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MOBILE AIR QUALITY MONITORING

by K.G. Anlauf, M.A. Lusic, H.A. Wiebe and H.P. Sanderson

In the past, most air quality measurements have been made at fixed locations such as public buildings in downtown areas of large cities, or at specially chosen sites around strong point sources of pollution (power plants, smelters, etc.). However, much additional information pertinent to air pollution processes can be acquired through the use of mobile platforms such as ground-based vehicles and aircraft. For example, with an airborne instrument platform one can study the detailed vertical and horizontal distribution of pollutants, the dispersion and chemical reactions of various species in tall stack plumes, and other phenomena which are inaccessible to a fixed, ground-based air monitoring network. Similarly, instruments mounted in vehicles can be conveniently moved on short notice to measure a variety of air pollutants in problem areas (for example, areas being fumigated downwind from strong point sources), and generally to obtain a more detailed picture of the ground-level distribution of air pollutants. During 1974 and 1975, The Atmospheric Chemistry, Criteria and Standards Division of the Air Quality Branch has been engaged in several projects which involved the use of mobile laboratories – both ground-based and airborne.

Initially, a motor home was purchased and delivered in the spring of 1974. This motor home is 25' long with an internal laboratory (working) area of 19½ ft. by 7½ ft. wide and a ceiling height of 6½ feet (see Figure 1). It came equipped with the usual motor home options including a 6000 watt electric generator. Subsequent to delivery, the motor home was immediately converted into a mobile air quality monitoring laboratory. A wind ensemble (modified U-2A) was installed on a tower designed by the Machine Shop at AES. This tower can be erected in several minutes; this is accomplished by pivoting the tower on the bottom section by means of a pin attached securely to the vehicle wall supports. The tower comes in sections that are readily assembled should a change in height be necessary. Generally the tower height is about 8.5 m; this is 5.9 m above the vehicle roof and minimizes turbulence effects on the wind ensemble. The tower also holds a ventilated temperature probe.

For ambient air monitoring, a fan-driven manifold brings air into the interior of the vehicle for sampling by the various pollutant gas analyzers. This air manifold consists of a modular quick-disconnect glass-teflon tube system terminated by an intake filter within the inverted teflon-coated funnel, as seen on Figure 1.

Presently the chemistry section of ARQA has air quality monitoring instruments for analysis of nitrogen dioxide, nitric oxide, ozone, carbon monoxide, sulphur dioxide, hydrogen sulphide, and other sulphur containing compounds. These instruments may be shock-mounted on slide trays within the internal electronic racks (see Figure 2). Their signal output is fed to an automated data logging system termed 'MIDAS' – designed and built by the Instrument Branch at AES. Ten-minute averages for each pollutant are fed to a teletype for recording on paper punch tape. The tapes can then be readily analyzed on a computer; generally one-hour averages are printed out and subsequently graphed on a computerized plotter.

Initially, this mobile laboratory was used in July 1974 for an environmental study in Saint John, New Brunswick. Since a large thermo-electric power plant was being installed to the west of the city, it was deemed necessary to make air quality measurements before this plant was on-line. Our contribution consisted of measuring sulphur dioxide.

nitric oxide, nitrogen dioxide and ozone at several Saint John locations under various meteorological conditions. As a point of interest, the famous Reversing Falls is just south of a pulp and paper mill in the centre of Saint John. The mobile characteristics of our laboratory proved to be of great advantage at this location — one day, the odours became so offensive to the operators, that they packed it up and left for the pristine environment on the shores of the Bay of Fundy to do 'background' monitoring. On the whole, this study proved to be successful and results are available in an internal AES report ARQA-18-75.

In the past, various incomplete measurements of oxidants had been made in Toronto and they pointed to possible high concentrations. This was especially substantiated by the frequent sightings of a red-brown 'smog' layer above Toronto on calm, warm and sunny days. Hence, in the summer of 1974, ARQA also began the 'Toronto Oxidants Study'. A fixed air quality monitoring station was set up on Toronto Centre Island and the previously mentioned mobile laboratory was used as a complement station at Claremont Conservation Area (44 km NE of the island site). At both locations, ozone, nitrogen dioxide and nitric oxide were measured continuously until October 24, 1974. The results showed that levels of oxidants such as ozone and nitrogen dioxide can be very high in the Toronto region, especially for southerly winds (see reports ARQA-21-75 and ARQA-25-75). This year, the project was again carried out but for a longer period (May-Oct.) and on a more extensive scale. The ARQA mobile laboratory was stationed near Maple (28 km north of Centre Island) and a second mobile laboratory (kindly supplied by ARQS of AES) was placed near Bradford (Holland Marsh region, 54 km north of Centre Island). The purpose in aligning these three stations in a north-south direction was to investigate the 'urban plume' vented by the city of Toronto during southerly winds. The analysis of this year's data is still in progress.

During the past two years the Chemistry Division has also been engaged in three projects involving aircraft monitoring. The 1250 foot stack of the INCO nickel smelter at Sudbury, Ontario, is the largest 'point' source of sulfur dioxide in the world; about 4000 tons per day are emitted into the surrounding air. To assess the potential damage of these emissions to human health, vegetation and property, it is important to know the rate of dilution of the sulfur dioxide in the plume downwind of the stack, under various meteorological conditions, as well as its chemical transformation to sulfuric acid and sulfate aerosols. Accordingly, over a period of four weeks in total (September 1974 and June 1975) a twin-engined Beechcraft was used to make passes through the plume at different downwind locations and sulfur dioxide concentrations were measured. The proportion of the total sulfur in the plume existing in the aerosol phase was determined with specially-treated filters and a high-volume air sampler. The results of this work are described in reports ARQA-26-75.

The Edmonton field study of December, 1974, illustrates a different type of aircraft application. In this case it was desired to provide supporting data for a mathematical air quality model. A Bell Jet Ranger helicopter, shown in Figure 3, was instrumented with an ozone and nitrogen oxides analyzer. Spirals were flown at pre-determined locations both upwind and downwind, as well as within the city itself. In this way a fairly complete picture could be obtained of the way air parcels pick up pollutants as they travel over the urban area, as well as the vertical distribution of pollutants from near ground level to the top of the mixing layer. This study was carried out jointly by the Atmospheric Environment Service, Alberta Environment, and Western Research and Development.

As was mentioned earlier, very high ozone levels had already been measured on Toronto Island the previous summer, and we wanted to obtain a more complete

picture of the horizontal and vertical extent of ozone pollution (both to the north of Toronto as well as over Lake Ontario) and to clarify some of the meteorological conditions which are conducive to ozone formation. Accordingly the twin engine Piper Aztec shown in Figure 4 was instrumented with an ozone analyzer, as well as a temperature and pressure-height sensor. The instrument rack is shown in Figure 5, where one can see the ozone analyzer with its chart recorder, the recorder for measuring temperature and altitude, and the voltage inverter which supplies power to the instruments. Spirals and cross-wind traverses were made in August, 1975, at various locations over Lake Ontario, the Maple-Woodbridge area, and Holland Marsh. The results obtained during these flights are presently being processed, and should make a substantial contribution to our understanding of ozone pollution in the Metropolitan Toronto area.



Figure 1.



Figure 2.

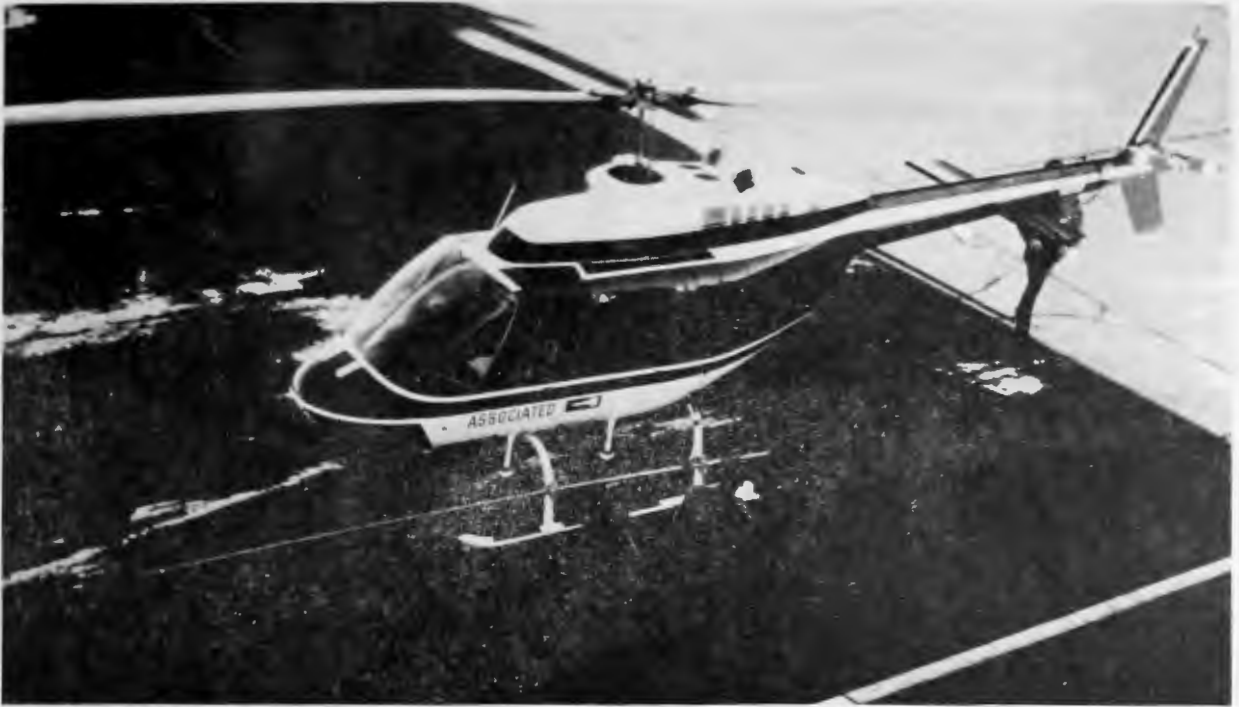


Figure 3.



