imagination came into full play and he proposed various spectacular exhibits, all highly impractical and prohibitively expensive, but he was not daunted and each year came up with innovative and eye-catching displays which managed to stay within the fabulous budget of $1,800 (less $600 for space rental). A large part of this success resulted from Percy's knack for inspiring the same enthusiasm in others as he had himself – everyone "knocked themselves out" to produce the effects he wanted (my chief contribution was to be the devil's advocate, say "it won't work" and constantly draw attention to our dwindling finances).

Percy's contributions to the understanding of meteorology by the man in the street cannot be measured. Behind his apparent flippant and rapid-fire delivery of weather information was always a sound scientific background and a subtle dollop of education. From time to time he displayed and explained meteorological instruments; he interviewed visiting meteorologists in a perceptive and entertaining way; he promoted meteorology at every opportunity and soon developed a large following which would accept nothing but scientifically sound weather information. Weather girls, and weathermen cum comedians were no match for his style and soon weathershows across Canada took as the ultimate compliment "almost as good as Percy Saltzman."

Although Percy has apparently severed his last connection with a continuing weather show, we can hope (and almost predict) that in the future he will return to toss the chalk and bawdy remarks and to "do the weather" as only Percy can.

PRESENTATION OF AWARDS

Following presentation of awards from the Atmospheric Environment Service for voluntarily taking weather observations at sea, Henry Whitehead (left) and David Vail (centre) both radio operators on the M.V. Bluenose, are shown with K.F. Harry, Regional Director of the A.E.S.
Photo courtesy of Ann Deveau

WIARTON'S HEAVY RAINFALL – JULY 31, 1973

Rainfalls were unusually heavy across Southern and Central Ontario on July 31, 1973 and Wiarton, in the Bruce Peninsula, received the heaviest rainfall in the area with 3.53 inches in 24 hours. This fell short of the record rainfall of 4.12 inches which deluged the Wiarton area on July 28, 1969. However, while the rainfall may not be record-breaking, it is heavy enough to rate consideration.

Thundershowers produced these heavy rainfalls. At Wiarton, at least, these thundershowers produced frequent thunder and lightning but, surprisingly, winds remained light not exceeding ten miles per hour despite the intensity of the rainfall. The weather system producing the activity, was rather weak and slow-moving. A low with a central pressure of 1012 millibars was centred to the south of Muskegon at 1200 GMT with a Maritime warm front extending from the low centre to Oscoda, to Wiarton to Kingston.

A cold front extended south southwestward from the low to a second weak low over Southern Illinois. Movement of this system was relatively slow over the next 24 hours. The northern low drifted slowly eastward with no significant intensification to the Windsor area, with the warm front from the low to the Wiarton and Muskoka area and then curving eastward to the south of Ottawa and Montreal.

Of the 3.53 inches which fell in the Wiarton area, 3.18 inches fell in the first six hours of the climatological day. Airways weather observations plus the chart from a tipping bucket raingauge revealed that 3.18 inches fell in just one hour and a half. A summary of the rainfall intensities for various time intervals taken from the chart of the recording raingauge is shown in Table 1. The rate of rainfall for 30 minutes was 1.59 inches and for 1 hour 2.63 inches. On the basis of Rainfall Intensity Data for Mount Forest and London, both of these rainfall rates have a return period of over twenty-five years.

The tipping bucket raingauge at Wiarton showed a rainfall of 4.23 inches for 12 hours and 4 30 inches for the full 24 hours. These rainfalls are considerably higher than the official raingauge reading of 3.53 inches for the day.

Elsewhere in Southern and Central Ontario, rainfalls, for the day, were less spectacular than in Wiarton but a few are worth noting. Four stations reported over two inches. Parry Sound had a rainfall of 2.22 inches, Burk's Falls had 2.16 inches, Stroud 2.12 inches and Shanty Bay 2.07 inches. Another five stations in the area had rainfalls in the range one and a half to two inches and at least another thirty climatological stations reported rainfalls in the range one inch to one and a half inches.

