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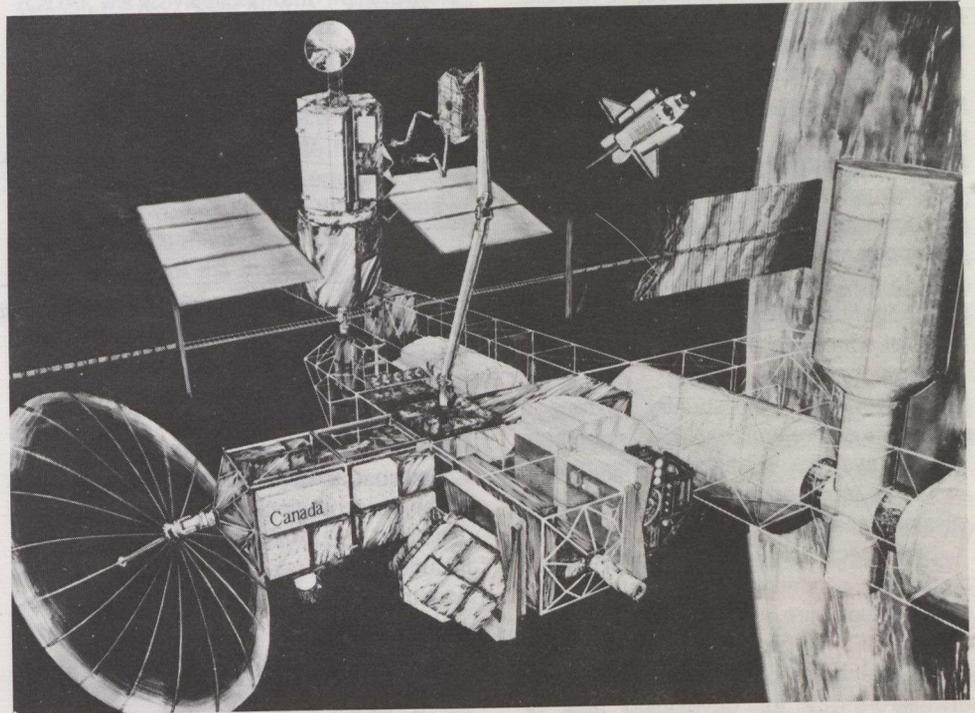
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Space station participation revealed in new plan



Artist's configuration of Canada's Integrated Servicing and Test Facility that is being considered for construction on the permanent United States manned station in space.

The federal government has announced that Canada will participate in phase B of the United States' program to put a permanent manned station in space in the early 1990s.

Canada's involvement in the space station program was outlined in the Interim Space Plan recently made public by Minister of State for Science and Technology Tom Siddon, Minister of Communications Marcel Masse, and Minister of State for Mines Robert E.J. Layton.

Dr. Siddon, who is the minister responsible for over-all space policy and planning, said that Canadian "participation in a space station ensures that we will be a partner in one of the most complex and visible technological achievements in history". He added that there is "the potential for significant economic benefits for the country".

The Interim Space Plan for Canada outlines the country's space program for 1985-86. In addition to confirming Canadian participation in the space station program, the

plan includes a commitment to maintain and develop Canadian capabilities in space, support for the implementation of a commercial mobile Communications Satellite System (MSAT), and continued development of a remote sensing satellite for resource monitoring and navigation (RADARSAT).

Current and future involvement

Dr. Siddon said the first step of the plan was to ensure that "Canadians will continue to benefit from the development and use of space technology". He added that "the next step will come at the end of the year with the development of a long-term Strategic Space Plan that will identify strategic thrusts, propose strategies for increasing industrial competitiveness and recommend program priorities and funding".

Prime Minister Brian Mulroney informed President Ronald Reagan of Canada's decision to participate in phase B of the \$12-billion space station project during the



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leaders' summit meeting in Quebec City, March 17-18. Canada's contribution to the project will cost \$8.8 million in 1985-86.

When the space station is launched in the early 1990s, it is expected to be one of the most complex and visible technological achievements in history. Based on modular design principles, it will be a base camp for space which may some day evolve into a space community.

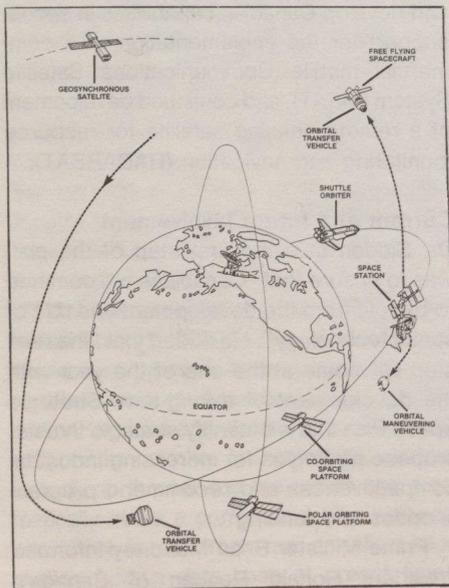
This self-contained station will include space laboratories and observatories, manufacturing facilities, a maintenance and storage depot, a servicing station for orbital platforms and satellites, living quarters for the astronauts, as well as orbital manoeuvring and transfer vehicles to link the base station with other orbiting platforms and satellites.