Figure 4.

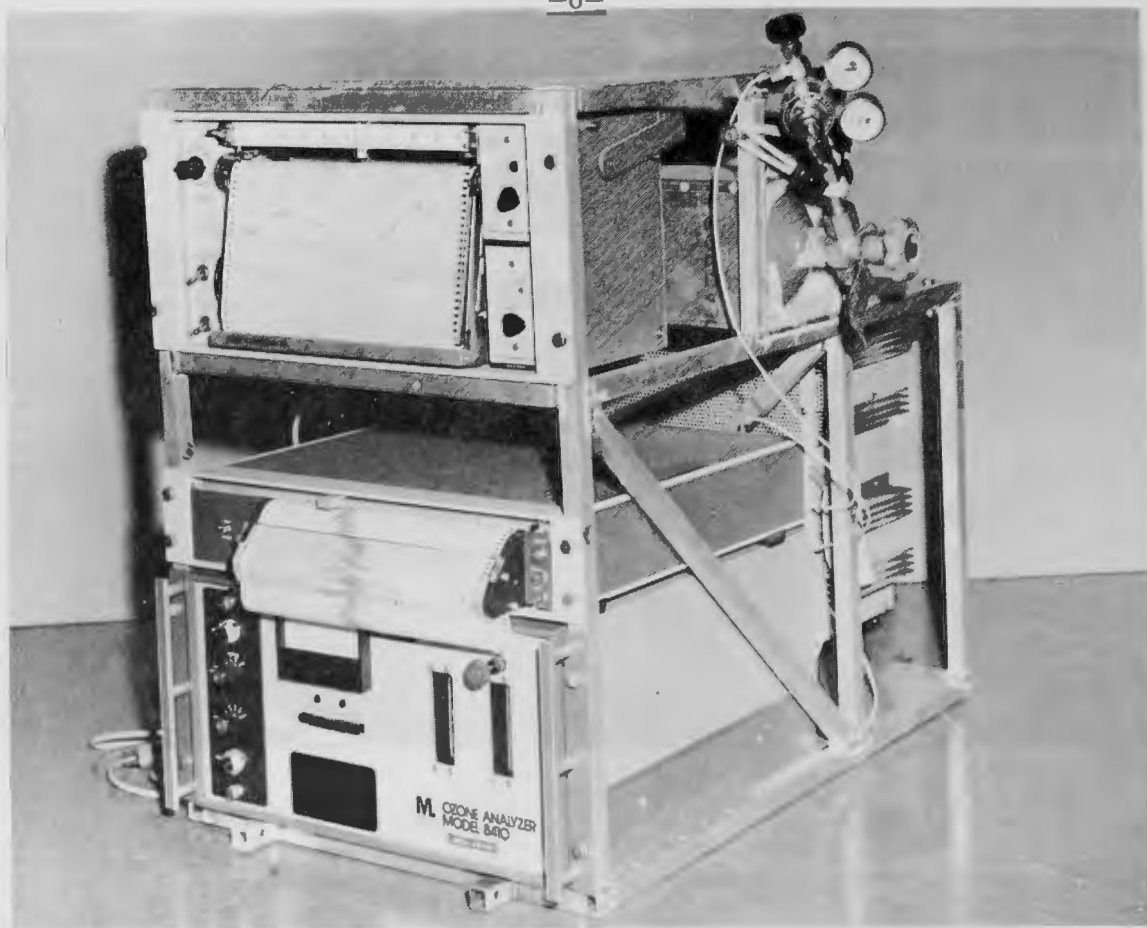


Figure 5.

Photos Courtesy/ Les photos sont une gracieuseté de Norman Steinhaur

SURVEILLANCE MOBILE DE LA QUALITÉ DE L'AIR

par K.G. Anlauf, M.A. Lusic, H.A. Wiebe et H.P. Sanderson

Par le passé, la plupart des mesures de la qualité de l'air ont été effectuées à des endroits donnés, notamment des immeubles publics situés au centre de grandes villes ou à certains endroits choisis parce qu'ils se trouvaient près de puissantes sources ponctuelles de pollution (centrales thermiques, fonderies, etc . . .). Il est cependant possible d'obtenir beaucoup d'autres renseignements sur les processus de pollution de l'air en se servant de plates-formes mobiles, notamment de véhicules au sol et d'aéronefs. Avec une plate-forme d'instruments aéroportés, il est possible, par exemple, d'étudier en détail les répartitions verticale et horizontale des polluants, la dispersion et les réactions chimiques des différents constituants des panaches des grandes cheminées industrielles et d'autres phénomènes que le réseau terrestre fixe de surveillance ne peut atteindre. Il est de même facile de déplacer

dans un bref délai les instruments montés dans un véhicule pour mesurer divers polluants dans les zones qui posent des problèmes (les zones situées sous le vent balayant d'importantes sources ponctuelles de pollution) et d'obtenir généralement une image plus détaillée de la répartition des polluants de l'air au niveau du sol. En 1974 et en 1975, la Division de la chimie de l'atmosphère, des critères et des normes de la Direction de la qualité de l'air a effectué plusieurs travaux pour lesquels elle s'est servi de laboratoires mobiles terrestres ou aéroportés.

La caravane, achetée et livrée au printemps de 1974 a 25 pieds de long et une zone de travail intérieure aménagée en laboratoire de 19½ pieds de long sur 7½ de large et 6½ de haut (voir figure 1). Elle était équipée de l'appareillage standard des caravanes, y compris d'un générateur d'électricité de 6 000 W. La caravane a immédiatement été transformée en laboratoire mobile de surveillance de la qualité de l'air. Un dispositif de mesure du vent (U-2A modifié) a été installé sur une tour conçue dans l'atelier du SEA. Cette tour se monte en quelques minutes grâce à un tourillon de pivotement solidement fixé aux supports des parois du véhicule. La tour est formée de sections faciles à assembler s'il faut modifier la hauteur. En général, la tour a environ 8.5 m de haut, le sommet étant à 5.9 m au-dessus du toit du véhicule, ce qui minimise les effets de la turbulence sur l'instrument de mesure du vent. Il y a également sur la tour une sonde thermométrique ventilée.

Pour la surveillance de l'air ambiant, un collecteur à ventilateur amène à l'intérieur du véhicule l'air qui est échantillonné par les divers analyseurs de polluants gazeux. Ce collecteur consiste en un système modulaire de tubes en verre et en teflon, facile à débrancher, terminé par un filtre d'admission qui se trouve dans l'entonnoir enduit de teflon dont l'extrémité conique est tournée vers le sol comme le montre la figure I.

La section de chimie de l'ARQA a des instruments de surveillance de la qualité de l'air pour analyser le dioxyde et le monoxyde d'azote, l'ozone, le monoxyde de carbone, l'anhydride sulfureux, l'hydrogène sulfuré et d'autres corps composés qui contiennent du soufre. Ces instruments peuvent être montés à l'épreuve des chocs sur les plateaux coulissants des armoires électroniques intérieures (voir figure 2). Les résultats obtenus par ces instruments alimentent un système automatique d'enregistrement chronologique des données appelé "MIDAS", conçu et fabriqué par la Direction des instruments du SEA. Les moyennes pour 10 minutes de chaque polluant alimentent un téléimprimeur et sont enregistrées sur bande perforée qu'un ordinateur peut facilement analyser. Les moyennes horaires sortent généralement sur imprimante puis sont pointées par un traceur automatique.

C'est en juillet 1974 que ce laboratoire mobile a servi pour la première fois pour une étude sur l'environnement effectuée à Saint-Jean au Nouveau-Brunswick. Comme on aménageait une grande centrale thermique à l'ouest de la ville, on avait estimé qu'il fallait faire des mesures de la qualité de l'air avant la mise en service de la centrale. Nous avons été chargés de mesurer l'anhydride sulfureux, le monoxyde et le dioxyde d'azote et l'ozone en plusieurs points de Saint-Jean, sous diverses conditions météorologiques. Il est intéressant de noter que les célèbres chutes "montantes" sont situées au sud d'une usine de pâtes et papiers au centre de Saint-Jean. Le fait de disposer d'un laboratoire mobile représentait un grand avantage à cet endroit: un jour, les odeurs étaient tellement nauséabondes que les opérateurs ont plié bagage et sont allés surveiller l'environnement non pollué par l'industrie des côtes de la baie de Fundy. Dans l'ensemble, cette étude a donné de bons résultats qui ont été publiés dans le rapport interne ARQA-18-75 du SEA.

Par le passé, on a effectué à Toronto différentes mesures incomplètes d'oxydants qui ont indiqué des risques de concentrations élevées. La couche de smog

brun rougeâtre que l'on pouvait souvent apercevoir au-dessus de Toronto par temps chaud, ensoleillé et calme étayait particulièrement cette hypothèse. L'ARQA a donc également entrepris une étude des oxydants de Toronto au cours de l'été de 1974. On a établi une station fixe de surveillance de la qualité de l'air au large de Toronto à Centre Island et le laboratoire mobile, dont il est question ci-dessus, a servi de station complémentaire située dans la réserve naturelle de Claremont (à 44 km au nord-est de l'île). L'ozone, de même que le monoxyde et le dioxyde d'azote, ont été mesurés continuellement en ces deux endroits jusqu'au 24 octobre 1974. Les résultats ont montré que les concentrations en oxydants, notamment en ozone et en dioxyde d'azote, peuvent être très élevées dans la région de Toronto, surtout s'il y a des vents du sud (voir les rapports ARQA-21-75 et ARQA-25-75). On a repris ce programme en 1975, mais pour une période plus longue (de mai à octobre) et sur une plus grande étendue. Le laboratoire mobile de l'ARQA était stationné près de Maple (à 28 km au nord de l'île) tandis qu'un deuxième laboratoire mobile (aimablement fourni par l'ARQS du SEA) se trouvait près de Bradford (région du Holland Marsh, à 54 km au nord de l'île). Ces trois stations avaient été alignées suivant une direction nord-sud pour l'étude du "panache urbain" diffusé par la ville de Toronto lorsqu'il y a des vents du sud. L'analyse des données de 1975 est encore en cours.

