



ZEPHYR

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"Red Square"



H. Cameron, Kremlin Wall (left) Lenin Tomb (centre) and Historical Museum (right).



Moscow University situated on Lenin Hills.

Inside Kremlin Wall – Great Palace (right) and Tower on Kremlin Wall in background.





Tsar - bell inside Kremlin Wall - largest bell in world, measuring 26 feet in height and 66 feet in circumference. It weighs 200 tons. It was cast in 1735. It was exposed to a fire which broke off a piece of it.

St. Basil's Cathedral on Red Square.



Moscow River, Kremlin Wall, Great Kremlin Palace and several Cathedrals.

FOUR DAYS IN MOSCOW

by Hugh Cameron

A meeting of Canadian and Russian scientists took place in Moscow, February 21-24, 1972. The purpose of the meeting was to identify areas of common interest in arctic science, research and development and to study possible forms of future co-operation.

The meeting was successful in that both groups agreed that co-operation between Canada and USSR organizations might be established on a regular and long-term basis. Initial steps can now be taken in several scientific fields including both acquisition and utilization of arctic meteorological knowledge. In time this will involve the AES with the USSR in co-operative undertakings on common scientific arctic problems.

Although three of the four days in Moscow were taken up with formal meetings, the Canadian group still found time to do a little sightseeing.

Looking back at the many interesting places that I have had the opportunity to visit, the one to Moscow will rank as an unusual experience, one in which it was difficult to identify fantasy from reality. My image of Moscow and its people did not in anyway equate with what I actually saw. I realize, however, that I saw only a very small and select portion of Moscow.

On any trip weather is always a key factor. On this trip it was exceptional. A weak system passed to the south of Moscow prior to our arrival on Saturday giving a cool overcast, but dry day, with temperatures in the 20's. By Sunday the high took over and Moscow weather became clear and sunny with temperatures near the freezing point. This tourist weather continued until Wednesday when it gradually deteriorated becoming overcast with light snow and rain mixed. This condition persisted through Thursday, the day we returned to Canada.

The group left Montreal Friday evening and arrived on schedule at Moscow via Copenhagen at approximately 5:00 p.m., Saturday, Moscow time (eight time zones east of YZ). Moscow "International" Airport was different than we expected. Although the terminal building is a relatively large, modern facility like the Gander terminal, it lacked people. Our flight appeared to be the only one at the terminal, and except for the 30 or 40 passengers and probably half a dozen visitors and staff the building appeared empty. Clearing customs and declaring one's possessions is much easier in Moscow than in Toronto where there are literally thousands of people milling around over the entire terminal, not mentioning the weekend traffic jams. The lack of international flights and private means of transportation (cars and motorcycles) certainly keeps the number of people, at the airport, to a minimum. At least they do not have a Moscow II problem.

The drive into Moscow reminded me of driving into Edmonton from the International Airport. The first 10-15 miles is agricultural with many small farms each with a collection of small one-story wooden buildings and a "bird-house". Moscow itself is identified by an abrupt change from a pastoral setting to an industrialized one in which heavy industry appears zoned and is located on the periphery. Moscow being the capital of the USSR and the Russian Federation has about seven million residents, more than 4,000 streets, squares and esplanades and over 90,000 apartment houses. I didn't see any single dwellings or private homes although I am sure they must exist.

Sunday was a beautiful, clear and cool spring day. It was the one and only day the group had free and our hosts arranged a tour of Moscow for us. Our guide was a young bilingual Moscovite who for four days was the official shepherd to the Canadian group. Except for the time we spent in our hotel rooms and at our meetings with the Canadian Ambassador, Mr. Ford, our guide never let us out of his sight. The Sunday tour was restricted to the central core of Moscow.

As a group, we visited Red Square, and St. Basils Cathedral; the inner grounds of the Kremlin where we viewed from the outside the Great Palace, the famous Tzar Bell, the cannon that never fired, and from the inside the Arkhangelski Cathedral, which is now a museum displaying Russian iconographic art which in a way illustrates the melange of worship, warfare and art of the old Russia; the large outdoor (all year) Moscow swimming pool; the Lenin Sports Stadium which is the largest in Europe with seating for 103,000 spectators; Moscow University with an enrollment of 45,000 and finally a tour of an eighteenth century convent. To complete the tour we had a ride on the Moscow Transit System. The underground system is an example of a well planned rapid transportation system which can be converted into a bomb shelter for the people of Moscow during emergencies. Transportation costs are most reasonable - 5¢ for subway, 4¢ for trolley buses and 3¢ for ordinary buses. This transportation system has no competition. There are very few privately owned cars. Small sized cars sell for around \$5-7,000, well outside of the means of the average citizen.