Benefits of participation

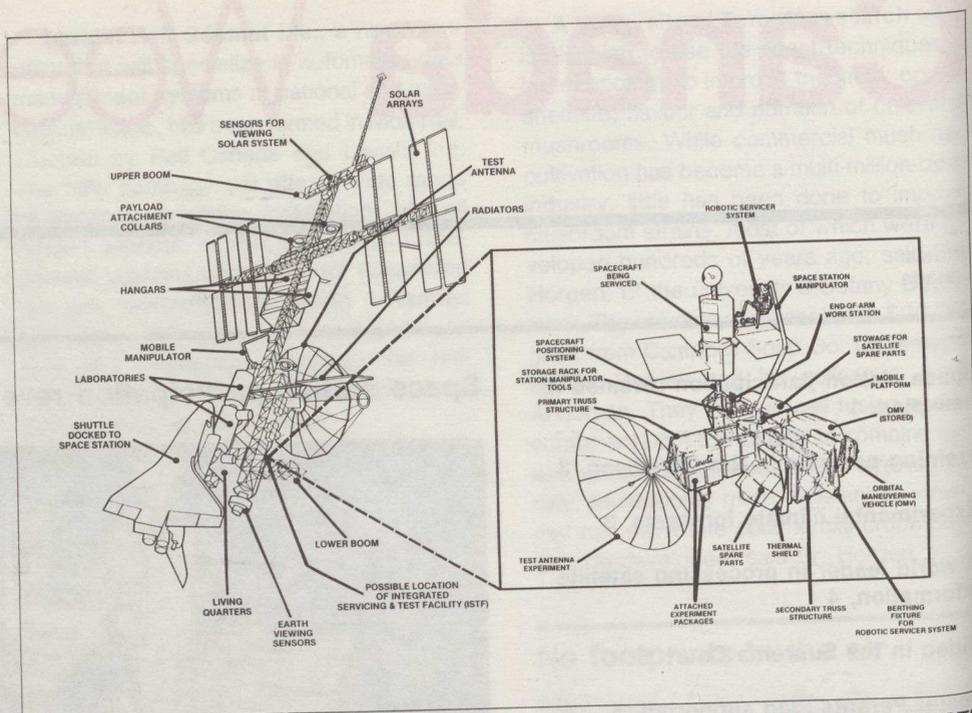
Commitment to the space station will allow participating nations to be involved in the development, use and operation of the facilities, to develop systems which will be of later benefit to industry, and to obtain preferential access for research users.

Through remote sensing, Canada will be able to monitor the country's extensive land mass and resources. The new remote sensing systems will have greater power, as well as improved data-handling and transmission capabilities.

Space technology, life science and space medicine, communications systems and space science are also areas where Canada is expected to benefit from involvement in the space station. In addition, the use of microgravity for developing new or improved products for the electronics, pharmaceutical and metal processing industries, is considered to have the poten-



Possible infrastructure of the space station to be launched early in the 1990s.



Drawing of proposed US space station showing possible location and specifications of ISTF.

tial to make materials processing one of the more significant economic applications.

Program phases

Canada has already been involved in phase A of the space station project which began in January 1982. This preliminary study phase included an appraisal of the possibilities for countries to participate in the program, an assessment of the contribution according to their respective existing technology bases and an assessment of each country's potential use of the facility. In addition to the US and Canada, a number of European nations and Japan were involved.

Spar Aerospace Limited and Philip A. Lapp Associates, under contract to the National Research Council (NRC), carried out the preliminary studies in Canada. The report concluded that Canada could benefit scientifically, technologically, economically and socially through participation in the development of the space station.

Phase B, the definition and design phase, will run from April 1985 to March 1987. It will include a more detailed study of each nation's potential contribution to the program. The Systems Requirements Review outlining possible contributions, will be held by the National Space Administration Agency (NASA) in January 1986.

In Canada, NRC will carry out the project design and preliminary definition studies to develop specific proposals for Canadian participation. Six major Canadian companies are involved in the studies.

The Canadian role is expected to be that of a supplier of specialized equipment and a

user of the space station for scientific research, remote sensing and industrial testing.

One of the proposals is the development of a robotic servicer and an Integrated Servicing and Test Facility (ISTF) for space assembly, test, servicing and maintenance functions. This facility would be used to service satellites and other earth orbiting spacecraft, a key function in outer space.

Second, are the solar arrays which could provide primary power to the man-tended platforms or auxiliary power for the station. Third, is a remote sensing facility based on RADARSAT.

The other three phases of the space station program will be established in early 1987 when agreements are negotiated between NASA and each of its international partners. In phases C and D, the hardware for a space station will be designed, built, integrated and tested. And in phase E, components will be transported into orbit in the shuttle's cargo bay and assembled by astronauts.

MSAT system

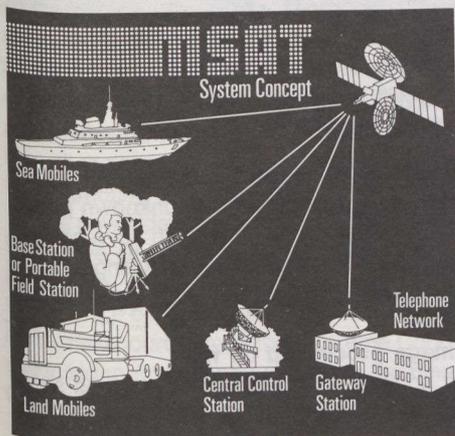
Canada's Interim Space Plan also supports the implementation of a commercial mobile satellite communications system (MSAT), an industry-led project involving Telesat Canada, a US satellite operator, the Department of Communications and NASA, by 1990. This could make Canada the first country in the world with a domestic mobile satellite communications system.