Au cours des deux dernières années, la Division de chimie a également travaillé à trois programmes avec surveillance par aéronef. La cheminée de 1 250 pieds de la fonderie de nickel de l'INCO à Sudbury (Ontario) est le point d'émission d'anhydride sulfureux le plus important au monde; elle en émet environ 4 000 tonnes par jour dans l'air ambiant. Pour évaluer les répercussions néfastes que ces émissions risquent d'avoir sur la santé des hommes, la végétation et les biens matériels, il est important de connaître la concentration en anhydride sulfureux du panache dans la direction du vent à partir de la cheminée, sous différentes conditions météorologiques, ainsi que la transformation chimique de ce polluant en acide sulfurique et en aérosols sulfatés. On s'est par conséquent servi d'un bimoteur Beechcraft pour traverser, au cours d'une période de 4 semaines en tout (en septembre 1974 et en juin 1975), le panache en différents endroits sous le vent et pour mesurer la concentration en anhydride sulfureux. La proportion de soufre total contenu dans le panache sous forme d'aérosol a été déterminée par des filtres traités spécialement et un appareil de prélèvement d'air de grand volume. On trouvera les résultats de cette étude dans le rapport ARQA-26-75.

L'étude sur le terrain effectuée à Edmonton en décembre 1974 illustre une application différente des aéronefs. Dans ce cas, on souhaitait obtenir des données pour un modèle mathématique de la qualité de l'air. L'hélicoptère Bell Jet Ranger de la figure 3 avait été équipé d'un analyseur d'ozone et des oxydes d'azote. On a effectué des vols en spirale à certains endroits, soit en direction du vent, soit contre le vent, ainsi qu'au-dessus de la ville. On a ainsi obtenu une assez bonne représentation de la façon dont les particules d'air ramassent les polluants au cours de leur déplacement au-dessus de la zone urbaine, ainsi que la répartition verticale des polluants de la surface du sol au sommet de la couche de brassage. Cette étude avait été effectuée conjointement par le Service de l'Environnement atmosphérique, Environnement Alberta et la Western Research and Development.

Comme cela avait été mentionné antérieurement, des niveaux d'ozone très élevés avaient déjà été mesurés dans l'île de Toronto au cours de l'été précédent, et nous voulions obtenir une représentation plus complète de l'étendue horizontale et verticale de la pollution due à l'ozone (à la fois au nord de Toronto et au-dessus du lac Ontario) et éclaircir certaines conditions météorologiques propices à la formation d'ozone. On avait donc équipé le bimoteur Piper Aztec, représenté sur la figure 4, d'un analyseur d'ozone ainsi que d'un détecteur de la température et de la pression en fonction de l'altitude. La figure 5 illustre l'armoire à instruments et on peut y voir l'analyseur d'ozone équipé

d'un enregistreur, l'enregistreur des mesures de la température et de l'altitude, et le convertisseur de tension qui alimente les instruments. On a effectué des vols en spirale et avec le vent de côté au mois d'août 1975, à différents endroits au-dessus du lac Ontario, de la région de Maple-Woodbridge et du Holland Marsh. Les résultats obtenus au cours de ces vols sont actuellement traités et devraient apporter une importante contribution à notre compréhension de la pollution par l'ozone de la région du grand Toronto.

THE HONOURABLE JEANNE SAUVÉ'S FIRST VISIT TO AES HEADQUARTERS

The Minister of Environment, the Honourable Jeanne Sauvé, P.C., M.P., paid her first fleeting visit to the Atmospheric Service Headquarters on October 1, 1975 just before her address to the Women's Canadian Club at the Eaton Auditorium, College Street, Toronto. Arriving with her Special Assistant, Mr. Pierre Nadeau, she was received by the Assistant Deputy Minister, Mr. J.R.H. Noble and senior A.E.S. staff members. Lasting somewhat less than an hour, the visit included a tour of the exhibits in the rotunda, the showing of a film on the Stratospheric Balloon Experiment at Yorkton, Saskatchewan, followed by a short presentation by Dr. B.W. Boville on current problems related to freon, ozone, the supersonic transport and climatic change. Regrettably, time did not permit the Minister to meet with other AES staff nor to visit other parts of the building on this occasion. It is our hope that she will soon return.



L-R: de g. à d.: Mme Jeanne Sauvé, Mr. Bob Vokeroth, and Mr. J.R.H. Noble.



*L-R: de g. à d.: Miss Mary Skinner, Mr. J.R.H. Noble, and
Mme Jeanne Sauvé.*

Photos Courtesy/Les photos sont une gracieuseté de
A. Blokhine

PREMIÈRE VISITE DE L'HONORABLE JEANNE SAUVÉ À L'ADMINISTRATION CENTRALE DU SEA

L'Honorable Jeanne Sauvé, ministre de l'Environnement, membre du Conseil privé, député, a fait, le 1^{er} octobre 1975, une première visite de courte durée, à l'Administration centrale du Service de l'Environnement atmosphérique, juste avant de présenter une communication au Women's Canadian Club, réuni à l'auditorium Eaton, College Street, à Toronto. Accompagnée de son adjoint spécial, M. Pierre Nadeau, elle a été reçue par le sous-ministre adjoint, M. J.R.H. Noble, entouré des cadres supérieurs du SEA. La visite, qui a duré un peu moins d'une heure, a permis au ministre de voir le matériel exposé dans la rotonde, d'assister à la projection d'un film sur l'expérience avec les ballons stratosphériques menée à Yorkton (Saskatchewan) et d'entendre un bref exposé de M. B.W. Boville sur certaines questions actuelles ayant rapport au fréon, à l'ozone, aux transports aériens supersoniques et au changement climatique. Pressée par le temps, Mme Sauvé n'a malheureusement pas pu, ce jour-là, rencontrer d'autres membres du personnel du SEA ni visiter d'autres parties de l'immeuble, mais nous espérons tous qu'elle reviendra bientôt.

J.A.W. McCULLOCH DEPARTS FOR NEW POSITION

J.A.W. McCulloch, Head of the Lakes and Marine Applications Section since 1967, has departed this position to take up his new post as Regional Director, Atlantic Region for the AES. Mr. McCulloch's activities over the years have included extensive IFYGL involvement as Chairman of the Lake Meteorology Panel and the Evaporation Synthesis Group. Other activities included the Beaufort Sea Project, marine studies such as wind-wave relationships, and the Canadian Working Group on the Great Lakes. Until Mr. McCulloch's position is filled on a permanent basis, for the time being, his duties will be handled primarily by D.W. Phillips, with meteorological support from T.L. Richards, and bilingual contacts handled by M.E. Lalande. On Mr. McCulloch's last day at AES Headquarters, this Division held an Open House to permit staff from other areas of the Headquarters to add their best wishes to those of his colleagues in the Meteorological Applications Branch.

ORGANIZATION CHARTS

by D.E. McClellan

What is the connection between contouring a meteorological pattern and preparing an organization chart? The answer, according to Wayne Hodgins of the Canadian Meteorological Centre at Montreal, is the Varian printer plotter.

Over a year ago, Dr. André Robert, the director of CMC, authorized the use of the Varian in solving one of Eddie McGuire's problems, the preparation of organization charts. Eddie is the staff relations officer of the Quebec area Personnel Office in Montreal.

Wayne Hodgins' principal activity in the Extended Forecast Division has been as a key member of the team assigned to plot and contour meteorological charts on the Varian printer plotter. This team has succeeded in automating a significant portion of the work carried out by technicians at CMC. In his spare time, Wayne wrote a program to prepare a simple organization chart. Subsequent frequent discussions with Eddie McGuire led to expansion of the program to handle large organizations and to incorporate many additional pieces of information.

In the accompanying photo, Wayne and Eddie display the organization chart for the Quebec Region component of the AES. More than 300 positions are identified in their respective roles in the hierarchy. Each box contains detailed and comprehensive information regarding the position and the incumbent.

The box information is prepared on three punch cards: two for the position and one for the incumbent. Therefore, a change can be readily effected by modifying the punch card information. The program itself contains more than 1000 instructions written in Fortran language. To execute the sample program on the CDC Cyber and to prepare the Varian tape used as input for the Varian takes about 15 seconds. Less than five minutes later the complete Varian Chart is ready for use.

Wayne and Eddie are to be congratulated on their achievement of applying scientific knowledge to management problems. Routine use is expected shortly by the Quebec Region Personnel Office; a terminal, linked to the CMC computer, is located adjacent to the Personnel Office in Montreal. Managers of all Services in the Quebec Region will be using this tool soon. The application can be extended to the entire department and perhaps to other departments.