TABLE 1

Rainfall records for Wiarton for July 31, 1973

Standard raingauge	3.53 inches
Recording raingauge	4.30 inches

Greatest fall of rain in:-

5 minutes	.56 inches
10 minutes	.71 inches
15 minutes	.94 inches
30 minutes	1.59 inches
1 hour	2.63 inches
2 hours	3.35 inches
6 hours	3.88 inches
12 hours	4.23 inches

SUDBURY NARROWLY ESCAPES DAMAGING STORM

By B.J. Kahler

Sudbury was no exception to the eleven day record breaking heat wave which took place in most of Ontario at the end of August and the beginning of September. During the period, August 26th – September 5th, no fewer than eight daily record temperatures were surpassed or equalled.

Thunderstorm activity was also prominent in this hot and humid air mass. They were recorded at the Sudbury Airport on three of these eleven days, with lightning visible on the horizon on three others, indicating of course, thunderstorm activity in the vicinity. At least one of these thunderstorms reached destructive proportions, and were it not for the remote area it matured in, could have exceeded the damage recorded in the Sudbury tornado of August, 1970.

On the morning of August 28th, reports of forest damage on Highway 144 to Timmins began filtering in to the Sudbury Weather Office. Accounts of large trees uprooted and broken in a narrow swath, prompted an air survey of the destruction, one week later.

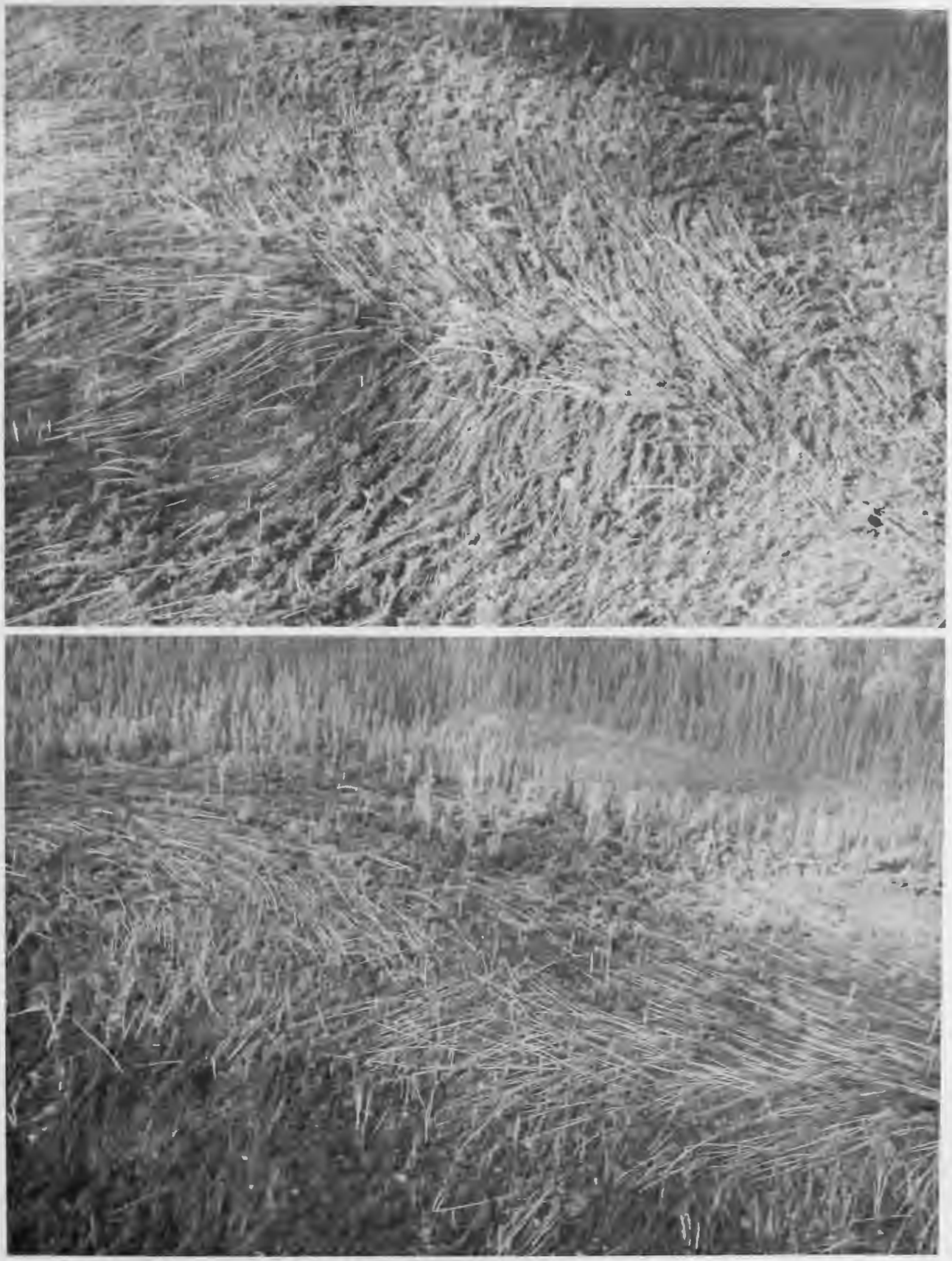
The air survey confirmed fairly extensive forest damage. A swath, averaging one quarter mile in width, could easily be followed from the Spanish River in Arden Township to Friday Lake in Rhodes Township, a distance of about 50 miles. As reported to the Weather Office, trees along the storm path were broken, uprooted or flattened. Although it is difficult to gauge the size of the trees from the air, people who viewed the swath where it crossed Highway 144, estimate the base diameter at 12–14 inches.

