



**MONTHLY REPORT  
OF THE  
CANADIAN  
METEOROLOGICAL SERVICE**

**MAY 1971**

**1871**



**1971**

JUL 6 1971

MONTHLY REPORT OF THE  
CANADIAN METEOROLOGICAL SERVICE

MAY 1971

MAY 1971

	<u>PAGE</u>
HISTORY OF METEOROLOGICAL HEADQUARTERS BUILDINGS 1839 TO PRESENT	
History of Meteorological Headquarters Buildings - 1839 to Present .....	1
New Meteorological Headquarters Building .....	3
London to Victoria Air Race - by J. Luckett .....	4
Alcide Ouellet S'Est Enfin Donn� Des Ailes .....	6
Lysimeter Load Cell Measuring System .....	8
Historical Notes from Newfoundland Continued - by F. Rowe .....	9
Arctic Ice Atlas .....	10
2nd Canadian Conference on Micromet and 5th Annual CMS Congress .....	10
Advanced Forecasting Course .....	12
NRC Subcommittee on Hydrology .....	12
Personnel .....	13
Trivia - Darts and Laurels .....	16
Wind Gauge for Sylvite .....	16

MONTHLY REPORT OF THE  
CANADIAN METEOROLOGICAL SERVICE

MAY 1971

---

**HISTORY OF METEOROLOGICAL HEADQUARTERS BUILDINGS  
1839 TO PRESENT**

---



*Upper:* Old Fort York (the temporary quarters of the Magnetic Observatory were located on the grounds of Old Fort York, in one of the buildings on the left).

*Lower:* Magnetic Observatory 1840-54.

MAY 1911



*Upper:* The Toronto Observatory 1854-1907, and Headquarters, Meteorological Service 1872-1907.  
*Lower:* Headquarters, Meteorological Service since 1909.

NEW METEOROLOGICAL HEADQUARTERS BUILDING



New Meteorological Headquarters Building  
in Progress

We have been advised, by the Department of Public Works that they will commence takeover of the new headquarters building in early June. This takeover will commence with inspections and the detailing of any defects or deficiencies where the contractor has not lived up to the terms of the contract or has not followed the drawings or specifications provided to him. Assuming that deficiencies or changes in the requirements are minor, Public Works will accept the building on the basis that the deficiencies will be remedied.

A considerable amount of time will be spent in May and June, testing out the mechanical and electrical features of the building such as the air-conditioning and heating systems, the elevators, etc. In spite of all of the testing, there is a good likelihood that defects will show up over the coming months. To cover this, the contractor, under the contract, must guarantee the building for a period of twelve months.

It is planned to hold the Professional Training Course this year commencing on June 15th in the new headquarters building. Planning is now going forward to assure that furnishings, supplies, etc., will be available and on the site in time for the opening of this course. Also,



discussions are being held with the caterer - CNIB - to have a temporary catering service available by that date.

During the first week in July, the new modular furniture will be moved into the building in order that the offices, as far as possible, can be set up prior to the moving of the personnel. A large percentage of the furniture and furnishings have already arrived and are in storage awaiting the move.

The main move of personnel will take place during the month of July and plans are now being devised to cover the scheduling in order that the move may be undertaken with a minimum of disruption to the staff.

It might be well to mention at this time that those who have not worked in air-conditioned buildings may find, for a while, that it is difficult to become accustomed to this type of controlled atmosphere. During the coming months, the contractor will be balancing the system to provide uniform temperature control in all parts of the building. However, when the staff moves in there will be further adjustments necessary. It, however, should not take too long before the system is balanced fairly well to meet our requirements.

The DPW Project Manager estimates that the Canadian Meteorological Service Building is 98% complete and every effort is being made to finalize all our requirements prior to the move which is planned for July, 1971.

We will be issuing bulletins from time to time as new items come forward.

#### LONDON TO VICTORIA AIR RACE

"Switch on ..... Contact ..... Chocks away .....", like the cranking handle for the automobile engine, relics from the not too distant past. Surviving aircraft from that era will once again be given the opportunity to prove the knowledge and skill of their designers and builders as they compete with more modern and advanced types of aeroplanes in the air race, on July 1st to July 7th, 1971, from London, England to Victoria, British Columbia.