SERVICES SCIENTIFIQUES

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LEGENDE

A	E	F	B
D			C
H			G
H			J
K	N	P	J
M	S	T	L
R			O
			U

LE POSTE

- A-TITRE
- B-LANGUE
 - A-ANGLAIS
 - F-FRANCAIS
 - B-BILINGUE
 - D-ANGLAIS OU FRANCAIS
 - H-AUTRE
- C-EXCLUSION
 - E
- D-NUMERO
- E-DATE EFFECTIVE DE LA CLASSIFICATION
- F-GROUPE ET NIVEAU
- G-STATUT
 - I-INDETERMINE
 - T-DETERMINE
 - S-SAISONNIER
 - P-TEMPS PARTIEL
 - Y-ETUDIANT
- H-EVALUATION
- J-REMARQUES
 - 7-PRIME BILINGUISME
 - W-SURVEILLANCE FONCTIONELLE
 - U-PROGRAMME BILINGUISME
 - Z-POSTE ISOLE
 - G-AUTRE CENTRE DE RESPONSABILITE

LE TITULAIRE

- K-NOM
- L-LANGUE
 - A-ANGLAIS
 - J-ANGLAIS BILINGUE-TEST
 - K-ANGLAIS BILINGUE-DECLARATION
 - F-FRANCAIS
 - R-FRANCAIS BILINGUE-TEST
 - Q-FRANCAIS BILINGUE-DECLARATION
 - H-AUTRE
- M-NUMERO D'ASSURANCE SOCIALE
- N-DATE DE NAISSANCE
- P-DATE DE SERVICE CONTINU
- Q-SEXE
 - M-MASCULIN
 - L-FENININ
- R-RELATIONS DE TRAVAIL
 - E2U-EXCLUSION
 - D79-DESIGNATION
- S-DATE DE NOMINATION
A CE NIVEAU DANS CE POSTE
- T-GROUPE ET NIVEAU
- U-NOMINATION
 - N-INTERIMAIRES
 - C-CONDITIONNELLE
 - X-DETERMINEE PLUS DE 6 MOIS
 - Y-DETERMINEE MOINS DE 6 MOIS

LES ORGANIGRAMMES

par D.E. McClellan

Quelle relation peut-il y avoir entre le traçage d'une configuration météorologique et la préparation d'un organigramme? La réponse, d'après Wayne Hodgins du Centre Météorologique Canadien, se trouve dans l'utilisation des appareils à pointer de type Varian.

Il y a un peu plus d'un an, André Robert, D. Ph., Directeur du CMC, a permis l'utilisation de l'appareil Varian pour résoudre un des problèmes d'Eddie McGuire, c'est-à-dire la préparation d'organigrammes. Eddie est l'agent en relations de travail au Bureau du personnel de la région du Québec à Montréal.

Wayne Hodgins travaille dans la Section des Prévisions à Longues Échéances. Il était un des principaux membres d'une équipe qui avait la tâche d'écrire la programmation pour le pointage et le traçage des cartes météorologiques à l'aide de l'appareil Varian. Cette équipe a réussi à automatiser une partie importante du travail des techniciens du CMC. Dans ses moments libres, Wayne a écrit un programme qui produisait alors un organigramme simple. Par la suite, plusieurs conversations entre Wayne et Eddie McGuire ont conduit à l'expansion du programme, rendant ainsi possible des organigrammes d'organisations plus complexes et l'introduction de nombreuses informations supplémentaires.

Dans la photographie qui accompagne ce texte, Wayne et Eddie montrent l'organigramme du Service de l'Environnement Atmosphérique pour la région du Québec. Plus de 300 postes sont identifiés dans cette hiérarchie. Chaque case contient des informations nombreuses et détaillées en ce qui a trait au poste et à son titulaire.

Les informations contenues dans une case sont préparées sur 3 cartes perforées: deux pour le poste et une concernant le titulaire. Ainsi un changement peut être fait rapidement en modifiant les informations sur les cartes perforées. Le programme proprement dit contient plus de 1000 instructions écrites en langage Fortran. Pour exécuter le programme échantillon sur l'ordinateur CDC Cyber 76 et préparer la bobine de l'appareil Varian utilisée comme entrée sur ce même appareil, il faut environ 15 secondes. Moins de cinq minutes plus tard l'organigramme complet produit par le Varian est prêt pour usage.

On doit féliciter Wayne et Eddie pour avoir réussi dans l'application de connaissances scientifiques à des problèmes de gestion. Le Bureau du personnel de la région du Québec commencera très bientôt à utiliser cet outil; en effet un terminus relié à l'ordinateur du CMC et situé près du Bureau du personnel à Montréal servira à cet effet. Les gestionnaires de tous les Services du ministère de la région du Québec en bénéficieront. L'application pourra éventuellement s'étendre à l'ensemble du ministère voire à d'autres ministères.

**METEOROLOGICAL SERVICES RESEARCH BRANCH
1975 ANNUAL CONFERENCE**

Important actual and forthcoming achievements toward introduction of advanced prediction models and computerization in forecast and observing systems were reported at the annual Management Conference of the Meteorological Services Research Branch early in October. The items highlighted included the following:

- (a) Introduction for CMC of an entirely new and more effective scheme for automated data analysis and assimilation and commissioning in January '76 of the operational primitive equations model as the basic and most advanced way of predicting on the large-scale as far as 48 hours ahead.
- (b) Successful trial application of Release I of a Computerized Prediction Support System at Edmonton to support heavy forecast requirements in the Beaufort Sea for very frequent reworking of forecasts with inclusion of great detail and predictions of wind-waves, water-level and inputs to local movement of individual ice-floes. (Release Ia to be implemented in the 1976 oil drilling season, although overcoming deficiencies in Release I, will fall short of Release II to be completed by July 76 for operational introduction in subsequent years).
- (c) Computer processing by the Satellite Data Laboratory of Very High Resolution Radiometer (VHRR) directly acquired data to enhance the imagery, fit it to standard meteorological charts, place it on standard fax circuits of photoquality and with the later potential for automated analysis and accumulation of records for fixed geographic locations.
- (d) Hourly operation of the CYBER 76 Version of a central area Regional Forecast Support System (CYRUS) to test and accumulate long term performance records for computerized prediction.

Dr. Clodman, Director of the Meteorological Services Research Branch, chaired the Conference. In his opening remarks and in discussion he drew particular attention to the fact that his Branch is a resource to support the forecast operations of the Field Services and Central Services Directorates in weather and meteorologically-dependent environmental parameters. Review reports were presented by the four Division Chiefs – Richard Asselin (Recherche en Prevision Numérique, Montreal), Clive Jarvis (Forecast Research Division), Bernie Muller (Systems Design Division and Deputy Director), Graeme Morrissey (Aerospace Meteorology Division, including the Satellite Data Laboratory).

Conference attendees (about 50) consisted mostly of MSRB staff but there was representation also from FSD (HQ and some Regions) and other Directorates/Branches. As an annual gathering, its purpose is to review progress, provide an opportunity for input to the development of the MSRB research program, and to permit free discussion about it. Final decisions on MSRB Goals and Targets for 1978 are made after formal management-level consultation with user Directorates/Branches.

FIFTY YEARS OF VOLUNTARY OBSERVING RECOGNIZED

In recognition of fifty years of voluntary service to Canada, Madame Sauvé, Minister of the Environment has sent a message of gratitude and admiration to Mrs. R.B. MacGillivray of Iron River, Alberta, and on her behalf Mr. George Legg, Director of Atmospheric Environment Service Edmonton, presented her with a beautiful Cloud Atlas suitably inscribed. The late Mr. MacGillivray began observing the weather when he pioneered the home farm in 1925, and a son and two grandsons have carried on in recent years.

On October 29, 1975 George Legg, Regional Director, accompanied by Lorne Murton, Acting Senior Inspector and Bert Clinton, Canadian Forestry Service staff photographer travelled to Iron River, Alberta to deliver Madame Sauvé's Telex message and to make the presentation of the cloud atlas. Bob Hill, Information Services Officer with the Canadian Forestry Service assisted greatly in arranging for the photographer and providing interface services with the daily and weekly newspapers in Alberta.

Following is the text of Madame Sauvé's message to Mrs. MacGillivray:

"PLEASE ACCEPT MY DEEPEST ADMIRATION AND GRATITUDE FOR YOUR FAMILY'S 50 YEARS OF VOLUNTARY SERVICE TO CANADA THROUGH THE RECORDING OF IMPORTANT CLIMATOLOGICAL INFORMATION AT YOUR FARM NEAR IRON RIVER, ALBERTA. THE TRADITION WHICH BEGAN IN AUGUST 1925 WITH YOUR LATE HUSBAND AND CONTINUED BY YOUR SON GEORGE AND GRANDSONS IAN AND CRAIG, HAS INVOLVED OBSERVATIONS OF TEMPERATURES AND PRECIPITATION DAY AFTER DAY IN ALL KINDS OF WEATHER. I HAVE ASKED OFFICIALS OF ENVIRONMENT CANADA TO PRESENT YOU WITH AN ATLAS OF THE CLOUDS TO COMMEMORATE YOUR PRICELESS CONTRIBUTION."

JEANNE SAUVÉ

Oct. 29/75



L-R: de g. à d.: Mr. George Legg, Mrs. R.B. MacGillivray, Mr. Lorne E. Murton.



On behalf of Mme Sauvé, Mr. George Legg presents suitably inscribed Cloud Atlas to Mrs. R.B. MacGillivray.

M. George Legg offre à Mme R.B. MacGillivray un Atlas sur les nuages avec les remerciements de Mme Sauvé.

Photos Courtesy/Les photos sont une gracieuseté de
Bert Clinton

50 ANS D'OBSERVATION

Le ministère fédéral de l'Environnement a tenu à témoigner sa reconnaissance à une pionnière de l'Alberta, Mme R.B. MacGillivray de Iron River. Pendant 50 ans, Mme MacGillivray et son mari, maintenant décédé, se sont fait un devoir de noter toutes leurs observations de la température, et ce travail volontaire commencé en 1925 se continue grâce à leur fils et à deux de leurs petits-enfants. A cette occasion, le ministre de l'Environnement, Mme Jeanne Sauvé, a fait parvenir à Mme MacGillivray un télégramme exprimant sa gratitude et son admiration. De plus, M. G.H. Legg, directeur régional du service de l'environnement atmosphérique a remis à Mme MacGillivray un Atlas sur les nuages. A cette occasion, M. Legg a déclaré que notre connaissance des conditions climatiques acquise par des services volontaires a été utile non seulement aux agriculteurs et à la population locale, mais sert également à tracer un profil du climat du Canada. On aurait besoin de centaines d'observateurs qui accepteraient de faire ce travail volontaire. Les personnes intéressées peuvent entrer en communication avec lui à l'édifice Oliver, 10225 - 100^e avenue, à Edmonton.