Damage was confined primarily to the forest, although two cottages seen from the aircraft encountered severe destruction. One camp, at least it appeared to be one, was merely a pile of rubble, while the second, only a few hundred yards distance, had the four walls intact, but the roof was missing. The former structure was near the centre of the storm path, while the latter on the edge.

It is interesting to note, if the storm path were extrapolated an additional forty miles, it would pass between the northeastern corner of the City of Sudbury and the Sudbury Airport.

At 11:00 P.M. on August 17th, a heavy thunderstorm was recorded at the Sudbury Airport with observed winds gusting to 55 mph (tower later reported seeing a wind gust to 65 mph). The weather observer, however, comments he was knocked to the ground by a strong wind gust while taking the 11:00 P.M. observation. In Capreol, approximately 10 miles to the north of the airport, pea size hail, heavy rain and winds estimated at 60 mph occurred at about the same time. It is conceivable the heavy thunderstorm recorded at the airport could have resulted from the same cumulonimbus cell which produced the extensive forest damage to the northwest.

Photographs taken during the air survey are of interest. In many areas the trees were fallen, not only in the direction of storm movement, but also inward toward the centre of the storm's path, indicating a strong inward force. Professional consultation is currently being sought on the possibility of the storm being classified as a tornado, but



Aerial survey photographs of storm damage to forests between Sudbury and Timmins, Ont. Courtesy B.J. Kahler

the low pressure in a tornado funnel would explain the great inward force displayed in the arrangement of the fallen trees.

This storm occurred three years plus one week after the Sudbury tornado of August 10th, 1970. The previous storm, still vivid in the minds of Sudburians, resulted in five deaths and property destruction exceeding ten million dollars. An additional forty miles on this latest storm, could have resulted in a repeat of the 1970 nightmare, possibly with more disastrous consequences.

RETIREMENTS – H.P. WILSON AND D.A. VANVOLKENBURG

On May 31, 1973 friends and colleagues of Horace Wilson and Douglas VanVolkenburg celebrated their retirements at a barbecue and dance. C.E. 'Tommy' Thompson was Master of Ceremonies and Deane Smith made the presentations.

Frank McIsaac represented Central Region and other friends came from Calgary and the Ministry of Transport.

Horace and his wife Alice came from Manitoba. He joined the Meteorological Service in 1939, after Brandon College and a stint at teaching. He served at Winnipeg, Calgary, Lethbridge, Edmonton and Montreal – latterly was officer-in-charge of the Arctic Weather Central in Edmonton. A prolific writer of scientific papers he was active in special studies with the U.S. Navy for some time. A manual on 'Arctic Operational Meteorology' capped his career as a scientist just prior to retirement. He plans to continue sporting activities and keeping up-to-date in Meteorology.

'Van' came to Meteorology in 1942, after a few years of university and teaching. He was at Ft. St. John and Smith River, vital spots of the Northwest Staging Route. Except for a couple of years at Patricia Bay he spent the rest of his career in Edmonton. He was climatological Data Processor for about 18 years. His prodigious memory and co-ordination of climat data made him a valuable consultant.

He will return to Calgary, his first home, to better cheer the 'Stampeders' on to greater victories and study the 'Chinook'.