At 2000 GMT, July 1st, seventy-seven race aircraft will take off from R.A.F. Abingdon, England, ranging from a Beech D17S Staggerwing and DeHavilland DH90 Dragonfly to a Falcon Fan Jet. Among these will be the Cherokee entered and flown by the "Magnificent Meteorologists from

Montreal". The first stage of the contest, the trans-Atlantic flight, will be the most notable for the smaller, single engined entrants, who are expected to make the crossing via Iceland and arrive in Canada at either Gander or Goose.

The weather over the Atlantic will undoubtedly dictate arrival times in Canada, but given perfect flying conditions the first of the single engined aircraft should arrive in Newfoundland about 4:30 p.m. local time, on Friday July 2nd. Initial landings in Canada will probably be at either Gander or Goose, but some pilots may opt to arrive at Sydney or Halifax.

On arrival, race aircraft must remove all modifications installed to permit the trans-oceanic flight and each plane will be inspected, to ensure that it conforms to the original specifications, before being permitted to proceed to Quebec City, to await the start of the time controlled portion of the race.

Quebec City Airport on Sunday July 4th, will be enveloped in a tension filled atmosphere as the race competitors prepare for the first timed leg of the race. Not only will the pilots have weather and navigational problems to contend with, but for the remainder of the journey to Victoria, "time" will be an added element to plague them.

The race itinerary provides for overnight stops at Quebec City, Ottawa, Winnipeg and Calgary, with an enroute stop at Regina. Control points will be established at each designated aerodrome along the timed sections of the route, to record the arrival and departure of each contestant.

Weather will play an important role in the running of the race, as possible VFR conditions will be utilized, particularly as the majority of race aircraft will be operating below 12,000 ft. To demonstrate that the adventurous pioneer spirit is still very much alive in aviation today, twenty-seven of the entrants will be flying single engined aircraft, piston powered, up to 5,000 lbs. all up weight, with a normal operating altitude below 10,000 feet. There will also be thirty-one unsupercharged twin engined aircraft up to 12,500 lbs. all up weight, operating to 12,000 feet, constituting the largest group of the race. Meteorological support will be provided by additional staff and facilities at each control point, where due to the large number of aircrew involved and a sizeable contingent of overseas participants, mass briefings and documentation will be provided.

With a first prize of \$50,000 within the grasp of all contenders, the race will be conducted in a serious and earnest manner, and any aviation buffs who anticipate a leisurely browse among the planes and aircrews during the stopovers, will find they may have to wait and catch them on the return flight.

The London to Victoria Air Race is sponsored by the Government of Canada and will be part of British Columbia's Centennial Celebrations. Participating pilots, who may not have been able to capture one of the many race prizes, will be able to console themselves in the hospitality and festivities of British Columbia before donning the leather helmet and goggles for the return flight home.

#### ALCIDE OUELLET S'EST ENFIN DONNE DES AILES

La Presse, Montreal, Vendredi 21 Mai 1971.

Le fort populaire directeur du service de météorologie de l'aéroport international de Dorval a en effet décidé de traverser l'Atlantique et le Canada à bord d'un minuscule monomoteur de tourisme.

Bien entendu, M. Ouellet ne fait ce grand voyage ni pour briser un record, ni seul. Il a tout simplement décidé de mettre sa science au profit de son sens de la compétition en participant, à partir du 1er juillet, au rallye aérien international organisé par le Canada



**Alcide Ouellet**  
directeur du service  
de météorologie à Dorval



**Sepp Froeschl**  
météorologiste et  
pilote du monomoteur



pour commémorer le 100e anniversaire de la Colombie-Britannique. Par un heureux hasard, le service de météorologie canadien est également centenaire cette année.

Le monomoteur léger, choisi selon les règlements du rallye, est un Cherokee, loué à Montréal, qui sera piloté par un autre météorologiste de Dorval, M. Sepp Froeschl, ex-pilote de guerre et des lignes autrichiennes. S'ils gagnent le rallye, les deux hommes se partageront les honneurs et les \$50,000 du premier prix.