Sunday evening our shepherd took us to the Moscow Circus. An extravaganza in a unique setting built especially for the Circus which operates on a year-round basis six-seven days per week. Besides being impressed with the Circus itself I was also aware of the orderliness and cleanliness that prevailed before, during and after the show. It was certainly different from seeing the circus at Maple Leaf Gardens where everyone is free to run around and do what he wishes with garbage.

Tuesday noon the group had a two-hour break from formal sessions and were invited to a luncheon given by the Canadian Ambassador and Mrs. Ford for the Russian Olympic Figure Skating Team on the eve of their departure for Calgary and the World Championships. It was a most enjoyable luncheon. Some of the skaters spoke English which enabled us to discuss sports in general within Russia. For instance we were informed that skaters of their calibre, single or married, skate six days per week for 11 months (one month holiday) on a full-time learning basis. For this they are well remunerated and are held in high esteem by both their peers and society. On completion of their training they graduate and become Instructors. During the training period they may compete internationally for Russia.

Tuesday evening was another enjoyable experience. The group was taken to the Ballet which was performed at the Kremlin Palace of Congresses in the great Hall of Sessions where the Supreme Soviet of the USSR assembles. Again it was an extravaganza in a unique setting.

The only shopping done was at the larger hotels where small centres for foreigners using foreign currency were located. Vodka and Russian souvenirs were in great supply.

Within Moscow society there appears to be a social hierarchy. It is identifiable at least within several groups - Academics (550 research institutes, designing offices and laboratories are in Moscow staffed by more than 100,000 scientific workers of whom over

20 percent are Candidates or Doctors of Science); performing arts (dancers, musicians and singers) and athletes (all types). If one measures success as a combination of external recognition and internal satisfaction, then within Moscow many Moscovites would consider themselves successful. Personal success measured in terms of material wealth is unattainable to the majority of Moscovites. Lack of freedom of speech and worship were undetectable except that the press and TV were certainly stressing Russia and its viewpoints and the churches we saw were either museums or were being renovated as show places.

The trip home via Amsterdam on Thursday was uneventful except for the 12 hours it took to go from Montreal to Toronto by train.

A most interesting four days!

CENTENNIAL CLOSING

The main lobby of AES Headquarters was the scene for the official closing of the Centennial Year. The brief ceremony was held on April 12, at 4:00 p.m. shortly after the day's adjournment of the RD Conference which was being held that week in Toronto. The audience, consisting of employees within the building, filled the space to overflowing.

Mr. Frank Benum, Chief of Forecast Division acting as Master of Ceremonies speculated that since employees were being given one half hour off on this occasion, we could expect a whole day on our 1000 anniversary. This announcement met with limited enthusiasm. There was also a certain vagueness about the choice of April 12 as the date for the official closing but Mr. Benum assured the audience it would become a very famous date indeed in the annals of the AES. The ADMA, Mr. Noble gave a brief review of Centennial Highlights across Canada and thanked all the men and women who had made contributions. A symbolic handshake between Mr. Noble and Mr. Ron Miller, AES Headquarters Co-ordinator for the Centenary terminated the event except for a surprise presentation.

Read on:—

Presentation of a Gift for AES Headquarters

At the time of the official opening last October, several employees suggested that it would be a fitting gesture if a suitable gift from the employees could be purchased and presented to Mr. Noble for placing in the building — the shock of travelling 15 — 20 miles (or on 3 — 4 buses) to work each day having partially worn-off. A collection was subsequently made and an Eskimo sculpture was commissioned from the Lake Harbour Eskimo Co-operative through the good offices of Mr. Paul Brownlee — area superintendent (DIAND). In February, the piece arrived in good shape thanks to the efforts of Art Cooper, Officer-in-Charge at Frobisher Bay. It was presented on behalf of the employees by Mrs. Fran Milne of the Research and Training Division, AES Headquarters, at the closing ceremony of the Centennial Year (see above). The inscription reads:

ORIGINAL ESKIMO SCULPTURE

by

*LUCASSIE IKKIBULUK
Lake Harbour, N.W.T.*

*Presented as a gift to the building
by the employees at the
Atmospheric Environment Service Headquarters
Accepted by J.R.H. Noble Assistant Deputy Minister
April 12, 1972*

This piece is a composite tableau showing a man and woman at the entrance to an igloo with a dog squatting a short distance off. Carved in green soapstone, it is an attractive asset to the decor of the building.