EXPO-QUÉBEC 1975

Par D. Blanchard et S. Dulude

Dans le cadre de l'exposition provinciale de Québec qui s'est tenue du 28 août au 7 septembre dernier, le SEA, conjointement avec tous les Services du Ministère de l'Environnement, a participé au montage d'un kiosque de l'Environnement et ce, pour une troisième année consécutive. L'objectif du kiosque de cette année était de présenter au public en général une image à la fois globale et intégrée des activités du ministère au Québec.

Le kiosque, fabriqué de panneaux démontables et d'une dimension d'environ 40' x 40' était encadré par trois côtés. On y illustre surtout des textes et des photos expliquant les diverses fonctions des Services du MDE. Certains Services présentaient des pièces d'exposition qui n'ont pas manqué d'attirer de nombreux visiteurs. Le Service des Forêts, par exemple, exposait des éléments "vivants" illustrant la recherche forestière tandis que le SPE offrait aux visiteurs un diaporama de ses activités au sein du ministère.

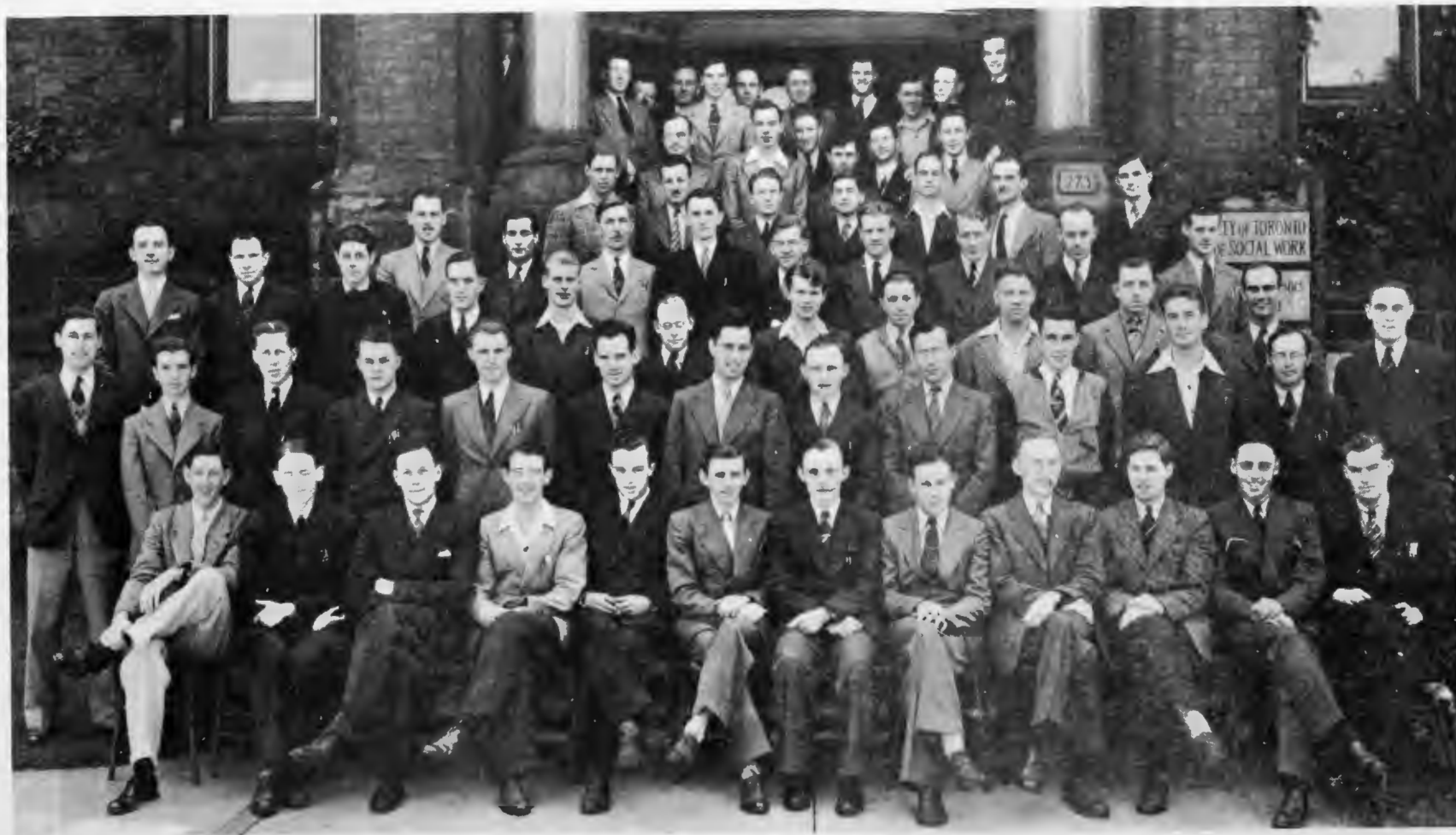
Le SEA, occupant la partie du fond du kiosque, présentait pour sa part de l'équipement de communication, soit un téléscripneur et un appareil fac-similé avec données en temps réel, quelques photos illustrant différents instruments météorologiques ainsi que le bureau de prévisions du Québec, et enfin une maquette de l'avion servant à la patrouille des glaces. Notre participation, quoique modeste, a tout de même attiré de nombreux visiteurs qui se renseignaient d'abord sur l'équipement exposé pour ensuite s'informer de nos différents services et activités. Un personnel du bureau météorologique de Québec et du bureau régional était continuellement sur les lieux afin de répondre aux questions et demandes du public. De la documentation générale était distribuée et les demandes spéciales acheminées vers les responsables concernés.

Si l'on se fie au nombre de visiteurs que nous avons accueillis (moyenne de 348 personnes à l'heure), on peut qualifier notre participation à Expo-Québec de réussie.



Vue d'ensemble du kiosque de l'environnement à expo-Québec 1975.





Left to Right/De gauche à droite.

1. R. King; F.M. Riddle; J. Greening; F.R. Mahaffy; W.E. Markham; ; E.H.V. Dexter; O.K. Van Sickle; R.R. Dodds; E. Boldoc; W.E.H. Cross; R.J. Rutherford.
2. H.S. Keenlyside; J.K. Heise; J.P. Francis; G.E. Cutler; R.V. Tyner; R.H.D. Conn; G.L. Clendenning; D.G. Black; K.F. Harry; W.F. Ganong; J.A. Burgess; E.N. Ellis.
3. L.R. Mumford; A.R. McCracken; ; C.G. Black; H.C. Belhouse; M. Jenkins; A.F. Ingall; W.S.C. Wallace; V.E. Solman; W.M. Sprules.
4. ; ; E. Einarsson; Dunn; D.M. Davies; J. Henderson; J. Bocking; W. Hoddinott; L.T. Campbell.
5. A.H. Lamont; B.M. Fleming; ; D.A. Moddle; T.V. Adams; W.R. Hamilton; B. Parkhurst.
6. ; G.H. Muttitt; J.R. Wilson; ; W.L. Godson; E.M. Elsley.
7. E.J. Kermode; K.A. Hignell; D. MacLean; ; F.N. Beard; ; ; J. Calder; ; W.H. Mackie.

BALL CLOUDS FOR BANDIT

by Hoi-Yin Der (Victoria Times)

A disillusioned thief has returned a stolen "crystal ball" to the Gonzales Observatory, after deciding that the instrument for recording sunshine could offer no rosy visions of future prosperity.

The ball bandit, described by Gil Smith, officer in charge of the observatory, as a "bearded young chap," stole the amber-colored sphere from the building's rooftop last Aug. 12 and then drove off on a motorcycle.

Smith received a letter Tuesday morning from the thief who, on reflection, felt that the observatory could make better use of the sphere "than I ever could."

"I will soon be returning your crystal ball," wrote the pilferer, who signed the letter "from the thief who had a change of heart."

"It's very pretty and very fascinating to look into or just to gaze at but I can't really tell the future in it . . . I could sell it, but that would only perpetuate the bad karma. . .

"You know, I hate to give this beautiful thing up, but here's where you can find it . . . at the very beginning of Foul Bay Road, go to the bottom of the steps. On the right side, it is buried beneath a log with blue spray paint on it. Remove the log and dig under the spot where the paint mark was before you removed the log."

Smith called police who followed the instructions and within 20 minutes the sphere was returned to the observatory.

"We're very surprised to get it back," Smith said. "We thought then we'd never see it again."

The \$350 sphere, used to record the hours of sunlight in the Greater Victoria area, had been sitting on top of the observatory since April 23, 1914.