The MSAT system is intended to meet the need for improved voice and data communications to vehicles, aircraft, ships, and other portable stations for business applications

in rural and remote areas of Canada. It will allow someone using a relatively small and inexpensive radio terminal to communicate directly *via* satellite anywhere in the country.

Satellite mobile radio service will offer private communications between mobile units or between mobile units and a base station. Police forces, ambulance services, winter road maintenance crews, forest fire fighters, resource industries, where people are constantly on the move in remote locations, and fishermen are expected to be major users.

Data communications is also expected to be an important use of MSAT. Subscribers will be able to dial directly into the computer without an intermediary. The data can also be encoded to ensure confidentiality.



Configuration indicating some possible services for the commercial mobile satellite communications system.

Other services include nationwide vehicle paging and remote telephone services.

RADARSAT on station

The Energy, Mines and Resources Canada RADARSAT program will also be continued under the interim space program. A major part of the current phase of the RADARSAT program is the examination of an in-orbit servicing capability to adapt RADARSAT as a possible contribution to the space station.

The RADARSAT program, which is currently involved in definition studies, consists of a remote sensing satellite and related ground-receiving and data-processing facilities that could produce maplike images of the earth day or night regardless of cloud or weather conditions.

The system will provide information essential for the safe and efficient navigation of ships in the ice-infested waters off Canada's north and east coasts as well as produce a world set of stereo radar images for geological assessment of mineral resource potential. Data would be produced that could improve weather and sea-state forecasts and assist in monitoring wheat crops.

Training program in the Caribbean

The second phase of the Canadian Training Awards Program (CTAP), which has been established to enable students from the Leeward and Windward Islands in the Caribbean receive university degrees, college diplomas and certificates as well as short term training, began in the fall of 1984 and will continue until 1990.

The program, financed through the Canadian International Development Agency (CIDA), will provide long-term training scholarships for 120 students a year for the next three years and short courses and on-the-job training over the next five years to allow workers to upgrade their skills. In addition, CIDA will provide support to training institutions with materials and equipment and help local governments with the planning of their country's manpower needs.

"The goal of the project is to increase the skilled manpower base in the Leeward and Windward Islands particularly in agriculture, tourism and industry," said Minister for External Relations Monique Vezina.

"CIDA has been the most active bilateral aid agency in the Eastern Caribbean in terms of training, offering courses to people from the private sector as well as those employed in government," she added.

Continuing success

Over the past 13 years, CIDA has provided post-secondary scholarships to more than 1 000 students in the Caribbean. In addition, in the first phase of CTAP, which began in 1981 and replaced the Third Country Training Program, more than 3 000 people were trained in short-term courses.

The second phase of CTAP increases the number of scholarships for long-term training to 120 a year with up to 25 per cent of them for degree-level university courses and the remainder for diploma or certificate courses.

The candidates for training are selected from throughout the islands: Anguilla, Antigua and Barbuda, British Virgin Islands, Dominica, Grenada, Montserrat, St. Kitts-Nevis, St. Lucia and St. Vincent. They are actively employed in their countries and are chosen with the purpose of upgrading their particular skills.

Almost exclusively, local people are employed in the training programs. In St. Lucia, for example, where CIDA has helped to build a fish plant to provide processing facilities for the catch of 600 or more fishermen, senior fishermen in the area were recruited to provide the basic training for 200 young men from the villages. And

in Dominica, local tutors were hired from a high school for an extension course to upgrade basic secretarial skills.

The program has also been successful in providing training opportunities for women. In the past three years, more than 1 500 women benefited from short-term courses and over 30 per cent of all degree and non-degree awards went to women.

Growth of local institutions

The awards program has also proven effective in strengthening local educational institutions in the Caribbean.

"Only 10 per cent or less of the students now come to Canada for training," said Mrs. Vezina. "About 80 per cent of those trained over the years are still working in their own country and 85 per cent are still in the Caribbean. Institutions in the Caribbean seem to be satisfying the majority of the higher education needs of their own people," she added.

There are two universities in the Caribbean: the University of the West Indies with campuses in Trinidad, Jamaica and Barbados; and the University of Guyana. Three other important institutions are the Caribbean Arts, Science and Technology School (CAST), in Jamaica, Barbados Community College, and the Eastern Caribbean Institute of Agriculture and Forestry (ECIAF) in Trinidad.

In the second phase of the program it is expected that up to half of the degree-level scholarships will be for education at Canadian universities if courses are not available in Caribbean universities.

Experimental climate forecasts

Environment Minister Suzanne Blais-Grenier recently announced the commencement of a one-year experiment being instituted under the Canadian climate program, which may eventually enable Canadians to obtain monthly and seasonal outlooks of weather conditions.

In the initial test phase, Environment Canada will supply maps of climate predictions to about 100 public and private organizations including utilities, agriculture agencies, transportation departments, research companies and weather offices.

Commenting on the new test program Mrs. Blais-Grenier said that climate forecasting is a widely-requested service and would be a natural extension of Environment Canada's present short-range weather forecasts towards longer range outlooks.