"Avec ce que nous savons de la météo, des vents, des tempêtes et des prévisions ... nous avons un avantage unique sur les autres" devait commenter M. Ouellet qui agira comme navigateur lors de ce périple de plus de 6,000 miles qui durera sept jours.

Au courage des concurrents, s'allie une détermination à toute épreuve puisque, malgré de nombreuses tentatives, on n'a pu trouver de commanditaires pour le vol. Les dépenses de plusieurs milliers de dollars seront défrayées par l'équipage.

De nombreuses modifications devront être apportées à l'appareil notamment l'installation de réservoirs d'essence auxiliaires pour augmenter le rayon d'action.

Le Cherokee sera piloté de Montréal à Londres -- point de départ du rallye -- par M. Froeschl seul dont cette première traversée de l'Atlantique en monomoteur sera en quelque sorte, une ultime période d'entraînement.

Le météorologiste compte mettre trois jours pour faire le voyage d'aller (en comptant les escales bien sûr). Quelque 70 participants dont vingt pilotant des monomoteurs se sont déjà enregistrés pour participer à ce rallye.

La plupart sont des Canadiens, des Américains, des Français et des Anglais. Ils prendront le départ d'un aéroport de la région londonnienne le 7 juillet et, ils devront être arrivés à Victoria, capitale de la Colombie, le 7 juillet.

Une importante organisation a été mise sur pied pour subvenir aux besoins des équipes. Des escales sont prévues à Prestwick, Ecosse; Reykjavik, Islande; Narssarssuaq, au Groenland; Goose Bay, Québec (premier arrêt obligatoire), Ottawa, Winnipeg, Regina, Calgary et Victoria.

Les trois premiers prix seront de \$50,000, \$20,000 et \$10,000 calculés selon un système de points. Les appareils participant seront partagés en quatre classes:

- Les monomoteurs, les bimoteurs, les appareils équipés de

moteur avec compresseurs ou turbopropulseurs et les avions à réaction.

- Les gagnants de chaque classe remporteront un prix de \$10,000.

- Finalement, les vainqueurs de chacune des sept étapes gagneront \$5,000.

Le numéro de départ de chaque appareil sera déterminé selon une formule de handicap établie en fonction de la puissance du moteur et de la surface portante. Il sera aussi tenu compte de certaines caractéristiques majeures comme un train d'atterrissage fixe, etc., et les règlements de la course seront publiés incessamment.

Les concurrents sont libres de suivre l'itinéraire de leur choix entre Londres et Quebec.

Enfin, de droit d'inscription s'élève par ordre de puissance motrice à \$150 - \$250 - \$450 - et \$500.

#### \*LYSIMETER LOAD CELL MEASURING SYSTEM

Development has just been completed of a load cell measuring system to be used on a large sensitive weighing lysimeter which has been constructed on the Meteorological Research Station north of Toronto. The measuring system employs a double bridge load cell and a pair of matched power supplies. The signals from the two bridges are connected in series to provide double the sensitivity of a single bridge system. Temperature sensitive parts of the measuring system are housed in a constant temperature environment. The output of the system is presented in digital form and is also printed on paper tape at desired intervals. The instrument is now undergoing performance evaluation testing.

Initial results of the tests show sensitivity of one half pound in a total load of 130,000 lbs. which is exceptional for this type of instrument. Repeatability and stability, the other important attributes of a weighing system have proven to be excellent in tests to date. The performance of the measuring system together with several unique features of the instrument auger well for its usefulness in a wide variety of research studies.

\* The lysimeter, a most unusual apparatus, is a large round pan, 20 feet across and three feet deep, inserted in the ground and supported from below on sensitive balances. The soil in the pan is arranged to match, as closely as possible, the natural state. The grass cover too, is uniform with that of the surrounding area. The main purpose of this instrument

is to measure the evaporation that occurs from the soil surface and from plants in as near to an undisturbed state as possible. It also acts as a precise standard for the measurement of precipitation, dew and other meteorological factors.