Mr. D. VanVolkenburg (right) accepting presentation from D. Smith (left) Tom Thompson in background.

Mr. & Mrs. Horace Wilson.

LES PRESIDENTS DE L'ORGANIZATION METEOROLOGIQUE INTERNATIONALE ET DE L'ORGANIZATION METEOROLOGIQUE MONDIALE

En cette année où doit être célébre le centenaire de l'Organization météorologique internationale (OMI) et de l'Organization météorologique mondiale (OMM) on a pensé qu'il serait intéressant de présenter une notice biographique de tous leurs anciens présidents.

C.H.D. Buys-Ballot (1873– 1879)

Premier président du Comité météorologique international (CMI)@. Buys-Ballot le resta de 1873 à 1879. Christopherus Henricus Didericus Buys-Ballot est né à Kloetinge (Pays-Bas) le 10 octobre 1817, d'un père pasteur. Attiré très jeune par la météorologie, il n'en consacra pas moins ses études universitaires, ses recherches et son enseignement à une gam ne de sujets beaucoup plus large, allant des mathématiques et de la physique à la minéralogie, la géologie et la chimie. Une de ses communications le plus remarquables, publiée en 1845, traitait des manifestations de la vie dans la matière inorganique. L'année suivante, il entreprit une série d'observations météorologiques (et magnétiques) à Utrecht, qui aboutirent à la création, en 1845, de l'Institut météorologique royal des Pays-Bas, transféré à De Bilt en 1897. Buys-Ballot fut le premier directeur de l'institut et c'est là qu'il énonça, en 1857, la fameuse loi qui porte son nom, selon laquelle la direction du vent est fonction de la distribution de la pression atmosphérique. Lorsqu'il apprit que cette loi avait été en fait découverte un an plus tôt par Ferrell. il proposa de la rebaptiser, offre que Ferrell déclina courtoisement.

Buys-Ballot fut l'un des premiers à reconnaître qu'il était indispensable que les stations météorologiques d'un même réseau appliquent des méthods unformes. L'article qu'il écrivit à ce sujet est d'ailleurs à l'origine de la convocation de la Conférence météorologique internationale de Leipzig (1872), à laquelle il participa activement. L'année suivante, il présidait la séance d'ouverture du Congrès météorologique international de Vienne et fut élu président du CMI, constitué à cette occasion. Incontestablement, il exerça une influence prépondérante sur les travaux du Comité dont il continua de faire partie jusqu'en 1888.

Dès 1872, Buys-Ballot proposa que l'on établisse des stations météorologiques dans les régions polaires. Il n'est donc pas surprenant que la création de l'Année polaire internationale (1882–1883) ait trouvé en lui un partisan enthousiaste. Le navire néerlandais Varna, qui participait au programme, connut un destin malheureux et fit naufrage dans les glaces. L'équipage réussit à gagner un îlot inconnu qui fut baptisé île de Buys-Ballot. Ce dernier dirigea l'institut jusqu'à sa mort, survenue en 1890, alors qu'il était âgé de 72 ans et au maximum de ses capacités. Sa disparition fut regrettée par un vaste cercle d'admirateurs hollandais et par les météorologistes de nombreux pays.

H. Wild (1879– 1896)

Né à Uster (Suisse), le 17 décembre 1833, Heinrich Wild succéda, en 1879, à Buys-Ballot comme président du CMI. Après des études à l'université de Zurich, ainsi

@ Appelé d'abord "Comité permanent".

qu'à Konigsberg et Heidelberg, il enseigna pendant plusieurs années à Zurich. A la demande du gouvernement suisse, il entreprit une étude pour la création d'un réseau de stations météorologiques sur le territoire suisse. On lui doit aussi plusieurs instruments météorologiques dont le plus connu est l'anémomètre qui porte son nom. Nommé directeur, en 1868, de l'Observatoire principal de physique à Saint-Pétersbourg (aujourd'hui Leningrad), en Russie, il consacra tous ses efforts au dévoloppement des activités scientifiques de l'observatoire et à l'établissement d'un réseau de stations couvrant tout le territoire russe. Il attachait beaucoup d'importance à ce que l'on inspecte régulièrement les stations d'observation afin de contrôler le bon état des instruments et de vérifier que les méthods préconisées étaient bien appliquées. Il se rendit d'ailleurs lui-même dans bon nombre de stations. On raconte à ce propos que son assistant, Rykachev, fit une tournée d'inspection entre juin et août 1872, durant laquelle il parcourut 9000 km dont 2800 à cheval. Au cours de son séjour en Russie, Wild fit paraître de nombreuses communications scientifiques, la plupart sur la climatologie. Il semble cependant qu'il se soit davantage intéressé à l'étude théorique des climats qu'aux applications pratiques de la climatologie. Il avait, de plus, la réputation d'être assez conservateur, de sorte que quelques-uns de ses collègues plus jeunes éprouvaient certaines difficultés à travailler avec lui.