*Presentation of Eskimo Carving
Left to right: Ron Miller, Joan Atkinson, J.R.H. Noble, Fran Milne, Marie Kendall*

THE GLOBAL ATMOSPHERIC RESEARCH PROGRAM

The following Press Release on the Global Atmospheric Research Program (GARP) was prepared by NRC and has been approved by Mr. J.R.H. Noble and The Hon. Jack Davis.

"The Canadian Government has agreed to "Active Canadian Participation" in the Global Atmospheric Research Program (GARP), an international co-operative research project to improve weather forecasting. It was announced jointly today by the Department of the Environment and the National Research Council of Canada.

The Program is jointly sponsored by the World Meteorological Organization and the International Council for Scientific Unions. Its principal objective is to establish on a global approach physically sound basis for extended-range weather prediction which would lead to an increase in the accuracy of forecasting over periods from one day to several weeks.

The benefits of improved weather forecasting would be widespread, both in geographic terms and in the variety of activities which will be affected. Aviation, shipping, agriculture, water resources management, construction, urban pollution control, are just a few examples of activities which will receive substantial direct benefits.

International planning and coordination for GARP is the responsibility of a Joint Organization Committee (JOC) appointed by WMO and ICSU, supported by a small secretariat based in Geneva. The Vice-chairman of this committee is Dr. R.W. Stewart, Director, Pacific Region, Marine Sciences Branch of the Department of Environment, Victoria, B.C.

Through the Atmospheric Environment Service of the Department of the Environment and through the National Research Council of Canada, Canada is already participating to a limited extent in GARP. However, if GARP is to attain its objectives, an increased research commitment will be required of co-operating nations. An expansion of the activities of existing research groups in the Federal Government and in Canadian universities will permit Canada to make a very effective and appropriate contribution to the attainment of the objectives of GARP.

The joint announcement says that active Canadian participation in GARP will be based on an expansion of existing Canadian research activities of direct relevance to GARP and on a Canadian contribution to global and sub-global experiments. Federal government expenditures in government and university laboratories specifically related to GARP are estimated at 1,250,000 dollars for the 1971-72 fiscal year. Future funding is still under consideration.

Co-ordination and integration of Canadian participation in GARP will be the responsibility of the National Co-ordinating Committee for GARP. The committee, established by the National Research Council in 1969, will continue to include representatives of pertinent branches of the federal government and of Canadian universities.

The objective of GARP is closely related to the objectives of a number of research programs already existing in Canada, both within the federal government, in particular those of the Atmospheric Environment Service, and in Canadian universities. Canada's participation in GARP will be based heavily on these existing research groups and on

existing observational facilities, such as research ships and aircraft. The creation of large new research teams or facilities is not envisaged at this time.

Unlike a number of recent international research programs, such as the International Geophysical Year, GARP does not have a fixed duration. It will continue as long as participating countries believe it to be justified."

SUPPLEMENTARY REMARKS ON AES PARTICIPATION IN GARP

Nine generalized AES GARP program areas have been identified, up to (but not including) the time of the First GARP Global Experiment (FGGE). These are:

- I This is the AES University Grants Program, which will be expanded to give higher priority to GARP-oriented topics. At the present time about 50% of our Grants are for studies with some relevance to GARP. Additional funds will be sought so that this percentage can rise, without cutting back on non-GARP fields which could well be relevant to other AES priority areas.
- II This is the AES participation in the GARP Atlantic Tropical Experiment (GATE - late summer, 1974). W.M.S. (DOE) will make a vessel available (probably the Hudson if a helicopter capability is judged significant), and AES will provide rawinsonde (by conversion of our IFYGL Loran-C set to OMEGA), radiation and micrometeorological equipment, and staff to operate these programs.
- III This is the current IFYGL program - recognized to be relevant to GARP objectives.
- IV This is a proposed Canadian response to the GARP radiation sub-program, and will include studies of the radiative properties of aerosols and of clouds, and of the parameterization of these physical processes. "A" budget activities in these important areas are at present minimal, but significant expansion is needed in order to respond not only to GARP requirements but also to the needs of the Gulf of St. Lawrence and James Bay projects.
- V This is a proposed Canadian response to one facet of the GARP Numerical Experimentation sub-program, that aspect which deals with the modelling of the "top" of the atmosphere. This includes numerical simulation of mid-winter sudden stratospheric warmings - at which time the treatment of the highest level included in the model may affect subsequent evolution in both stratosphere and troposphere.
- VI This is a proposed Canadian response to the GARP air-sea interaction sub-program (and the related air-land field of study regarded as of lesser significance). Primary attention will be paid to the observation and modelling (i.e., parameterization) of vertical fluxes of heat and moisture. Field studies will involve IFYGL and the Gulf of St. Lawrence Program sites