HISTORICAL NOTES FROM NEWFOUNDLAND CONTINUED  
by F. Rowe

\* The Nfld. Mercantile Journal, Thursday, February 3, 1820

**METEOROLOGICAL REGISTER.**

JANUARY 1820.

**TEMPERATURE.**

		Extremes		Mercurial Th.				Spirit Th.				Wind.	REMARKS.
M.	W.	highest.	lowest.	8 am.	noon.	4 pm.	8 pm.	8 am.	noon.	4 pm.	8 pm.		
26	W	29	19	28	28	26	28	27	26	25	27	NE.	Moderate & Cloudy,
27	T	29	21	22	22	21	20	20	21	20	19	North,	Fresh breezes & Do.
28	F	24	15	15	22	23	15	15	22	22	14	West,	Very fine clear weather.
29	S	30	11	22	29	26	24	21	28	25	23	N.W.	Fine and calm,
30	S	31	21	23	24	24	23	22	23	23	22	N.E.	Mod. & dull. snow,
31	M	38	21	29	38	37	29	28	38	36	29	East.	Foggy, calm, do.
1	T	27	24	26	26	18	15	25	27	18	15	S.W.	windy, drift snow,

Thermometer, highest 38° lowest 11°.

Mean of Extremes 24. 28° Mean of both Thermometers, 23. 96°.

Mean temperature for January, 27. 07°.

The weather for the past month, has been more open than it usually is in January. No severe cold except on the night of the 29th. No high winds. A very heavy fall of snow on the 13th, and partial falls on the 1, 2, 6, 11, 14, 17, 20, 21, 30, and 31, took place, the whole estimated at 2 feet 6 inches.—Rain fell on the 3rd, 16th and 18th. A great proportion of Easterly wind, this month.—The temperature of the harbour water has continued at from 31° to 31°—these extremes were noticed on the 19th and 20. The navigation of this place continues open, but on the wind becoming settled at W. or N.W. the harbour will, no doubt, freeze over permanently in a few days—No drift ice has yet come down from the bays and harbours situated to the northward. The Aurora borealis was seldom seen this month, supposed to have been owing to the cloudy and generally thick, state of the atmosphere. A rainbow was observed in a westerly direction on the afternoon of the 28th when there was no appearance of rain, and the Thermometer was as low as 22°.

**BOOKS FOR SALE.**

THE Subscriber offers the following BOOKS for Sale, which, being to Close Sales, will be rendered on terms well worth attention.

Several Editions of the History of England, Adventurer, Rambler, Spectator, Talemachus, Rasselas, Paly's Evidences, Gil Bias, Fool of Quality, Gay's Fables, Matron of Erin, Fair Isabel, Sentimental Journal, Nelson's Festivals, Beacons Memoirs, Birbeck's America, Life Lord Wellington, Life St. Patrick, Buchan's Family Medicine, Guthrie's Gazetteer & Geography, Elegant Extracts, Thompson's Seas, Young's, Cowper's, Burns', and Little's Poems,

And a Variety of Books calculated for Juvenile reading.

JAMES CLIFT.

20th January, 1820.

**DESIRABLE PREMISES,**

THE Subscriber offers to let, for a term; those very Desirable Water-side PREMISES, formerly occupied by Thomas Meagher, Sons & Co. together with the Scite of the HOUSE, formerly occupied by Dr. Duggan, on which there is a fire proof CELLAR.

W. B. ROW.

St. Johns, December 8, 1819.

**NOTICE.**

LIEUTENANT MUNBEE, and Mr. SHANKS, of H. M. S. Sir Francis



### ARCTIC ICE ATLAS

Exploration and development currently underway in the Arctic makes the need for reliable information on sea ice a necessity. The demand for information is mounting steadily, and of particular importance is information on extremes or probabilities.

At present, information in response to many demands must be obtained from Ice Central historical charts. This is a laborious and inefficient process. It is felt that an Arctic Ice Atlas detailing average and extreme ice conditions in various categories such as total ice, ice age, and surface characteristics would be an efficient tool for meeting these user demands.