A world leader in processing satellite information

MacDonald Dettwiler and Associates (MDA), based in Richmond, British Columbia, was the first Canadian firm to make equipment for receiving and processing satellite data. MDA was formed in 1971, and according to its president, John Pitts, has since become a world leader in a new multi-million-dollar industry.

"Of the 16 or so ground stations in the world today, MacDonald Dettwiler built, or participated in the building of, all but one. Today, most of our remote-sensing work focuses on developing new products to process satellite data and give it meaning," said Mr. Pitts.

Landsat-D, launched in 1982 by the United States, is the only remote-sensing satellite currently sending back non-military images of the earth.

Light images reflected

Remote-sensing satellites work similar to cameras in that they form images of objects by focusing and recording reflected visible light. Landsat's eye (called a multi-spectral scanner) can see not only visible light, but also radiation outside the visible spectrum, in an area known as the near infrared. The intensity values observed in these spectral regions are registered by the satellite as numbers, which are sent

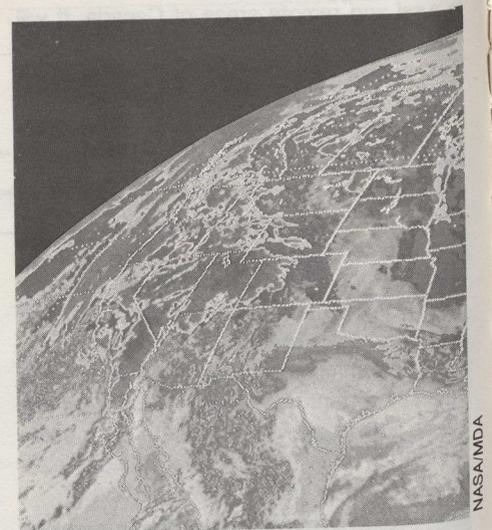
to earth via a radio signal. Here they are picked up at a ground station's receiver dish and stored in a computer.

"The next step," said Mr. Pitts, "is to take those numbers, analyze them, and convert them into a meaningful form — for example, a colour image."

Satellite images are really composed of many small dots which are called 'picture elements' or 'pixels'. Each pixel in Landsat-D represents about an acre of land which is about the smallest area of ground the satellite can resolve.

"The satellite's digital information," said Mr. Pitts, "determines the colour intensity of each pixel in its image. Transferring this numerical information to the correct colour in an image, which is done by signal processing on the ground, is a very delicate task. It is also crucial, because each shade of grey can represent something specific like a cornfield, a maple forest, or a housing development."

The information is usually analyzed while still in digital or machine-readable form. Some analysis systems produce only a black-and-white image. These systems recognize adjacent groups of similar pixels and identify what their pixel clusters represent, such as fields of corn, wheat, or barley. To do this, the intensity values of areas already known to be cornfields are first plugged into the



NASA/MDA

A Landsat view of western North America superimposed by computer ground processing with continuous dotted lines outlining the continent and provincial and state borders.

computer. These known-cornfield pixels are then compared against all unknown pixels; if any of the unknowns match up, a positive identification is made. This matching process continues until all pixel clusters are identified.

Image processed on film

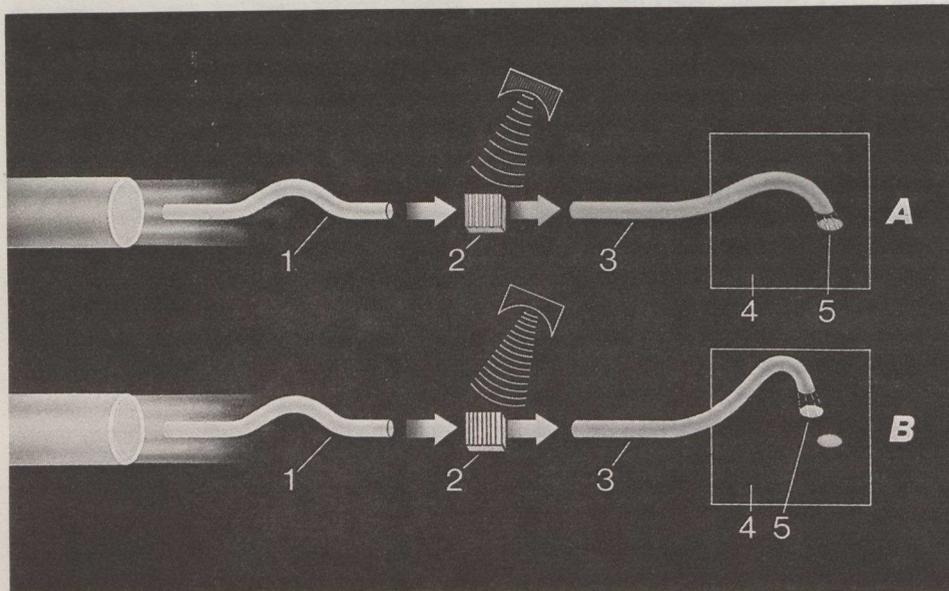
In addition to systems that process satellite information, MacDonald Dettwiler also makes equipment that renders the processed image directly onto film. Called the FIRE 240, this system combines electrical, mechanical, optical, and systems engineering, and produces images in black and white. It uses laser fibre optics, and a spinning mirror, to shoot light directly onto the small area of film that forms each pixel.

Fibre optics involves the use of tiny, transparent glass wires, sometimes smaller than a human hair, that act as light tunnels. These wires are small enough to accurately expose a single pixel at a time.