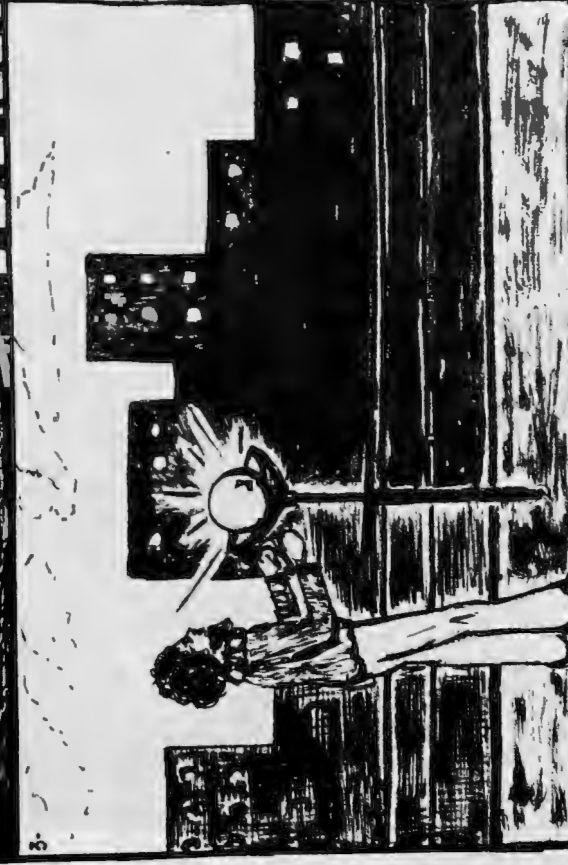
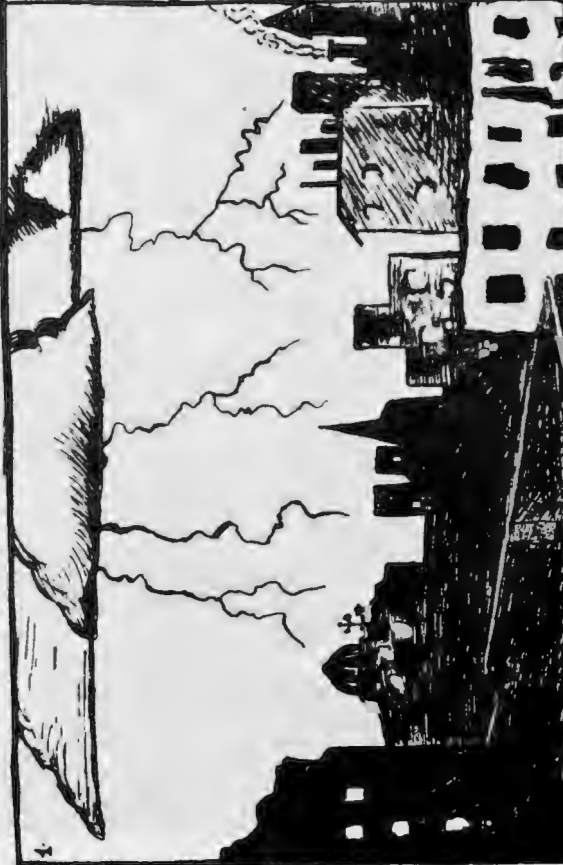
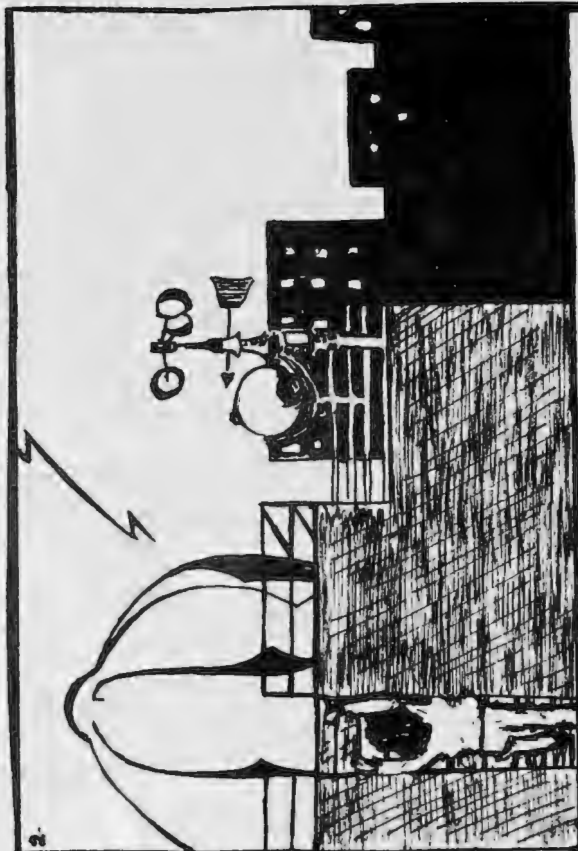
"It would have lasted forever if it hadn't been stolen," Smith said, adding that the thief has made a deep gouge in the base of the sphere.

He said the sphere will be sent to Regional Headquarters in Vancouver where it will be repolished for use elsewhere.

Staff-Sgt. Gordon Bennett said today police believe the person who wrote the letter is of foreign extraction, possibly from one of the Latin American countries.

He said there were no identifiable fingerprints on the letter or sphere.

Police are continuing their examination of the handwriting.



MAUVAIS PRÉSAGE

BAD KARMA

Regional Climate Data Centre
302 Denison Rd., Victoria V8S 4K3

Dear Sir:

I will soon be returning your crystal ball. You no doubt will be very happy to have it back, and besides, I'm sure you can make much better use of it than I ever could. It's very pretty and very fascinating to look into or just to gaze at, but I can't really tell the future in it, and besides that I don't really feel right about having it. I was surprised to hear it is worth \$350. I could sell it, but that would only perpetuate the bad karma. I'm sorry about the scratch, that occurred accidentally in its removal.

You will receive another letter from me telling you where to find it, either that or I will just mail it directly to you in a parcel.

I hope its return will compensate for its absence and also for the slight damage incurred. You know, I hate to give this beautiful thing up, but here is where you can find it:

At the very beginning of Foul Bay Rd., go to the bottom of the steps. On the right side, it is buried beneath a log with blue spray paint on it. Remove the log and dig under the spot where the paint mark was before you moved the log.

From the thief who had a change of heart.

AWARD

Dr. Leonard Barrie of the Air Quality and Inter-Environmental Research Branch, Atmospheric Environment Service, Downsview, has been awarded "The Environment Prize of 1975" by the Johann Wolfgang Goethe University, Frankfurt, West Germany, for his doctoral thesis work entitled "An Experimental Investigation for the Absorption of Sulphur Dioxide by Cloud and Rain Drops Containing Heavy Metals". The award, consisting of \$2,000 cash prize, was presented to Dr. Barrie in absentia November 4, 1975 in Frankfurt. The work was carried out while he was on Education leave from A.E.S. at the Institut für Meteorologie und Geophysik in Frankfurt headed by Professor H.W. Georgii. Professor Georgii, one of the world's foremost atmospheric chemists, is well known for his pioneering work on atmospheric aerosols and sulphur compounds.



REMISE DE PRIX

L'université Johann Wolfgang Goethe de Francfort (Allemagne Fédérale) a décerné à M. Leonard Barrie de la Direction de la Recherche sur la Qualité de l'Air et sur l'Interaction des Milieux, du Service de l'environnement atmosphérique à Downsview, le "Prix de l'Environnement 1975" pour sa thèse de doctorat intitulée "an experimental investigation for the absorption of sulphur dioxide by cloud and rain drops containing heavy metals". Le prix de \$2 000 a été attribué à M. Barrie en son absence, à Francfort, le 4 novembre 1975. Bénéficiant d'un congé d'études du SEA, M. Barrie a mené ses travaux à l'Institut Für Meteorologie und Geophysik de Francfort, dirigé par M. H.W. Georgii, l'un des chimistes de l'atmosphère les plus éminents du monde, célèbre pour ses travaux d'avant-garde sur les aérosols et les composés du soufre contenus dans l'atmosphère.

INSTRUMENTS ET ÉQUIPEMENT
EXPOSITION ET ÉTAT

FORT GEORGE CARS

par A. Plamondon

DESCRIPTION GÉNÉRALE DE L'EMPLACEMENT DE L'EXPOSITION ET SON ENVIRONNEMENT

L'emplacement choisi est situé sur la pointe ouest de l'île du Gouverneur. Le site des instruments est déboisé du côté sud ouest, et nord c'est la mer. Il y a bien du côté nord-est quelques arbres, mais heureusement, ils sont dans des petites vallées de 5 à 7' de profondeur, donc ne dépassent que de quelques pieds le niveau du terrain choisi et sont à 50-60', ainsi ne créent pas d'obstacles. Il y a bien aussi des petits arbustes de hauteur négligeable.

RENDEMENT – PROGRAMMES D'OBSERVATION ET DE COMPTE RENDU

Après avoir expédié tout le matériel requis pour monter la station CARS à Fort George, je me suis rendu sur les lieux. Le 29 septembre, j'étais à La Grande. Le 30, le technicien Aguilard s'est joint à moi, et nous avons fait sur le pouce La Grande et Fort George en DC 3 de Brazeau. Il faut dire que nous connaissions le pilote. Le trajet ne dure que vingt minutes. L'approche s'est faite par le nord; nous avons donc bien vu l'île choisie pour installer la station automatique. Du haut des airs, équipés de lunettes d'approche, il nous paraissait douteux de pouvoir atteindre cette île à cause des estrans ou bancs de sable mêlés à l'eau. Une fois à terre, j'ai discuté de mon projet de me rendre sur l'île en question avec les gens de la place; Blancs et Indiens se moquaient un peu de moi. Il m'aurait fallu un hélicoptère, et encore là, nous n'étions pas sûrs de nous poser à cause des arbres. Cette idée fut donc abandonnée.

Je devais demander la permission au chef du village pour installer le CARS sur l'île du Gouverneur, mais je suis allé au plus pressant, c'est-à-dire la location d'un camion pour une tournée de reconnaissance sur l'île. Le site choisi, je demanderais la permission. J'obtins donc un camion d'un certain Indien, lequel quittait le village pour quelques jours. Je ne sais ni son nom, ni où il demeure, ni combien je dois lui donner pour la location. Il me donne les clefs et dit: " Tu paieras à ma femme". Le lendemain, j'apprend que cet Indien n'est nul autre que le chef du village qui ne m'avait pas donné la permission d'installer la station puisqu'il n'était pas encore revenu lors de mon départ. Il était peut-être en colère à son retour en apprenant que j'avais fait cette installation en son absence; ou ce n'est qu'une pure coïncidence.