and possible AES participation in the Japanese-sponsored GARP Experiment AMTEX (this may require additional resources, since AMTEX became a GARP Experiment after the budget proposals summarized above were prepared).

- VII This is a proposed Canadian response to several facets of the GARP Numerical Experimentation sub-program, involving both the Montreal GARP-accredited and -designated Research Center (in numerical aspects of modelling) and a related Toronto component, studying small- and medium-scale motions in relation to nominally-observable large-scale parameters.
- VIII This is the AES Postdoctorate Fellowship Program (administered by NRC but totally funded by AES). In recent years we have funded five fellows. It was recognized that a substantial increase would be required, however, particularly in response to the WMO-ICSU request to make facilities and funds available for GARP Visiting Scientists. Accordingly, provision was made for about four new fellows.
- IX This covers computer usage in the Toronto sector of ARD in support of GARP numerical programs (V and VII, especially), exclusive of the use of small dedicated computers. At the moment the major facility employed is a Univac 9200 computer-terminal on-line to a Univac 1108.

IFYGL HIGHLIGHTS - APRIL

ART and Evaporation Estimate Program

Weekly Airborne Radiation Thermometer flights continued during April. The Ice Reconnaissance program associated with these flights was discontinued during the last week of the month with the end of the ice season.

Radiation Equipment

Radiation equipment was in operation aboard the vessel *Limnos* and *Martin Karlsen* throughout April. Similar equipment is scheduled to be installed on *CCGS Porte Dauphine* early in May. Kipp pyranometers will be placed on each Bedford Tower as soon as the towers have been installed. Installation of the land based radiation stations at Peterborough, Kingston and Trenton will begin the first week in May, slightly behind schedule.

Evaporation Pans

The Class A and X-3 evaporation pans are also scheduled for installation early in May. The site that was to have been at Scarborough has been changed to the farm at Woodbridge. This change was made due to lack of available staff at Scarborough.

Precipitation/Radar

The Precipitation/Radar project was in operation throughout the month. However, there is some question as to the validity of the data during the early part of the month due to calibration problems associated with the radar. This problem has now been

corrected. The special rain gauge network at Bowmanville has three stations yet to be installed and these will be completed early in May.

Bedford Towers

Final arrangements have been made for the installation of the Bedford Towers and the placing of the Towers will begin during the first week of May. Almost all the hardware is ready for the installation of sensors on the Tower.

Shoreline Stations

At the present time automatic shoreline stations are operating at Toronto Headland, Darlington and Cobourg. Raw data collected at these stations are being processed. Power has finally been installed at Burlington and final installation of this station began on April 28. The installation of an eight-foot fence at Point Petre for protection against vandals is presently underway. As soon as the fence has been completed this station will be re-installed. Although the station at Port Weller has been running throughout the month, RF interference has played havoc with the output of the sensors. Attempts are being made to shield the installation against this interference but it seems unlikely that this will be successful and the station will probably have to be moved. With this in mind, an approach has been made to the Department of National Defence with the possibility of re-locating on their property at Niagara-on-the-Lake.

Atmospheric Water Budget Program

The Atmospheric Water Budget Program continued its progress towards implementation in September. Mr. A. Missio attended a meeting at Beukers Laboratories, New York on April 11 and 12 where the technician training program and operational problems were discussed. A training program and a standard operating procedures manual are being drawn up by Beukers. Technician training at Beukers will be conducted from the 15th to the 25th of May.

Micrometeorological and Air Pollution Projects

The Micrometeorological and Air Pollution Projects were ready to proceed on the 26th of April. However, due to a delay in the provision of a barge at the Niagara bar by CCIW these programs have been temporarily held up.

All other data collection systems are in operation.