The colour FIRE 240, produces a colour image instead of one in black and white. Here, different colours which are not necessarily true to the real world, in that forests can be blue or lakes red, are assigned to the Landsat data by ground-based analysts. This colour-coding makes boundaries and other points of interest much easier to see.

MacDonald Dettwiler's equipment is used in the remote-sensing industry by many agencies and firms including the European Space Agency and The National Space Development Agency of Japan. In Canada, the Canada Centre for Remote Sensing, the Department of Energy, Mines and Resources and NRC are supporters of the firm's new technology.

(Condensed from an article in *Science Dimension*, Volume 1, 1985.)



Carisse Graphic Design Ltd.

MDA's acousto-optic coloured-light modulator, called the 'Electro-prism,' links light and sound. To make a photographic print of a complete ground-processed image, fibre-optic cables (1) transmit light from a full-spectrum light source to the Electro-prism (2). This crystal, transparent to light but sensitive to sound vibrations, lies in front of a second fibre-optic cable (3) which delivers the light to the photographic emulsion (4). When the crystal is subjected to a specific sound frequency, it assumes the shape of a diffraction grating. Standing waves inside the crystal increase (A) or decrease (B) the spacing between adjacent lines of this grating, which then transmits only a specific wavelength of light to the second fibre-optic cable. This exposes the emulsion at the other end of the wire to the precise colour intended (5).

Video in the Supreme Court

A video conference service has been installed in the Supreme Court of Canada to allow the court to hear applications for leave to appeal on its semi-monthly applications days from nine cities across Canada.

The first case was heard on March 5 when two lawyers in Edmonton presented their case to three Supreme Court of Canada judges in Ottawa. "To all intents and purposes, it was just the same as if they (the lawyers) were in the courtroom," said Chief Justice Brian Dickson.

The chief justice added that video-conferencing will make it more practical for Canadians to appear before the Supreme Court. "The substantial reduction in cost achieved by video-conferencing and the convenience it offers litigants and their lawyers will improve access to the Court from all regions of the country for the critical leave granting process," he said.

The new video-conference facility is fully interactive and uses two-way, colour video and audio links. The Telecom Canada's Conference 600 service has been installed in the main courtroom of the Supreme Court and in video-conference studios in the nine Canadian cities.

Foster Parents Plan supported

The Canadian International Development Agency (CIDA) contributed \$4.4 million to the Foster Parents Plan for the 1984-85 fiscal year to help children and families living in extreme poverty in more than 22 countries in Latin America, Africa and Asia.

The Canadian government is the only national government that contributes directly to the funds of the Foster Parents Plan. It has been supporting the Plan since 1972 and the Plan also has the support of 53 000 Canadians, who are part of a large network of foster parents.

The Foster Parents Plan is using the money to finance various development projects designed to improve health and hygiene conditions by making drinking water and essential health care services more accessible. Some of the priorities include improvement in the quality of the environment, education, training and support for families.

Although the objectives of the Foster Parents Plan are designed primarily to help children in developing countries, the children are not viewed in isolation but rather as part of their family and community. As a result general support is given to families and communities in the various projects.

Space system specialty products produce prosperity

Canadian Astronautics Limited of Ottawa, Ontario has experienced continued growth in all its business areas — space, radar and communications, computer and defence systems — since it was founded in 1974 as a consulting firm by the president, Jim Taylor, and executive vice-presidents Mike Stott and Bill Cox.

The company now has the largest radar development group in Canada, and is second only to Spar Aerospace Limited among Canada's space systems companies.

The first contract obtained by Canadian Astronautics Limited was for a spaceborne radar system, the forerunner of the RADARSAT system the company is currently designing for the Department of Energy, Mines and Resources to monitor Arctic ice conditions. Since that first contract, the firm has grown at an average rate of 68 per cent a year.

International marketing

About 30 per cent of the company's business is from space systems, and recent contracts include a \$2-million deal to design and build an antenna for Britain's SKYNET 4 military communications satellite.

A Canadian Astronautics system will be on board US space shuttles starting in 1988, as part of a joint project between the National Research Council and the National Aeronautics and Space Administration to investigate the effects of the ionosphere on the earth's climate.

Radar and communications systems account for another 30 per cent of Canadian Astronautics revenue. Current projects in