Work has begun in 1970 at Ice Central on an Ice Atlas for the Eastern Seaboard and Hudson Bay. Barry Maxwell, a recent M.Sc. graduate working in the Arctic Unit of the Climatology Division, is now undertaking a feasibility study of preparing an atlas for the Canadian Arctic. Ten years of records are now available for this purpose. Although more years of data are desired, the urgency of the need for ice information makes it essential that current knowledge be fully exploited at this time.

### 2ND CANADIAN CONFERENCE ON MICROMET AND 5TH ANNUAL CMS CONGRESS

A total of 150 delegates attended the successful Second Canadian Conference on Micrometeorology at Macdonald College between May 10-12, 1971. The following two days, the 13th and 14th, were devoted to the 5th Annual Congress of the Canadian Meteorological Society. Thirty speakers (or approximately one third of the total at the two gatherings) were from the Canadian Meteorological Service. Their subjects ranged from smoke stack vapour plumes to hailstorms forecasting for Project Hailstop. Dr. Havlena of the University of Calgary presented a paper on time-lapse photography as a method of studying air pollution over an urban area. He showed films which recorded the day-to-day rise and fall of the Calgary pollution cloud for a period of three months.

The micromet conference was the brain-child of Dr. Munn who was invited to give a press briefing. As a result of this he appeared on the Pulse news program broadcast by CFCF-TV Channel 12 in Montreal.

On May 12th, McGill University officially opened Burnside Hall, the new building housing its Department of Meteorology. In order to give the delegates to the Micromet Conference and the Congress a chance



Mr. C.C. Boughner, A/ACMS, Addresses Gathering At  
Canadian Meteorological Society Annual Dinner



to attend the opening ceremonies (not to mention the cocktail party) the afternoon session at MacDonald was transferred to the downtown campus.

#### ADVANCED FORECASTING COURSE

The 1971 Advanced Forecasting Course for Meteorologists (M.Sc.)-in-training, was conducted from May 3 to May 21. The current policy of the CMS requires each direct entry Meteorologist (M.Sc.) to take the course at the end of each University year and each Meteorologist (B.Sc.) (on an M.Sc. program) to take at least one training period.

From the 1969-71 University programs 6 of the 9 enrolled students took this year's course and from the 1970-72 programs there were 6 students from a combined enrollment of 12. Two of the twelve on the 1970-72 University of Toronto program will not take the second year of the course since they joined the Service with their M.Sc. degrees. In their cases they will enter operations with only a single exposure to the AFC. It is hoped to partly overcome this deficiency by further training in the Training Section which will include most of the missed second year laboratory projects as well as further analysis and prognosis training on current weather situations.

The first week of the AFC was devoted to a review of frontal criteria, analysis techniques, upper level chart routines, etc. This was accomplished by means of lectures followed by laboratory sessions applying the analysis procedures to current charts. Subsequent to the first week three forecast offices were organized as Weather Centrals with each student being assigned responsibilities for completion of specified WC operational procedures during the morning. The afternoon session was devoted to finalizing the analysis and interpreting the data in order to identify the main prognosis problems: the student presented the analysis solution, the prognosis problems and their solutions. The staff then made a final presentation and summary.

Fridays of each week were devoted to special laboratory projects.

#### NRC SUBCOMMITTEE ON HYDROLOGY

The 28th meeting of the NRC Subcommittee on Hydrology was held in Quebec City on May 25. H.L. Ferguson attended as an alternate for

T.L. Richards. The Subcommittee is in the process of reviewing its role in view of ongoing national programs in Canadian hydrology following the end of the IHD (1965-1974) and most of the meeting was devoted to this subject. The revised terms of reference recommended by the Subcommittee are as follows:

- (1) To make recommendations on/or arrange for the exchange of scientific information on hydrology in Canada.
- (2) To study priorities and recommend on areas of scientific hydrological research in Canada.
- (3) To act as a Canadian Committee for the International Association of Scientific Hydrology (IASH) and to serve as a scientific advisory group to Canadian representatives of international organizations dealing with hydrology.