POUR ASSURER LA SURVIE DE L'ENVIRONNEMENT: UN SYSTEME DE CONTROLE DES ZONES FORESTIERES

Un système international d'observation pour contrôler à tout instant l'état des zones forestières du monde entier a été proposé par différents experts pour assurer la survie de l'environnement.

Cette proposition est contenue dans un rapport préparé pour la conférence des Nations Unies sur l'environnement à Stockholm en juin. Les données sur l'état des forêts seraient obtenues par les techniques de repérage à distance (par exemple par avion ou par satellite). Elles pourraient également être fournies par les gouvernements et les inventaires

forestiers classiques. Le rapport a été préparé par la FAO (Organisation des Nations Unies pour l'Alimentation et l'Agriculture), avec la collaboration de l'Unesco et de l'organisation météorologique mondiale.

Les données ainsi recueillies seraient regroupées et traitées par ordinateur. Une carte forestière du monde serait ainsi constituée et tenue à jour à chaque instant. Les "zones en péril" y seraient consignées et signalées aussitôt aux différents gouvernements.

Par exemple, si l'équilibre thermique du monde risque d'être modifié par la destruction de forêts ou d'espaces verts, des recommandations appropriées seraient immédiatement données aux intéressés.

En outre, la quantité et la qualité des zones forestières seraient évaluées et classées en différents groupes écologiques, et les moindres changements dans la bio-masse forestière seraient enregistrés.

Le rapport souligne l'importance capitale des forêts pour l'équilibre écologique de notre planète (le tiers de la surface des terres est couvert de forêts). Le rapport rappelle en outre les nombreux rôles que joue la forêt dans la protection de notre environnement.

Tout d'abord, les forêts agissent comme régulateurs des eaux. Elles empêchent un trop grand ruissellement pendant les pluies, et fournissent les cultures du vent et des sables.

Les plantes, souligne le rapport, sont les seuls organismes capables de convertir l'énergie solaire en énergie chimique, par la photosynthèse, au cours de laquelle elles absorbent l'oxyde de carbone de l'air et dégagent de l'oxygène. Les savants estiment que 80 milliards de tonnes de carbone sont fixées chaque année. Près de la moitié de cette opération est effectuée par les arbres des forêts.

Mais les forêts contribuent aussi à soulager l'homme des tensions nerveuses provoquées par le surpeuplement des grandes villes.

Le rapport signale notamment que des haies d'arbres et d'arbustes peuvent diminuer le bruit dans une proportion allant jusqu'à 10 décibels, ce qui représente parfois une réduction de 50 pour cent du bruit apparent.

Le rôle "récréatif" des forêts est aussi souligné dans le rapport.

Le programme proposé dans le rapport coûterait environ 200,000 dollars en investissements, 300,000 dollars en frais de fonctionnement, y compris une unité de lutte contre l'incendie.

Le rapport suggère que les fonds nécessaires, fournis par les pays membres des Nations Unies, soient confiés à une organisation internationale qui pourrait exécuter le programme.

Il apparaît essentiel aux auteurs du rapport de classer les sols selon leurs possibilités et de formuler des plans précis d'utilisation agricole, au moins pour les zones où l'on envisage des changements radicaux dans leur mode d'utilisation. Il faudra également de nouveaux règlements contre la pollution causée par les industries du bois elles-mêmes.

Le rapport suggère également de lancer un programme international de recherche et d'échange d'informations destiné à améliorer les connaissances sur les influences écologiques des forêts. Le programme viserait en outre à définir et universaliser les critères et la méthodologie pour l'évaluation, en termes économiques, des influences de la forêt.

THE ANNUAL MEETING OF AES REGIONAL DIRECTORS

The Annual Meeting of AES Regional Directors and senior staff of AES Headquarters was held in Toronto, April 11 - 13 inclusive.

The meeting provided an opportunity for personnel to report on plans, projects and programs as well as a forum for discussion of AES problems and of inter-relationships of AES with other government departments and agencies.

Mr. Jean Lupien, Senior Assistant Deputy Minister, attended on the first day of the meetings and briefed the conference on the status of the DOE organizational plan and the steps being taken to resolve certain organizational problems. In addition to Senior headquarters staff and the Regional Directors, the meetings were attended by D.J. Wright (Met.L) R.A. Parry (SOMeT, MOT) D.B. Kennedy (DMETOC, CF HQ) and Dr. F.K. Hare, Director-General Designate of Research Co-ordination, Directorate of Policy Planning and Research Services of DOE.