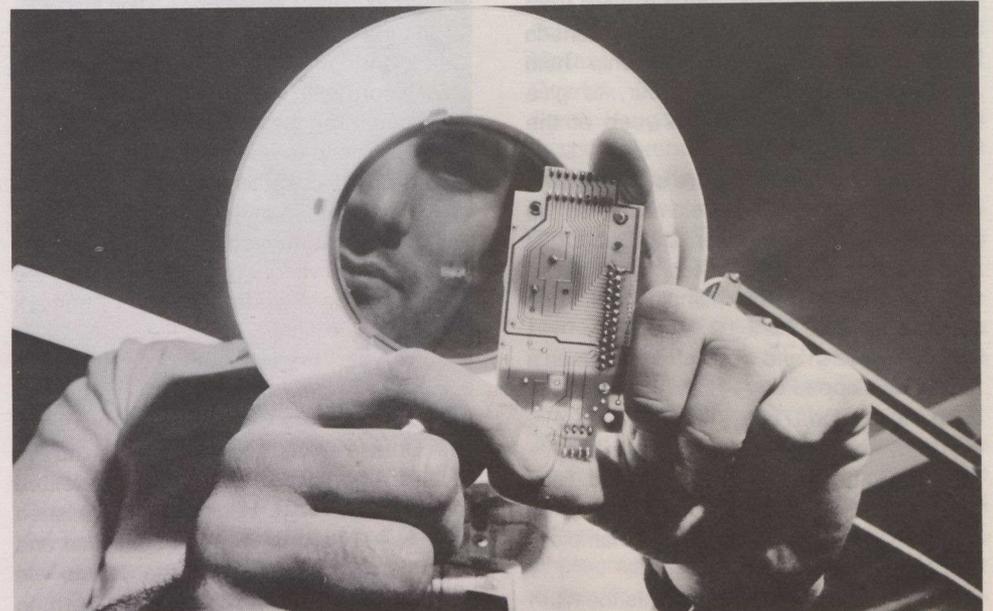


John Metcalfe, a technologist with Canadian Astronautics works on satellite battery.

this area include a side-looking airborne radar system (SLAR), which is mounted on Arctic ice-reconnaissance planes to provide information on ice patterns and blockages to ships travelling in ice-infested waters.

The company's computer systems business, which accounts for another 15 per cent of revenue, includes the development of ground stations for search-and-rescue satellites used to locate crashed aircraft, off-course ships and people lost in the wilderness.

The company also produces defence systems, such as a tactical signal simulator (TASS) used for testing and evaluation of electronic warfare equipment.



Engineer Jim Bradley peers through a magnifying glass at a radiation sensor.

Pre Ice Age plants on British Columbia mountain

A number of rare alpine plants have been discovered near a cave containing many ancient animal skeletons, on the remote northwest corner of Vancouver Island.

British Columbia Museum botanists Bob Ogilvie and Adolf Ceska collected samples of the plants, which they say could be descended from some that escaped the last Ice Age. They say the top of the

mountain containing the limestone cave may harbour as many as 134 plant species.

Among the rarest plants found were Britton's bladder fern, a new hybrid; slender cliff-brake, rare on the west coast; and moonwort, a species found in the western United States but until now unknown in Canada. Several plant species have been previously found only on the

Olympic Peninsula of Washington State and the Queen Charlotte Islands — areas of the Pacific Northwest missed by the last Ice Age.

The botanists found other rare plants on nearby limestone peaks. Yellow mountain avens had been previously found on Vancouver Island only as a 10 000-year-old fossil in a gravel deposit near Parksville and hybrid spleenwort had never before been discovered outside central Europe.

Mr. Ogilvie and Mr. Ceska said these plants probably survived on mountain peaks above the glaciers that exterminated all the surrounding vegetation 13 000 to 16 000 years ago.

Mr. Ogilvie said there is one more season of work left in a three-year survey at the cave. "It's slow work doing these studies because of the short season," he said. The growing season at high elevations is confined to late August and early September.

An ecological reserve proposal has been submitted for the area containing the plants and cave. Bones of a bear that died about 9 300 years ago were found among other animal skeletons inside the cave at the base of 80-metre cliffs.

The site was discovered by a group of cave explorers. They sent the bones to a provincial museum archeologist who had the find carbon-dated.

Canada sweeps curling championships



Canapress

The men's world champion curling rink with (left to right) skip Al Hackner, third Rick Lang, second Ian Tetley and lead Pat Perroud, raise the trophy after winning the Canadian men's championship in Moncton, New Brunswick and gaining a berth in the world championships.

The Canadian champion men's team from Thunder Bay, Ontario, won the Air Canada Silver Broom world championship held in Glasgow, Scotland this year, to give Canada an unprecedented sweep of the three major curling titles.

Previously, Linda Moore's team from North Vancouver, British Columbia, won the women's crown in Sweden and Bob Ursel skipped his Winnipeg, Manitoba rink to the men's world junior championship. (See *Canada Weekly*, April 10, 1985.)

The Canadian and world champion men's team was skipped by Al Hackner, with Rick Lang, third, Ian Tetley, second and Pat Perroud, lead.

The victory for Al Hackner and Rick Lang was the second in four years. They also won the 1982 Silver Broom championship in West Germany.

For Canada, the 1985 title was the ninth since the Silver Broom was sanctioned by

the International Curling Federation in 1968.

In the final game in Glasgow, the Canadian team defeated Sweden's Stefan Hasselborg with a 6-2 win. The Canadian team controlled the game after scoring three in the third end to open a 3-1 lead. The victory marked the first time a Canadian rink has defeated Sweden in the Silver Broom final.

Canada had moved into the final with a 9-4 semi-final victory over Tim Wright of the United States. Sweden defeated Denmark to play in the final.

This year, the Hackner rink lost its first game of the Ontario finals but won the rest and a berth in the Canadian championship. The Ontario rink finished second behind Pat Ryan's Alberta rink, who went undefeated in the round-robin. Hackner, who finished with a 7-4 record, won his semi-final and then defeated Pat Ryan in the final to win the Canadian championship and a berth in the world championship.

Continual growth for forms firm

A forms-manufacturing firm in Edmonton, Alberta, which services small- and medium-sized businesses, has continued to grow every year since it was founded in 1974.

Factor Forms Limited's owner Barney Baker said the company "has never had a no-growth year", and he expects the trend to continue.