Panels were formed to draft recommendations on specific ways of meeting the terms of reference. A panel consisting of R. Lane (Chairman), D. Elrick and T.L. Richards will deal with (2) above.

#### PERSONNEL

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

- |                          |   |  |
|--------------------------|---|--|
| Competition 70-MET-HQ-70 | - | Meteorology (MT) 7<br>Scientific Support Officer<br>Central Regional Headquarters<br>Winnipeg<br>- H.M. Fraser   |
| Competition 71-MET-CC-10 | - | Meteorology (MT) 4<br>Duty Forecaster, METOC Centre<br>Halifax, N.S.<br>- D.W. Strang<br>- R.H.W. Hill<br>- G.W. Duquette<br>- G.H. Reicheld<br>- K.H. Jones<br>- M. Pindam<br>- B.W. Veale<br>- N.B. Waller |

The following transfers took place:

O. Braun	-	<u>To</u> W.O. Goose Bay <u>From</u> CFB Edmonton
L.T. Millar	-	<u>To</u> MFWC Halifax <u>From</u> CFB Summerside
S.J. Siok	-	<u>To</u> CFB Winnipeg <u>From</u> CFB Gimli

M.Sc. Graduates 1971

L.D.F. Chu	-	<u>To</u> W.C. Edmonton <u>From</u> McGill University
J.B. Maxwell	-	<u>To</u> Climatology Division (project <u>From</u> University of Toronto
J.A.F. Piette	-	<u>To</u> Central Analysis Office <u>From</u> McGill University

Meteorologist Course No. 27

Twenty-six meteorologists (B.Sc.) have graduated from Course No. 27 and have been given initial assignments, twenty-three to various weather offices and three to projects in CMS Headquarters.

Patterson Medal Awards

The Annual Dinner of the Canadian Meteorological Society at MacDonald College, St. Anne de Bellevue, Quebec, on May 13, 1971, was the setting for the granting of Patterson Medal awards for 1970. Mr. J.S. Dickson and Mr. D.C. Archibald were announced as the recipients. Mr. Dickson received the award from Mr. C.C. Boughner, Acting Administrator of the Canadian Meteorological Service, who paid tribute to Mr. Dickson's long and dedicated service. The award to Mr. Archibald will be made at a later date.

Mr. Jay Scott Dickson was born in the United States in 1919. Following his release from the Canadian Army in 1945, he joined the Canadian Meteorological Service. He gained quick recognition for his technical ability and has been employed throughout his career in the design, testing and development of meteorological instruments.

Of special value to the Meteorological Service was his sound evaluation of alternative systems for the extension of the wind-finding



Mr. Jay Scott Dickson (left) and Mr. C.C. Boughner, enjoy  
a relaxing moment after Patterson Medal presentation



capability of Canada's upper-air sounding network (via instrumental balloon ascents) to 100,000 ft. on a routine basis.

Mr. Dickson was personally responsible for the development of the CMS's Automatic Weather Reporting Stations (MARS). To date, 17 automatic stations have been procured and more will be installed in the future.

Mr. Dickson has also been active in developing instrumentation for use in special projects such as automatic telemetering stations in British Columbia to provide data on precipitation, snow pack and melting from isolated snow basins in the mountains.

Mr. Dickson is currently in charge of the Observation, Automation and Testing Unit in the Research and Development Section of the CMS's Instrument Division in Toronto.

### TRIVIA

#### Darts and Laurels

(Reprinted from Toronto Star - May 5, 1971).



The United Nations Economic Commission for Europe, for solemnly stating in its annual report that "weather conditions in 1969-1970 once again varied considerably from country to country.

