

Bulletin

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SCIENCE AND THE POPULATION EXPLOSION

The following excerpts are from the 1970-71 annual report of the Chairman of the Science Council of Canada, Dr. O.M. Solandt:

...To me, science is man's accumulated and organized knowledge about himself and the world in which he lives, and as such is to be sought after. Technology is what lets man use this knowledge, and can bring good or ill depending upon the wisdom which controls it. Between them, science and technology have allowed mankind to multiply, have brought part of mankind to the highest standard of health, longevity and material prosperity the world has known and have made possible our highly sophisticated human society; they have also provided the power to trigger off some trends which, if unchecked, could spell disaster - the threats of overpopulation, of resource-depletion or even of nuclear war are real threats.

As man has slowly come to realize how narrow his vision of "progress" has been, and to understand that "growth" is not necessarily good in itself, his realization has created its own backlash against science and technology. Prophets of gloom and doom have become numerous and among them they support visions of a wide range of apocalyptic futures -

titles ranging from *The Biological Time Bomb* to *Future Shock* are becoming common in the ranks of "non-fiction" books. These often oversimplified reactions to our problems tend in a way to obscure the reality of the threat posed by the exponential growth of human population and resource-use - a threat which we ignore at our peril. In recent years, increasing scientific knowledge has made it starkly apparent to a relatively small group of concerned people that it is just not possible for human society to continue to evolve along present lines indefinitely. Thoughtful students of the future disagree as to when and how the population explosion will occur, but few who have looked at the problem disagree with the idea that disaster is inevitable unless we begin at once to reduce the growth of world population.

SHORT-TERM VIEW OUTMODED

In planning to deal with the world population crisis it is important to recognize that we are setting out to achieve a level of understanding of the future and to initiate actions of a kind that have never before been attempted. Decisions made today are almost invariably made in the light of foreseeable consequences which will occur within the lifetime of a government, or at most, within the working lifetime of a man. This foreshortened view of the future must now be abandoned. In dealing with the problems of population-control and resource-management on a global scale man must think in terms of many generations and, what is much more important, one generation must be prepared to make decisions that may well reduce its own comfort and standard of living in order to try to provide a better life for future generations. It is perfectly clear now that some radical change must be achieved in the thinking of mankind about his survival as a species. At this stage the chances of success appear to be remote, but without effort now failure at some time in the future is certain. The first step that can and should be taken immediately is to mobilize the resources needed to put a significant number of our best brains to work on the problem.

CONTENTS

Science and the Population Explosion	1
Theatre on Wheels	3
Preparations for Teaching Abroad	3
Man and His World 1971	4
Quarantine Station	4
Nurse in Viet-Nam	4
Visit of French Foreign Minister	5
Diplomatic Appointments	5
Population Map of Canada	5
NRC Industrial Fellowships	5

SCIENCE TO LEAD THE WAY

It is particularly important for the scientific community to take the lead in demanding that attention be given now to these urgent problems, for it is science and technology that have made possible the growth of world population to its present levels. A recent UN report indicates that, while world population increased by 50 per cent in the 30 years from 1930-1960, it will increase by about 115 per cent in the 40 years from 1960-2000, giving a population of close to 6.5 billion at the end of the century. Without the discoveries of modern medicine, disease would have been an important factor in restraining population. Without the successes of scientific agriculture, famine would by now be widespread. Without modern technology, the high material standard of living of the industrialized nations, with its attendant rapid consumption of resources and production of waste, would not be possible.

When we look carefully at the present predicament of the world, it is quite clear that science and technology can do much to devise "technological fixes" which would provide symptomatic treatment for the day-to-day ills of our society and thus put off the day of reckoning. We can increase the world's food supply, reduce population and resource-use by the recycling of waste, and begin to reduce the rate of growth of world population by contraception. All of these actions must be vigorously pursued if world living conditions are not to deteriorate even for another generation. However, we must now face the fact that they are only means for buying time until we take more effective action to permanently stabilize world population and control resource-use.

If the human race is to have a tolerable future on planet earth, the whole of our social organization must be drastically revised within a very few generations....

SPECIAL INSTITUTE PROPOSED

But what are we to do in the face of impending catastrophe? I would like to advance a proposal that Canada establish an institute to conduct studies, research and critical analysis of the future, as a Canadian contribution to the search for solutions to global problems. The institute would study the present mechanisms in our society, define future problems, outline alternative solutions and try to outline actions that should be taken today, tomorrow or within a few years in order to achieve defined objectives in the more distant future.

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...Alternative behavioural strategies must be proposed, a well-informed national debate must be stimulated, and governments must be urged to decide on actions which, taken in the short term, will contribute in the long term to creation of the kind of future sought by Canadians.

I would, therefore, propose that the Federal

Government immediately begin to plan for the establishment of a Canadian institute to conduct studies of long-range policies.... If it is the wish of the Government, the Science Council would be a very suitable mechanism for organizing the studies needed to produce a specific plan for such an institute. However, while the Science Council might undertake such preparatory studies, it should not undertake to operate the new institute.