*Front Row: Left to Right: C.C. Boughner, Jean P. Lupien SADM, J.R.H. Noble ADMA, F.W. Benum
Second Row: Left to Right: R.J. Fichaud, G.L. Pincock, Dr. D.P. McIntyre, D.B. Kennedy, H.H. Bindon
Back Row: Left to Right: D.M. Robertson, D.H. Smith, G. Washburn, R.A. Parry, D.J. Wright,
Dr. F.K. Hare, J.L. Knox*

REPORT ON UNIT IV OF METEOROLOGISTS (B.Sc.) COURSE 28

Twenty-seven students reported at the School of Meteorology, Canadian Forces Base Trenton on February 1, 1972 for Unit IV of Meteorologists (B.Sc.) Course 28.

Nineteen students moved into the Officers Quarters on the Base while seven of the married students obtained accommodation in the surrounding area. One student, Mr. Dave Smith, was able to spend the training period with his parents as his home is in Bayside which is less than a mile east of the Base.

Almost all of the meteorologists on Course 28 were able to take advantage of the opportunities available for a familiarization flight with the Canadian Forces in either the Boeing 707, Hercules or Twin Otter aircraft. Most flights were in the local area and students were normally given a good briefing by the aircrew and allowed access to the crew compartment.

The visit to the Central Analysis Office was made on two separate days with the flight of the second half of the course, ironically enough, delayed for two days because of weather. Good weather finally arrived on the third day and the Twin Otter flight was conducted without incident.

The introduction to the problems of operational conditions proved to be rather dramatic for the first two groups of students as their check-out in the Weather Office coincided with a period of office renovation. The renovation was mainly completed by the Easter holiday period and the last group of students to graduate were able to enjoy much-improved facilities.

The course progressed well, with the weather for forecasting exercises showing considerable variety and providing ample challenges. Twenty-six of the original twenty-seven course members completed the course successfully.

Assignments after course graduation again extended throughout the length and breadth of Canada – from Comox, B.C. and Whitehorse, Yukon to Halifax, N.S. and Goose Bay, Nfld. Thirteen students were assigned to Canadian Forces Weather Offices, twelve were assigned to Civil Weather Offices and one went to the Instrument Division at AES Headquarters. Miss Mary Regan, the only representative of the fair sex on Course 28, has been assigned to CFB Cold Lake. She becomes the third female meteorologist to work in a Canadian Forces Weather Office, joining Miss Carole Klaponski of CFB Winnipeg and Miss Nancy Waller of the METOC Centre, Halifax in the job of providing weather services to the Canadian Forces.

REFRESHER COURSE – FORECASTING WORKSHOP, MARCH 13-24, 1972

During March, fifteen meteorologists from DND and smaller civilian forecast offices across the country participated in a training program conducted by the Professional Development Unit of the Training Section. The training program was an attempt to duplicate for smaller forecast offices "on-site" training which has been carried out recently at such major centres as Montreal and Vancouver.

In the first week of the course there was a review of the basic concepts used routinely in operational forecasting and an introduction to the Motion System-Weather System method of forecasting. During the second week the participants applied these ideas in a real time forecasting situation. Each day, prognostic charts and weather forecasts were prepared up to 24 hours, utilizing the latest available (1200Z) data and guidance materials from CAO. Fortunately, the weather itself was sufficiently variable and complex to present a real challenge to the course members.

A short series of lectures and discussions was also provided for during the second week of the course and this allowed the participants to learn something of the work and plans of Forecast Division and the Forecast Research Section. Additional lecture topics included Oceanography and the Primitive Equations Model.

TRAINING IN SIMULATION MODELLING

A characteristic of man is that he willy-nilly exploits his environment in the expectation of achieving certain objective and subjective values. The things he does to the environment are seldom consistent with the interactive behaviour of natural systems or recognize the sometimes disastrous consequences which can result from certain choices. What he needs is some means of obtaining realistic advice for regulating his manipulations within safe limits.

The difficulty has been a lack of efficient means for exchanging information between scientific specialists and society's decision-makers, and of effective devices for integrating scientific, technical and political knowledge. Now developing, however, is a new technology which seems to hold considerable promise in overcoming this difficulty. It involves the systematic development of computer models which simulate the essential processes of natural systems and their key control mechanisms.