Pour l'installation, je n'ai pas eu de difficultés majeures, sauf pour obtenir de l'aide à monter la tour. Il faut beaucoup de patience pour convaincre un Indien à abandonner la chasse aux outardes en échange des quelques heures d'ouvrage que nous leur offrons. Des Blancs, il n'y en a pas de disponible.

L'endroit choisi: la pointe ouest de l'île qui se prête très bien, à mon avis, à ce genre d'installation. Le site est dégagé et, en fait, près de l'île proposé; il représente donc très bien la région en général. Ma seule opposition à cet endroit, ce sont les dégâts que l'équipement pourrait subir à cause de la prolifération des chasseurs dans l'ouest de l'île. La tentation de tirer sur l'équipement est si forte que le coup part avant que l'on ne s'en rende compte. Il n'y a aucun lampadaire dans le village; ils ne résisteraient pas aux plombs.

Ici, même les enfants sont armés de lance-pierre. J'ai cependant acheté un cadenas pour la boîte de commande et l'enregistreuse. La tête du 45 B et le Fisher Porter ne sont pas protégés, donc exposés à la curiosité peut-être "détonnante" des habitants de l'île.

Finalement, l'appareil fut mis en marche le 2 octobre à 0800 HNE, après vérifications et essais.

INSTRUMENTS AND EQUIPMENT
EXPOSURE AND CONDITION

FORT GEORGE CARS

by A. Plamondon

GENERAL DESCRIPTION OF SITE EXPOSURE AND ITS SURROUNDINGS

The site chosen for the CARS is on the western tip of Governor's Island. The land to the southeast and southwest of the instrument site is bare and on the north side there's the sea. There are a few trees on the northeast side of the site but luckily they are in small depressions (five to seven feet down) so the treetops don't reach more than a few feet above ground level, and they are fifty to sixty feet away, so they don't constitute obstacles. There are also a few small bushes of negligible height.

PERFORMANCE - OBSERVING AND REPORTING PROGRAMS

After shipping off all the equipment needed for setting up the CARS station, I took a trip to the site. I arrived in La Grande on September 29; on September 30 Mr. Aguilard, a technician, joined me and we hitched a ride from La Grande to Fort George on a Brazeau DC 3 - we knew the pilot. It's only a twenty-minute trip. We came in from the north, so we had a good view of the island that had been chosen for installation of the automatic station. Looking from up above with binoculars, we thought it unlikely that we could land near the island, because of the sand bars in the water along the shore. Once on the ground, I discussed getting to the island with the people up there; the whites and the Indians all wondered if I was serious. They said I would need a helicopter and even then they weren't sure I could land, because of the trees. So I gave up that idea.

I was supposed to ask the village chief's permission to install the CARS on Governor's Island but first I took a trip there to look around, the fastest way I knew - renting a truck. Once I had selected a site, I would ask permission. So I got a truck from an Indian who was leaving the village for a few days. I didn't know his name, where he lived or how much I owed him for use of the truck. He gave me the keys and told me to pay his wife. The next day I found out that this Indian, by a stroke of irony, was the village chief. I never did get his permission to set up the station because he hadn't come back yet when I left. Maybe he was angry when he did get back and found out that I had set up the station while he was away. But it was all just coincidence.

The only big problem I had in setting up the station was getting help to put up the tower. It took a lot of patience to convince the Indians to leave off hunting Canada geese just to do the few hours' work we were offering. There are no whites available. The site chosen, on the western tip of the island, is in my opinion just right for this kind of installation. It's open on all sides and actually quite near the island originally suggested, so it is representative of the general region. The only thing I can find wrong with the location is the risk of damage to the equipment by the proliferation of hunters on the west side of the island. The shot is often fired before the urge to shoot at the equipment passes. There are no ceiling lamps in the village - they wouldn't survive the shooting that goes on.

There are even children armed with slingshots among these snipers. I bought a lock for the control box and recorder. The top of the 45B and the Fisher Porter are unprotected and exposed to the potentially "explosive" curiosity of the hunters. The equipment was to go into operation, after checks and testing, on October 2 at 0800 EST.

**SULPHUR MOUNTAIN OBSERVATORY
PROGRESS REPORT BY J. PATTERSON TO NOVEMBER, 1923**

The cable connecting Sulphur Mountain with the Museum, Banff was partially destroyed by lightning or otherwise about ten years or more ago. On this account it was left for some years without repair and during this time the cable was broken in many places where it crossed the trails and in other places it came down off the messenger wire owing to the marlin perishing. From the Upper Hot Springs to the road near Banff it fell down off the messenger wire but was held up by the brace on the cross arm of the poles so that the rubbing and swaying in the wind out through the lead cable and exposed the wires at almost every pole. The cable was examined carefully in 1920-21 and was found to be good apart from the breaks and places where the wires were exposed.

After examining the position of affairs it was felt that the best way to repair the cable would be to take it down off the poles and shift it so that it would be away from the trails up Sulphur Mt. and simply leave it on the ground as there was little danger of it being damaged in any way and if damaged it would be easy to repair it. The cable on the side of the mountain was shifted in 1922 and repaired. It took 8 men 4 days to shift the part on the side of the mountain and 2 men make the joints afterwards. The joints were made by soldering each pair of wires and then slipping a cotton sleeve over the exposed part; the joint was then soaked in a mixture of beeswax and resin; covered with a tape and again soaked in the mixture after which a lead sleeve was drawn over the cable and soldered to the lead cable so as to be water tight. The part of the cable from the Observatory to the Upper Hot Springs was in good condition and apart from the pieces on the top the lengths were as long as could be handled by the 6 men.

In 1923 the part from the Upper Hot Springs to the Museum was repaired; this part was in very bad condition and there were about 50 splices in it. 3000 feet of new cable obtained from the Eugene Phillips Co. Montreal was required to join the old cable to the Museum. This cable was put under the bridge in places left for the purpose and on poles through the town up to the point where the cable entered the woods. This repair work was carried out from the 22 Oct. to the 15 Nov. and the cable was all tested out to the Upper Hot Springs first; in this part two pieces of cable with faulty insulation had to be removed, and the resistance between any two wires was about 40,000 ohms.

When the two pieces were joined together and connected through it was found that there was faulty insulation somewhere near the top of the mountain but owing to the snow it could not be located this year.

A lightning protection was put on the Observatory, consisting of a square 5 ft. to a side with diagonal pieces and having about 80 spikes on it was raised by 4 poles 10 feet above the top of the platform; copper was used throughout and it was connected by heavy copper cable to the water at the 3/4 way place.

The Observatory is now in position to have the instruments installed as soon as weather permits in the Spring.

Progress report, July 1924.

The trouble that was discovered in the cable last year proved to be extensive and as no help could be obtained except boys and the sun was intensely hot it was impossible to complete the repairs this year. All the trouble was located and removed from

a joint above the Upper Hot Springs to the top and much of it is repaired. New cable will have to be supplied at several places to make the cable meet where bad pieces have been taken out. There is trouble between the joint above mentioned and the new cable where it emerges from the wood near the town.

**DEPARTMENT OF THE INTERIOR
ROCKY MOUNTAINS PARK OF CANADA**

Banff, Alta., Nov. 28, 1919

**Remarks on September 1919 Thermograph
Returns from Sulphur Mountain, Banff.**

On my trip up Sulphur Mountain September 30, I found one of the outer doors of the weather shed had been torn away by some previous visitor, the padlock hasp had been unscrewed to do this damage. I repaired this next day.

A mountain rat had taken advantage of this occurrence to build a nest inside the shed close to the silvered thermometric bulb on the outside of the metal case of the Thermograph. A cotton string (part of its nest) was looped about the milled-edge knob which is used for setting the pen on the cylinder record, the active movements of the Mountain Rat caused blurs on the paper form—starting about the 17 September near 3 A.M.—and possibly the high temperature of its body when in its nest caused the temperature to rise at least two degrees. On making up the two weeks record allowance has been made for everything and I believe the returns are very fairly correct. I am enclosing this form, which kindly return when convenient.

In case it may be of interest, I now give something about this bushy-tailed rat's way of doing things:

It took some time to get this animal out and away from the weather shed and that night I was reminded that "revenge is sweet" for, with unusual viciousness, this rat gnawed at the ceiling to get into the building and did something no rat has done before viz: it forced by accumulated strength begotten of anger the zinc around the stove pipe, while a small fire was in the stove and flopped on the floor, falling 9 or 10 ft. With some difficulty I got it out of the building and eventually ended its career.

A specimen of the Mountain, Bushy-tailed or Pack Rat may be seen in the Royal Museum, Toronto.

N.B. Sanson
Observer.

PERSONNEL

The following have accepted positions as a result of competitions:

Les personnes suivantes ont accepté ces postes après concours:

75-DOE-WIN-CC-ID-545 Central Region
Regional Financial Officer
FI 2
K. Appleyard

The following transfers took place:

Les transferts suivants ont été effectués:

Miss C.L. Cherney	From: De	CFB Portage la Prairie
	To: A	CFB Moose Jaw
J.S. MacDuff	From: De	Winnipeg International Airport
	To: A	Yellowknife Weather Office EG-ESS 5
G.A. Dye	From: De	Fort Smith, N.W.T.
	To: A	Defence Research Establishment Suffield
J.V. Godin	From: De	Defence Research Establishment Suffield
	To: A	Western Region

The following are on temporary duty or special assignment:

Les personnes suivantes occupent temporairement ces emplois ou sont en stages spéciaux:

R.B. Saunders	From: De	Moose Jaw
	To: A	DMetOc

Separations Démissions

G.J.C. Castonguay	22 NRWC, North Bay	Resigns Dec. 4, 1975
B.G. Sampson	Western Region	Resigned Oct. 20, 1975
M.J. Strong	Western Region	Retired Oct. 15, 1975
R. Anderson	Central Region	Resigned Oct. 22, 1975
W.A. Cable	Central Region	Retires Dec. 31, 1975
M. Boulerice	Central Region	Resigns Nov. 1, 1975
R. Walkden	Central Region	Retires Dec. 31, 1975
H.C. Capelle	Central Region	Retires Dec. 1, 1975
F.R. Mahaffy	Central Region	Retires Dec. 31, 1975
A.A. Hoover	Halifax	Retires Dec. 30, 1975
J.L. Knox	Pacific Region	Retires Dec. 13, 1975

A.G. MacVicar	AES HQ (ADED)	Retires Dec. 30, 1975
F.T. Upton	AES HQ (AFOO)	Retires Dec. 29, 1975
E.F. Caborn	Halifax	Retires Dec. 30, 1975
D. Storr	East Slopes Watershed Resources	Retires Dec. 29, 1975
C.M. Penner	AES HQ (Training Branch)	Retires Dec. 19, 1975
J.G. Potter	AES HQ (CSD)	Retires Dec. 30, 1975
W.R. Fryers	(DMetOc)	Retires Dec. 30, 1975
W.S.C. Wallace	CFB Comox	Retires Dec. 30, 1975

Mr. W. Rolph, LS-3, Acting Head of Reader Services ended his term assignment as of October 31, 1975.