Wild présida plusieurs sessions du CMI, à Berne (1880), à Copenhague (1882), à Paris (1885), à Zurich (1888) et à Uppsala (1894). C'est lui qui, avec le concours de R.H. Scott, mit au point le premier code météorologique international, en 1874. Il présida aussi la Commission de l'Année polaire, en 1880, et fut donc ainsi a mené à s'occuper activement des préparatifs de la Première Année polaire. Lorsqu'il prit sa retraite de directeur de l'Observatoire de Saint-Pétersbourg, en 1895, Wild regagna la Suisse, son pays natal, et c'est à Zurich qu'il mourut, le 5 septembre 1902.

E. Mascart (1896– 1907)

Pour diverses raisons, la France n'était pas représentée au Congrès météorologique international de Vienne, en 1873. Une place avait cependant été réservée au sein du CMI pour un météorologiste français qu'occupa, en 1878, Eleuthère Elie Nicolas Mascart qui, en 1894, succéda à Wild à la présidence du Comité. Né à Quarouble, dans un milieu très modeste, le 20 février 1837, Mascart dut se frayer lui-même son chemin vers l'Ecole normale supérieure, où ses dons remarquables furent reconnus, ce qui lui assura par la suite une brillante carrière. Ses premiers grands travaux de recherche scientifique portèrent sur la partie ultraviolette du spectre, mais ce sont ses études sur l'électricité qui le firent surtout connaître. En 1871, il succéda à Regnault à la chaire de physique du Collège de France, qu'il occupa jusqu'en 1908. Dans l'intervalle, un décret gouvernemental institua, en 1878, le Bureau central météorologique dont Mascart fut invité à être le premier directeur. Il accepta à la condition que ses fonctions seraient principalement administratives, de manière qu'il puisse poursuivre ailleurs ses travaux de recherche. Il s'intéressait en effet tout particulièrement aux aspects internationaux de la météorologie et c'est à ce titre qu'après avoir été membre du CMI il succéda tout naturellement à Wild en tant que président.

C'est sous la présidence de Mascart que furent tentés les premiers efforts pour donner un règlement à l'Organisation météorologique internationale. Mascart participa lui-même à la rédaction du projet de texte dont le principe fut accepté par le CMI, lors de la session qu'il tint à Paris, en 1907, Mais, en raison de la Première Guerre mondiale, ce n'est qu'en 1919 que la Conférence des directeurs put adopter officiellement ce règlement. Il est d'ailleurs intéressant de noter que celui-ci ne fait aucune mention des attributions du Président de l'Organisation.

Tout en assumant les responsabilités qui lui incombaient dans le domaine de la météorologie, tant sur le plan national qu'international, Mascart poursuivait ses travaux de physicien. Entre 1889 et 1892, il fit paraître les trois volumes de son Traité d'optique et, en 1900, son Traité du magnétisme terrestre. Le mérite de l'adoption d'un système international d'unités électriques lui revient aussi pour une large part. Doté d'un caractère très énergique, Mascart refusa toujours de se ménager en dépit des avertissements de ses amis. La maladie le contraignit pourtant à abandonner la présidence du CMI et il mourut le 26 août 1908, peu après une session du Comité qu'il aurait normalement dû présider.

FLYING WITH AN AERIAL SURVEY TEAM

By G.A. Zolobowski

On the afternoon of June 8, at 2:05 pm Central Standard Time, a camera-equipped Cessna 402, owned by Northwest Photo Survey of Edmonton, Alberta, left Regina Airport bound southeastward for an afternoon of aerial mapping. The aircraft carried a crew of three – pilot Paul Haggedorn, cameraman Terry James, and navigator Neal Peterson. On board also was a passenger, forecaster Anna Zolobowski of the Regina Weather Office.