In 1982, the company's sales were \$2.75 million. Sales reached \$3.75 million in 1984 and Mr. Baker expects billings of \$5 million in 1985.

Mr. Baker said that partly because of the company's position as the major western supplier of computerized invoices, statements and letterheads, Factor Forms has captured some 50 per cent of the trade segment of the forms-manufacturing business in western Canada.

Factor Forms is the only forms-manufacturing company in western Canada that serves the trade sector exclusively — printers, stationers, jobbing brokers and computer software developers, who supply customized invoices, statements, counter receipts and letterheads to small and medium-sized businesses.

King Lear to open Stratford Festival

The program for the 1985 Stratford Festival, which will open officially on May 26 in the Festival Theatre with William Shakespeare's powerful tragedy, *King Lear*, has been announced by John Hirsch, who is in his fifth and final season as the festival's artistic director.

The 1985 Stratford Festival season will continue through October 13.



Robert C. Ragsdale Ltd.

Amelia Hall and Douglas Campbell in the 1984 production of *Tartuffe*. Douglas Campbell will lead the cast in this year's production of *King Lear*.

The festival's thirty-third season will include nine productions with four staged in the Festival Theatre, three in the Avon Theatre and two Young Company productions to run at the Third Stage. Works will include three plays by William Shakespeare, a classic Greek tragedy, a Gilbert and Sullivan musical, comedies by Nikolai Gogol, Oliver Goldsmith and George Farquhar and a drama by Tennessee Williams.

In addition to *King Lear*, the other Shakespeare plays to be presented in the Festival Theatre are *Twelfth Night* to open May 28 and *Measure for Measure* following on May 29. *The Government Inspector* by Nikolai Gogol will join the Festival Theatre repertory in August.

The title role in *King Lear* will be played by an eminent Canadian actor, Douglas Campbell. A member of the inaugural 1953 Festival Acting Company, Mr. Campbell will be active in his eighteenth season at Stratford. One of the successes he was in last season, *Tartuffe*, was aired March 31

on the national network of Canadian Broadcasting Corporation television.

Some of the other actors appearing in Festival Theatre productions include Edward Atienza, James Blendick, Benedict Campbell, Seana McKenna, Nicholas Pennell, Alan Scarfe, Barbara March, Lewis Gordon and Richard McMillan.

New musical

Gilbert and Sullivan's *The Pirates of Penzance* will be the musical presented at the Avon Theatre during the 1985 season. This production will include many from the Avon Theatre Musical Company who enjoyed a great deal of success with the past three seasons of Gilbert and Sullivan productions at the Avon Theatre. Festival associate director Brian Macdonald, who staged all three previous season's Gilbert and Sullivan productions, will return to direct the production with Berthold Carriere returning as musical director.

Productions scheduled for later in the summer at the Avon Theatre are Oliver Goldsmith's *She Stoops to Conquer* and Tennessee Williams' *The Glass Menagerie*. David William, director of the 1984 Festival production of *Separate Tables*, will stage *She Stoops to Conquer* with set design by Phillip Silver and costume design by Christina Poddubiuk. The award-winning



Patricia Conolly as Titania and Nicholas Pennell as Oberon in *A Midsummer Night's Dream* at Stratford in 1984. Miss Conolly will appear in *The Beaux Stratagem* and Mr. Pennell will appear in *King Lear*, *Twelfth Night* and *Measure for Measure* this season.



Colm Feore and Seana McKenna in *Romeo and Juliet*. They will both appear in a number of 1985 Stratford productions.

actress Sada Thompson will play Amanda in *The Glass Menagerie* scheduled to open August 30.

Stratford Festival artistic director-designate John Neville will supervise the 1985 Young Company program, which will include the presentation of two productions at the Third Stage. They will be Sophocles' classic Greek tragedy, *Antigone*, and George Farquhar's early eighteenth century comedy, *The Beaux' Stratagem*. David William will direct *Antigone*.

Music series

The Sounds of Summer musical concerts series will feature some of the jazz world's greatest artists. The opening attraction will be Dave Brubeck and the Dave Brubeck Quartet. Subsequent concerts include Melissa Manchester, Al Hirt and the Al Hirt Quartet, Dionne Warwick, Judy Collins, Sarah Vaughan, and the Dizzy and Moe Jazz Supershow featuring Dizzy Gillespie and Moe Koffman.

The Celebrity Lecture Series, in its fourth year at Stratford will feature Leslie Fiedler, Philip Edwards, Northrop Frye, Peter Ustinov, S. Schoenbaum, Peter Newman and John Hirsch. Special events include Meet the Festival, Post Performance Discussions and Backstage Tours.

Two exhibitions will also be on view: *Attired in Wonder* includes some of the most exquisitely designed and decorated costumes from the Stratford archives; and *Gilbert and Sullivan Tonight* includes posters, photographs and playbills from the D'Oyly Carte Opera and costumes from previous Stratford Festival productions.

News briefs

Premier Brian Peckford led the Conservative Party to victory in the Newfoundland provincial election on April 2. In the 52-seat legislature, 36 members were elected from the Conservative Party, 15 from the Liberal Party and the New Democratic Party (NDP) elected one member. It was the first time the NDP has won a seat in a Newfoundland provincial election. The Liberals also gained seats in the April 2 election winning seven more than in the last election.