#### Wind Gauge for Sylvite

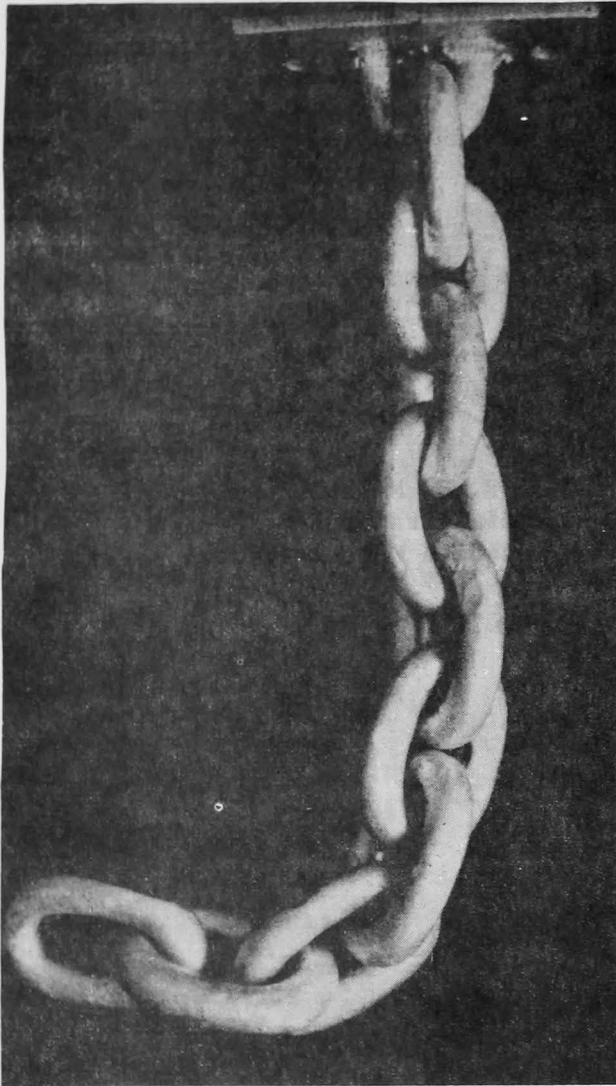
(Reprinted from World Spectator, Moosomin, Sask.)

Shortly after work began on the Sylvite potash project, it was mentioned by some on the site that there was lack of an accurate wind-measuring device to record the velocity of the winds that blow across the sand plains in that area.

Some of the leading Rocanville talent, from busy headquarters in the coffee bar, devoted many hours to the design and creation of a wind gauge to be presented at the mine on the First of April. (The day was indeed well chosen).

Not only was the device completed, but detailed instructions





**Prairie wind-measuring device**

were provided for mounting the gauge safely and securely. Owing to the delicate mechanism of the measuring apparatus, it was suggested that the pole holding the device be non-combustible but otherwise a willow picket would do, providing it was over 12 feet long. (No indication was given as to where a 12 foot willow might be found).

The post, exactly 12' and 6-1/4" long, would be sunk in the earth to leave 6' and 3/16" above ground, with an arm to hold the device, set at right angles and measuring 2 29/32 in.

The combined talent of the Rocanville group, following much research, produced a successful design in a high-range wind gauge of unique design. Members of the "brainstorming" group drew on their inventive genius, as well as an impressive background of experience in oil production, engineering, merchandising, and manufacturing, to design an instrument that local weather observers claim could not be obtained elsewhere.

Based on the well-known principle of a single-point suspension manila rope, the new gauge uses a chain pattern of delicately balanced

links, designed to indicate wind velocity in increments of ten miles per hour, as the indicator moves from the horizontal. Wind direction is, of course, plainly indicated.

The wind gauge has been forwarded to the World-Spectator, and it is now available at the newspaper office for others to study before the next federal election.

The above picture shows that, at the time the picture was taken the wind was blowing at 30 miles per hour, as three links have assumed the horizontal position.



The Windstream and Breeze boys guarantee the device for 401 years, with no maintenance, but the links might rust in to position if the wind remains constant for a period of 10 years or more.

The device is so delicate it weighs only 52.6 lbs.

*J. R. H. Noble*  
for J. R. H. Noble  
Administrator  
Canadian Meteorological Service

Environment Canada Environnement

Zephyr

Date: 710500

0019973E  
ARCH # 2

OTM