Earlier this year, the Department of the Environment made arrangements with the Resource Ecology Institute at the University of British Columbia to provide departmental personnel training in computer-aided approaches to the management of multiple resource systems. The initial phase of the training program is a series of week-long seminars on simulation modelling.

The first seminar was held during the week of March 6 through 10 and was attended by three AES meteorologists, Messrs. R.H. Robinson, F.E. Burbidge and D.S. McGeary. Their reports suggest that the seminar was an unqualified success, for two reasons:

1. The seminar satisfied its primary objective by providing an educational experience in Simulation Modelling;
2. The participants in the program actually developed a model of a hypothetical tract of land in which there were multiple resources and for which there were multiple uses.

The second Seminar is scheduled for the week of June 19 through 24. Once again, participants from all the DOE Services, this time from Ontario and Quebec, will meet as an interdisciplinary team to attack a single problem, a problem that clearly identifies the relationships that exist in the department. Messrs. T.L. Wiacek, W.D. Wyllie and F.J. Lemire will be the AES attendees.

WMO COMMISSION FOR HYDROLOGY

The World Meteorological Organization's Commission for Hydrology held its fourth session (CHy-IV) in Buenos Aires, April 3-17, 1972. Mr. T.L. Richards, Superintendent, Hydrometeorology, attended as the AES representative and alternate principal delegate of a five-member Canadian delegation led by Dr. A.T. Prince, Director, Inland Waters Branch, Water Management Service. The session was attended by 74 participants representing 32 countries. There were also six observers from international organizations and one invited expert. Professor E.G. Popov (USSR) presided over the session assisted by Vice-President J.A. Rodier (France). Messrs. R.H. Clark (Canada) and F.J. Lacaze (Argentina) were elected Chairmen of Committees A and B respectively.

The agenda was a very large one and covered reports of working groups and rapporteurs dealing with the operational aspects of hydrology and inter-relationships with meteorology and the research aspects of hydrology. Discussions led to a large number of appropriately directed recommendations and resolutions dealing with the above-noted subject. In addition, seven working groups and 39 rapporteurs were appointed to deal with specific topics over the next four-year period.

On the final day Professor Popov was re-elected President of the Commission for the next period (by acclamation). R.H. Clark was elected Vice-President, also by acclamation.

PERSONNEL

The following transfers took place:

W.I. Pugsley	To: Training Section, R&T Division From: Prairie Province Water Board Project Calgary, Alta.
L. Berntsen	To: Training Section, R&T Division From: Weather Office, Vancouver, B.C.
Dr. S.F. Woronko	To: Research Section, R&T Division From: Ph.D. leave - McGill University
D. Bellows	To: Research Section, R&T Division From: Project Assignment, Climatology Division
H.O. Bergum	To: Assignment to R&T Division From: W.O. Edmonton
M.J. Hawkes	To: CFB Trenton (School of Met.) From: CFB Cold Lake

The Personnel Section is pleased to welcome Fred Iviney back. Fred returned on April 4th as Senior Staff Relations Officer at Atmospheric Environment Service Headquarters. You will recall that Fred was a Staffing Officer with us from 1967 until 1970 when he accepted an appointment as Regional Staffing Officer with the Department of Manpower & Immigration, Ontario Region.

Prior to joining the Public Service in 1967, Fred was employed for 14 years with the Toronto Hydro-Electric System where he progressed from Employment Assistant through all areas of Personnel to the position of Labour Relations Officer.

Fred will be actively involved in upcoming negotiations on the MT and EG Collective Agreements in addition to providing contract interpretation and administering the grievance procedure program.

Married - 3 children
lives in Scarborough -
Member of P.P.A. -
Coach of Tyke Baseball team in community.

Mr. John Kurdyla, meteorologist in operational forecasting from the Montreal Weather Office, commenced a six-month project assignment with the Forecast Research Section at AES Headquarters on April 5, 1972. As a successful applicant for a temporary project assignment which had been outlined along with several other research assignments in a GENOT in October 1971, Mr. Kurdyla will be working on projects relating to objective analysis in the updating and modelling of the Regional Hourly Analysis and Prediction System. His project assignment will be supervised by Mr. F.B. Muller, supervisor of the Forecast Development Research Unit, and will be under the direction of the scientist-in-charge, Mr. E.C. Jarvis.

TRIVIA

A BIG HEADACHE! !

Atmospheric Environment Service
4905 Bufferin Street
Downsview, Ontario
Canada

(from a parcel received at AES Headquarters)