The take-off was routine. Runway temperature was 71 degrees and surface winds were out of the south-southwest at 11 miles per hour with gusts to 23. The forecast called for scattered cumulus clouds, based about 5,000 feet AGL, over the entire route with scattered higher cloud above. Some light turbulence was also indicated.

As pilot Haggedorn took the Cessna to cruising altitude, navigator Peterson and cameraman James went over the afternoon's "shooting schedule". Peterson had already traced, on an Airways chart, the "flight line" to be followed. The line ran from Regina to Weyburn, on to Estevan and the Boundary Dam area, over to the town of Torquay and then southeastward from Torquay to a point just inside the United States border. Several "target areas" were outlined over this route, each identified by a code number. Beside each target Peterson had also indicated the altitude from which the "shots" were to be made.

The "targets" were usually sections of highway, or assorted gravel pits. These were considered routine assignments that could be handled fairly quickly. The chief project for the afternoon involved the extensive aerial mapping of the north end of the Boundary Dam and a single shot, at relatively low altitude, of the Dam itself. It was estimated that the entire mission would take approximately two hours – an estimate which turned out to be slightly, optimistic.

The Cessna 402, powered by twin turbocharged engines, had a top speed of over 260 miles per hour and a service ceiling of 31,000 feet. Heavy-duty brakes and landing gear made it capable of operating out of remote airfields as well as main terminals, while the cabin, originally affording room for 10 plus baggage, was designed for carrying either passengers or cargo. This "convertability" meant that only minor modifications were carried out when the expensive photogrammetric camera was installed.

Located squarely amidships, the retractable camera was raised and lowered manually; the camera housing itself measured roughly three feet from floorboards to

eyepiece. "Loading" the camera was as simple as loading an ordinary Polaroid although the rolls of film (each affording 280 exposures) were each as large (and heavy) as a roll of teletype paper. An amber light on the pilot's control column meant that the camera was down and in position; a green light indicated that the camera was in operation.

Cameraman James, a veteran photographer, was in charge of taking the actual pictures; navigator Peterson, however, was in charge of "setting up" a particular sequence of shots. When a "target" came into sight over the horizon, Peterson directed the pilot to fly toward it, descending from "cruise altitude" (approximately 6,000 feet) to "photo altitude". Then, noting the outside air temperature, Peterson worked out the "pressure corrected" altitude; a shot required from 5,400 feet AGL might, for example, have to be made from 5,360 feet on the cabin altimeter.

Once Haggedorn had brought the aircraft down to the proper altitude. Peterson bent over the "driftmeter", another three-foot-high unit resembling a "bombsight", located on the right side of the aisle and slightly behind the pilot's chair.

Scanning the terrain below through the eyepiece of the driftmeter, Peterson constantly called out corrections to the aircraft's course and heading. Simultaneously, James prepared for the photograph sequence.

As the "target" appeared in the crosshairs of the driftmeter, Peterson signalled "Camera On". James began taking photographs while Haggedorn, sighting along a convenient highway or quarter-section line, attempted to keep the aircraft flying straight and level.

With the exception of the single Boundary Dam shot, most "targets" called for between six and twelve separate exposures. The "mapping" of the Boundary Dam area was carried out along five flight lines, each a quarter-section apart, with about fifteen exposures on each separate "pass".

As the target passed out of sight, Peterson signalled "Camera Off". The camera was retracted, while both cameraman and navigator turned their attention to filling out the photo log. They discussed whether or not cloud shadows over the terrain at the time could have had a serious effect on the quality of the photographs. In a few cases, James expressed doubt that the photographs would turn out well. Then plans would be made to alter the flight line so that the target could be "re-shot" at the earliest convenient time. If both men agreed that the photographs were probably successful, James wrote down the code number of the "target", the altitude from which the photographs were made, the number of exposures, and any remarks he wanted passed on to the photo labs. Peterson meanwhile checked his reference map and, as Haggedorn again brought the aircraft up to "cruising" altitude, kept a sharp lookout for the next "target" on the list.