Hydro-Quebec has signed a five-year

contract for the sale of firm power to St. Lawrence Power Company, a unit of Niagara Mohawk Power Corp. of Syracuse, New York. St. Lawrence supplies one-half the electricity required by the city of Cornwall, Ontario. The sale is for 420 million kilowatt hours of electricity a year and is valued at about \$95 million over five years. An earlier contract for the sale of interruptible power to St. Lawrence Power, signed in 1981, remains in effect.

Ontario Industry and Trade Minister Andy Brandt has announced the formation of a new company, The Ontario Aerospace

Consortium, to market aerospace products and services internationally. The five firms, in the consortium — Chicopee Manufacturing Limited, Kitchener; DAF Indal Limited, a subsidiary of the Indal Group of companies in Mississauga; Fleet Aerospace Corp. of Fort Erie; NYAB VICOM (General Signal Limited) of Kingston; and Reil Industrial Enterprises Limited of Rexdale — are all leading suppliers to the Canadian aerospace industry.

Computer networks, graphics, digital processing, robotics and software courses are to be offered in Canada by Integrated Computer Systems, the Los Angeles-based company specializing in advanced technology training for engineers, computer scientists and technicians. The company is setting up a subsidiary in Nepean, Ontario and plans to initiate its courses in Toronto, Ottawa and Montreal. It will expand into western Canada in the fall. Company president David Collins said the firm has offered its courses to Canadian companies since it was founded in 1974, and the new Canadian base will establish closer contacts with high-tech companies in the country.

A unit of MacDonald Dettwiler and Associates Limited of Richmond, British Columbia has developed a laser photoplotter for printed-circuit board artwork. The Fire 9000, which handles computer-aided design output tapes, has resolution as fine as six microns and can produce a 60 by 90 centimetre plot in ten minutes.

Some 30 Canadian sporting companies participated in the four-day ISPO '85 exhibition in Munich in February and reported sales of more than \$2.5 million by the end of the event. The Canadian firms also projected further sales of more than \$13.9 million over the next 12 months, resulting from business contacts established at the fair. Bill Van Zant, a Canadian specialist on the sporting-goods industry, said the results from the show were the best he has seen in three years. Spring and fall ISPO shows are held in Munich every year and about 1 350 companies display their latest products. They are the world's largest trade fairs for sporting equipment. Of the more than 30 countries that set up national stands, Canada had the largest national booth at this year's spring fair.

Pacific Rim trade fairs

The Department of External Affairs has announced that over the next 12 months, Canadian exporters will have an opportunity to participate in more than two dozen Pacific Rim trade fairs. While some of the specific dates and locations have not as yet been determined, the list by industry sector includes:

General fairs

- Asia and Pacific International Trade Fair (ASPAT 85) — Peking, China, November 15-30, 1985 — A major multi-sector fair, focusing on telecommunications, hydro, oil and gas, transport, mining, aerospace and farm machinery.
- India International Trade Fair (IITF) — New Delhi, India, November 1985.

Agricultural products and equipment

- AG QUIP 85 Exhibition — Sydney, Australia, August 1985.
- AG CHINA — Peking, China, November 4-10, 1985.

Building materials and equipment

- International Building Exhibition (IBEX 85) — Hong Kong, May 29 — June 1, 1985.
- Building Materials and Equipment Exhibition (MALBEX 85) — Kuala Lumpur, Malaysia, June 11-14, 1985.
- Canada Building Products Show — Tokyo, Japan, March 1986.

Consumer products

- Interior Show — Canadian Trade Centre, Tokyo, Japan, May 1985 — Furnishings.
- Home Improvement Show — Canadian Trade Centre, Tokyo, Japan, September 1985 — Do-it-yourself equipment.
- Craft, Gift, Hobby Show — Tokyo, Japan, September 1985.
- Asia International Hardware Exhibition (AHIEX 85) — Singapore, November 2-5, 1985 — Hardware, household, lawn and garden products.
- International Sporting Goods Show — Tokyo, Japan, March 1986.

Electronics and communications

- Communications Indonesia — Jakarta, Indonesia, April 30 — May 4, 1985 — Equipment and services.
- Asia Telecom 85 Exhibition — Singapore, May 14-19, 1985 — Telecommunications equipment.
- Computer 85 Exhibition — Hong Kong, September 1985 — Hard and software.
- Second Electric Indonesia Show — Jakarta, Indonesia, November 26-30, 1985 — Electrical, engineering, power generation and supply.
- Asian Aerospace Exhibition — Singapore, January 19-22, 1986 — Aviation equipment and services.

Machinery equipment

- Asia Printing Exhibition — Singapore, June 21-23, 1985 — Printing.
- Hong Kong Industrial Trade Fair — Hong Kong, October 21-25, 1985 — Industrial.
- WOODEX 85 — Auckland, New Zealand, November 13-16, 1985 — Forestry.

Oil and gas

- PIPETECH ASIA 85 — Jakarta, Indonesia, May 14-17, 1985.
- INDO ENERGY 85 Exhibition — Jakarta, Indonesia, July 2-5, 1985.
- Petroleum Technology Association Exhibition (PTA 85) — Perth, Australia, November 1985.
- Canadian Oil, Gas and Marine Industry Technology Show (COGMIT 85) — Tokyo, Japan, November 1985.
- Offshore Southeast Asia Exhibition — Singapore, February 1986.

Further information can be obtained from the Trade Information Centre, Department of External Affairs, 125 Sussex Drive, Ottawa, Canada, K1A 0G2.

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