Mrs. Gloria Miller, Head of Reader Services has returned from successfully completing French Training.

TRIVIA

Les dictons météorologiques

Le marin est coquin,
Quand il rit, il trahit.

* * *

Si Dieu le veut, il peut pleuvoir par tous les vents.

* * *

Neige au blé fait bénéfice,
Qu'au vieillard une chaude pelisse.

* * *

Le premier orage qu'il fait,
Aux autres donne un chemin tout fait.

* * *

Four things come not back—the spoken word, the sped arrow, the past life, and the neglected opportunity.

* * *

Send it by car and it is a shipment, but send it by ship and it is a cargo.

* * *

Knowledge is awareness that fire will burn, but wisdom is remembering the blister.

Some persons talk simply because they think sound is more manageable than silence.

* * *

Failure is often the path of least persistence.

* * *

Your Morning Smile

Classified ad: "Wanted—Man to work on nuclear fissionable isotope molecular reactive counters and three—phase cyclotronic uranium photosynthesizers. No experience necessary."

Proverbes québécois

"L'argent du diable retourne en son." L'argent mal acquis ne profite pas.

* * *

"Mieux vaut être tête de souris que queue de lion." Vaut mieux être à la tête d'une petite entreprise que subalterne dans une grosse.

* * *

"Dieu est parti, les enfants s'amuse." Enoncé ayant souvent trait à la météorologie: à propos d'une période de mauvais temps qui se prolonge.

* * *

"La table tue plus de monde que l'épée." La gourmandise est souvent mortelle.

* * *

"Plus tu brasses la marde, plus elle pue." Plus tu ressasses les choses désagréables, pires elles deviennent.

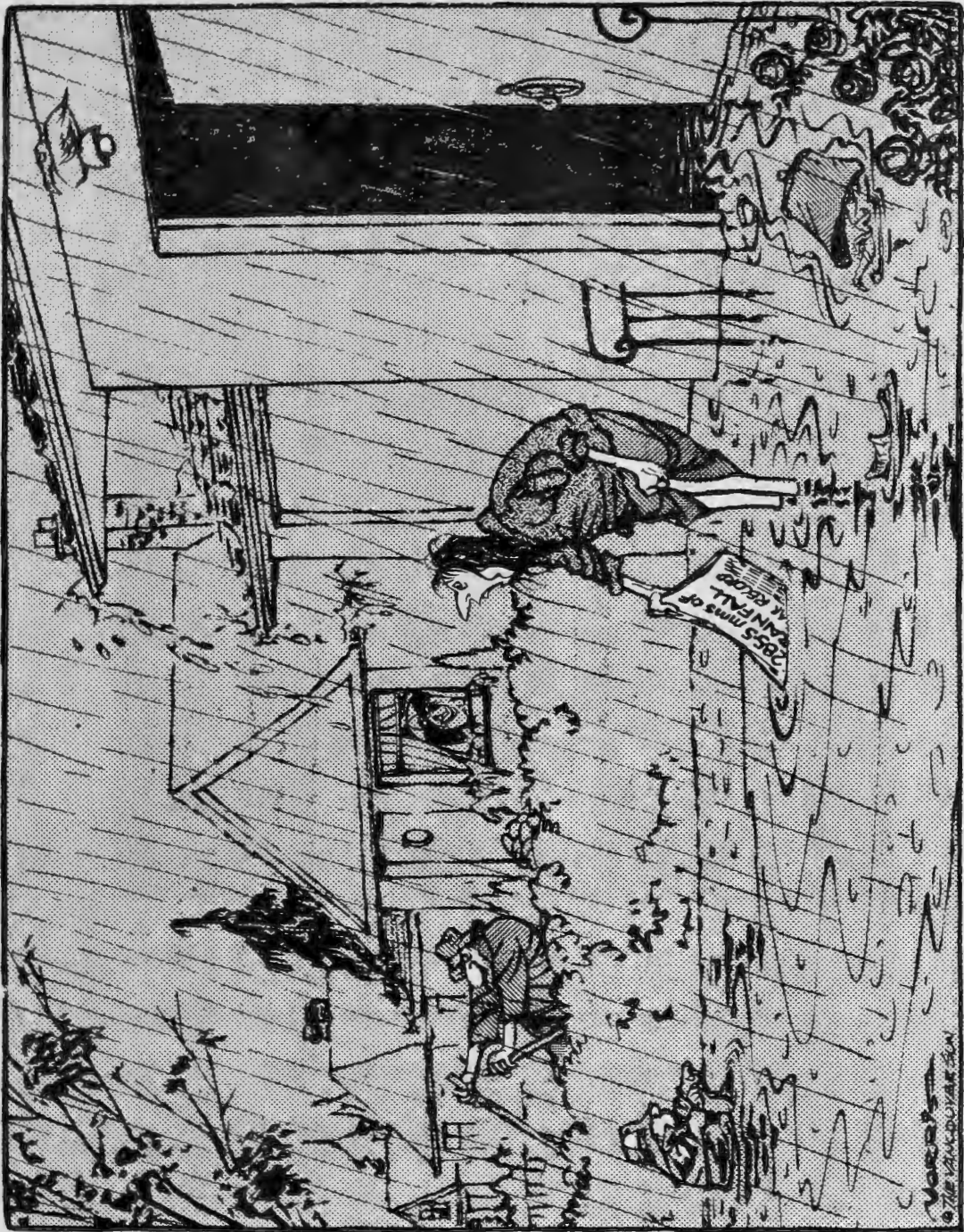
* * *

The poem below was among the few possessions found in the locker of a psychiatric-geriatric patient following her death at Prestwich Hospital, Manchester, England.

What do you see??

What do you see nurses? What do you see?
Are you thinking when you look at me.
A crabbit old woman, not very wise,
Uncertain of habit, with far away eyes.
Who dribbles her food and makes no reply
When you say in a loud voice "I do wish you'd try."
Who seems not to notice the things that you do,
And forever is losing a stocking, a shoe.
Who, unresisting or not, lets you do as you will
With bathing and feeding, the long day to fill.
Is that what you are thinking? Is that what you see?
Then open your eyes nurse — you are not looking at me.
I'll tell you who I am as I sit here so still,
As I rise at your bidding and eat at your will,
I'm a small child of ten, with a father and mother,
Brothers and Sisters who love one another;
A young girl of sixteen with wings on her feet,
Dreaming that soon now a lover she'll meet.
A bride soon at twenty, my heart gives a leap,
Remembering the vows that I promised to keep.
At twenty-five now I have young of my own,
Who need me to build a secure happy home.
A woman of thirty, my young now grow fast,
Bound to each other with ties that should last.
At forty — my young sons now grown up have gone.
But my man stays beside me to see I don't mourn.
At fifty — once more babies play at my knee,
Again we know children, my loved one and me.
Dark days are upon me, my husband is dead.
I look at the future, I shudder with dread.
For my young are all busy rearing young of their own.
And I think of the years, and the love I have known.
I'm an old woman now, and nature is cruel
'Tis her jest to make old age look like a fool.
The body it crumbles, grace and vigour depart.
There is now a stone where I once had a heart.
But inside this old carcass a young girl still dwells
And now and again my battered heart swells.
I remember the joys, I remember the pain.
And I'm loving and living life all over again.
I think of the years all too few — gone too fast.
And accept the stark fact that nothing can last.
So open your eyes Nurse! open and see
Not a crabbit old woman,
Look closer — see me!

The Vancouver Sun



"... and you can't tell me it ever got that much in inches."

Vancouver
© The Vancouver Sun

ARD Best Beard Contest

Recently, ARD held a best beard contest during a memorable coffee break. Mr. Lloyd Berntsen was declared a winner by four reliable female judges.

Concours de la plus belle barbe à l'ARD

L'ARD a procédé récemment, au cours d'une mémorable pause café, au concours de la plus belle barbe. Le jury, composé de quatre femmes impartiales, a décerné la palme à M. Lloyd Berntsen.



Front Row (left to right): à l'avant, de gauche à droite: T. Agnew, T. Jakobsson, S. Woronko, G. Boer, H. Lineman.

Back Row (sitting left to right): à l'arrière, assis, de gauche à droite: D. Ellison, L. Berntsen.

Female Judges (left to right): le jury féminin, de gauche à droite: S. Falla, J. Thomson, N. Altman, P. Terry, C. Belfour.

Back Row (standing left to right): à l'arrière, debout, de gauche à droite: G. Den Hartog, J. Padro, L. Steinberg, B. Boville, H. Ferguson, J. Yan, J. Walmsley.



The winner: le gagnant: Lloyd Berntsen.

Photos Courtesy/Les photos sont une gracieuseté de
Allister Christie