The cumulus, which had been present over the entire route in amounts ranging from three to eight tenths of sky cover, spread out rapidly as the afternoon wore on. Finally, it was agreed that cloud shadows were becoming too thick to make further photography worthwhile. At about 4:30 p.m. Peterson signalled "Camera Off" for the last time, and took over as pilot for the return leg of the trip. Just after 5:00 p.m., Northwest Photo Surveys Cessna 402, having completed a round trip of approximately 250 miles, landed at Regina Airport.

For the lone passenger and "observer", the afternoon had turned out to be quite an adventure. On the way to the various "target areas", the crew talked freely about

different aspects of their profession. Each step of the photogrammetric routine was explained as fully as time allowed. One could not help being impressed by the way the three crew members, each with a specific job to do, functioned together as a skillful and highly competent team. The "esprit de corps" was tremendous in spite of increasing difficulties involving turbulence and cloud cover.

Meteorology, of course, came under discussion from time to time. The requirements, with regard to cloud cover and turbulence, are far more rigid for aerial mapping teams than they are for general aviation. Only when flying with an operational survey team does the forecaster realize exactly how rigid these requirements are. Skilled photo crews such as this one, are, however, by the very nature of their work, instinctively "weather vigilant". The decision to abandon a particular "target area" for another where conditions for photo work are likely to be better rests entirely with the navigator. In this particular case, the navigator's judgment and "weather sense" had been almost infallible; only two projects out of the original dozen had to be postponed to the next day. The whole was an impressive demonstration of "applied meteorology" at the most vital level . . that of the aircrew itself.

Thanks are in order, both to the pilot and crew of Northwest Photo Surveys Cessna (CF–PDH) and to the staff of Weather Office Regina, for making this unique experience possible.

SUDBURY DISPERSION STUDY

The effectiveness of tall stacks as a solution to air pollution problems is still very much a matter for controversy. This situation exists because no general, complete theory has been formulated to relate pollutant dispersion (i.e. transport, diffusion and deposition) to the relevant atmospheric factors and processes. Semi-theoretical expressions have been derived for some simple situations but, because most of the empirical input to these expressions involves measurements related to stacks shorter than 100 m and because observations at upper levels are technically difficult, little of the data obtained relates directly to pollutant dispersion at greater heights. Since the application of existing prediction formulas to tall stacks requires questionable extrapolations of height-dependent dispersion parameters, one can't over-emphasize the importance of the actual relevancy of data collected to validate aspects of effluent dispersion from such structures.

As a consequence of the above, the Air Quality Research Branch of AES and the Air Management Branch of the Ontario Environment Ministry undertook a joint field study of the 375 meter smelter stack at Sudbury during the period June 10–22, 1973. The objectives were to relate the plume dispersion to relevant atmospheric parameters at the appropriate height in the planetary boundary layer and to determine the contribution to precipitation-deposited sulphur compounds in the immediate Sudbury area from the smelter plume as compared to that from more distant pollution sources. The program consisted of coordinated measurements of "in-stack" pollutant concentrations, plume-rise, sulphur dioxide concentrations in the plume downwind to approximately 80–90 km (via aircraft sampling by the MEP Company under contract to AES), maximum ground-level concentrations of sulphur dioxide and both upwind and downwind atmospheric stability

and winds aloft (via radiosondes, pilot balloons and tethersonde). These measurements were concentrated during periods of maximum (afternoon) and minimum (sunrise) dispersion. During individual periods of precipitation, rain samples were collected from approximately 200 locations and subsequently analyzed for pH, electrical conductivity and content of dissolved sulphur dioxide, sulphate ion and trace metals.

In addition to the main program, an evaluation was carried out of the applicability of ground-based remote sensing to the study of plume dispersion. The instruments tested were the AES correlation spectrometer and the York University lidar (under contract to the Ontario Government).

PRE-OLYMPIC REGATTA PROGRAM

The Canadian Olympic-Training Regatta (Sail Week '73) was held in Lake Ontario south of Kingston, during the period August 25 through 31. Real-time meteorological observations from a deep water tower operated by the Lakes Section near Simcoe Island, were made available to the Kingston Weather Office for use by the Toronto Weather Office forecaster assigned to the event. By coincidence the forecaster was Mr. Brian O'Donnell, a former student assistant with the Lakes Section who apprenticed for two summers with the TSC "Met-Cat." (TSC equals Twin Screw Catamaran).

WORLD ENVIRONMENTAL MONITORING

During July, Dr. R.E. Munn was in Europe as a special consultant for the United Nations Inter-Agency Working Group on Monitoring. His task was to prepare a first-draft action plan for international environmental monitoring of all media, including the atmosphere, oceans, soils, rivers, ground-water, vegetation, food, drinking water and epidemiological indicators. Dr. Munn spent two weeks visiting all the UN Specialized Agencies before completing his report.

The recommendations will be considered in September at a meeting of the Inter-Agency Working Group.

PERSONNEL

The following transfers took place:

F.S. Porter	From: CFB Summerside To: Weather Office Gander
O.S. Lange	From: CFB Moose Jaw To: Weather Office Gander
D.C. McKay	From: Weather Office Toronto To: PhD. Studies U. of Guelph
E. Oja	From: CFB Greenwood To: METOC Centre Halifax
P.R. Scholefield	From: Colorado Springs To: CFB Edmonton
L.S. Romaniuk	From: AES HQ Downsview To: Weather Office Regina
B.F. Stenton	From: METOC Centre Esquimalt To: Weather Office Goose
A. Serna	From: 1 Canadian Air Group To: Weather Office Edmonton
J.F. McKee	From: 22 NRWC North Bay To: CFB Edmonton
R.C. Graham	From: AES HQ Downsview To: RD AES Ontario Region
S. Landsberg	From: Weather Office Sarnia To: Weather Office Toronto

The following are on temporary duty or project assignment:

J.G. Cantin	From: Weather Office Montreal To: AES HQ Downsview
G.J.M. Fenech	From: Weather Office Toronto To: AES HQ Downsview
R.J. Lee	From: Arctic Weather Central To: Resolute WO

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

73-DOE-ONT-CC-94	Meteorology Canadian Forces (Sea Element) W.H. McRuer
73-DOE-ONT-CC-44	Meteorology MT 8 Head, Data Standards Section CSD AES HQ R.S. McMaster
Resignations:	E.M. Taylor CFB Cold Lake

Appointments:

Mr. K.R. Maughan has been appointed to the position of Administrative Assistant to the Regional Director, AES Western Region. Mr. Maughan was previously officer-in-charge of the Fort Nelson Weather Office.

Mr. W.J. Jardine has been appointed as Meteorological Inspector, AES Western Region. Prior to this appointment he served as Regional Training Officer, AES Central Region.

TRIVIA

Voici une liste d'expressions diverses comprenant des proverbes, des locutions, des dictons, des gallicismes, des canadianismes, des régionalismes, des anglicismes et même des barbarismes.

Expression	Signification ou Equivalent
Avoir l'air fin	Avoir belle apparence
Avoir l'air fou	Etre ridicule
Avoir l'air bête	Avoir l'air de mauvaise humeur
Ça n'a pas d'allure	Ça n'a pas de bon sens
J'en ai par dessus la tête	C'est déjà trop
Il y a du monde en masse	Il y a beaucoup de monde
Ça se peut	C'est possible
Corps et âme	Complètement
Mettre la charrue devant les boeufs	Mal régler un problème
Etre un mouton	Manquer d'esprit d'initiative
Se fendre en quatre	Travailler fort
Voyager sur le pouce	Faire de l'auto-stop
Chialer toujours	Se plaindre toujours
C'est une grosse légume	C'est un personnage important
Il fait fret	Il fait très, très froid
Bâdre-moi pas	Ne me dérange pas
C'est pas la tête à Papineau	Ce n'est pas une personne très intelligente
Vendre la peau de l'ours avant de l'avoir tué	Se réjouir d'un résultat non encore obtenu
Ça va pas pire	Ça va bien
Avoir les deux pieds dans la même bottine	Etre gauche
Ça clique?	Ça marche?
Je file pas bien	Je me sens mal
Ce n'est pas la mer à boire	Ce n'est pas une chose impossible

Alert Observing! ! !

YYL 015 097/59/53/0000/982/WOLF ON RAMP

WEATHER OFFICE, EDMONTON INTERNATIONAL

Mosquito Index forecast 7 a.m. daily from July 10 through August. To study mosquito activity, predict activity, and for spraying. Surface data for 6–9 p.m. previous evening and forecast parameter for coming evening. Hourly values of wind speed, cloud cover, precipitation, temperature, relative humidity and barometric tendency.