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GOALS FOR CANADA

Thus far I have framed my discussion of population and of future policies in a global context. However, these problems do have real significance for Canada's domestic actions in the future. It is difficult for Canadians to get excited about the problems of population pressure, since we live in one of the most thinly settled countries in the world and seem to have endless room for expansion, and so a real debate on this issue is rare in Canada. Nonetheless, nearly all the internal problems that concern us now would be much more manageable if our population growth were less rapid. Even in our vast country we must immediately begin to set goals for total population, rate of population growth and distribution of population. It will certainly be many years before we can achieve effective action toward changing population growth and distribution to meet such targets, but the sooner we start, the sooner we will make useful progress.

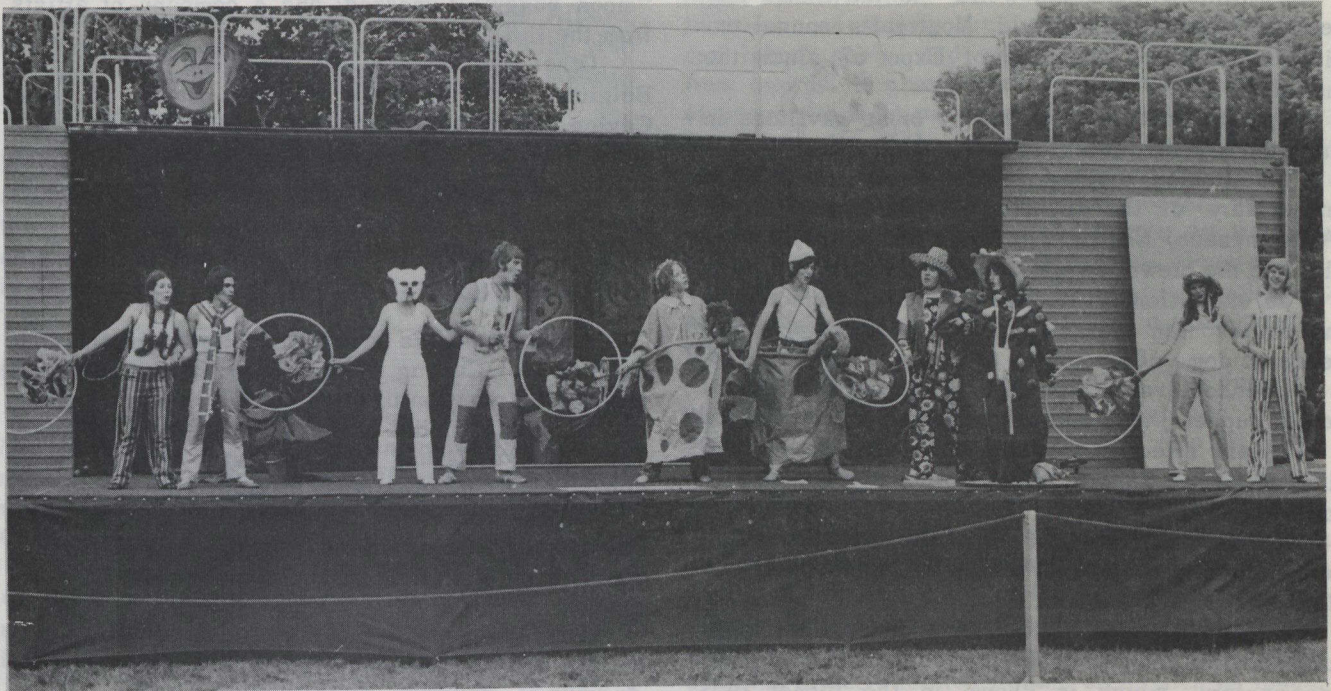
There are many Canadians who fervently believe that Canada's problems can be cured by our having a much increased population, and they cite as advantages factors such as the increased domestic market for our products which would result. There are others, however, who would argue that nearly all our urgent problems are being aggravated by our rapid growth of population, the rapid growth of our labour force has exacerbated the problem of unemployment, the growth of our urban populations has contributed to a deterioration in the quality of urban life, and the growth in our total population has increased our rates of consumption of resources and of generation of waste.

Immigration has always been an important source of population-growth in Canada and so a clearly articulated immigration policy will be an integral part of a Canadian population policy. While it would be unwise for Canada to end immigration entirely, it would be foolhardy to believe that a solution to the world's population crisis, with population increasing by more than 70 million a year, can be found by the adoption of an open-door immigration policy by Canada.

DISTRIBUTION PROBLEM

While population-growth provides us with one set of problems, changes in population distribution are giving rise to others. For example, migration to the

THEATRE ON WHEELS



Les Jeunes Théâtres perform la Sabotière on the stage of Portage, the National Arts Centre's mobile theatre.

"Portage", the National Arts Centre's theatre-on-wheels, has been on the parks circuit for the month of July with a program of performances for children. The 20-ton purple Portage van unfolds into a complete theatre with a stage area 24 feet by 58 feet, dressing room, technical booth, balcony, and bright red curtain. All it needs is a field, and an audience.

Two companies of students used Portage this summer: the English-language troupe, The Student Young Company, presented *Story Theatre*, a *pot-pourri* of children's stories (*Billy Goats Gruff*, *Three Pigs*, *Bremontown Musicians*) under the direction of Ron Singer; and Les Jeunes Théâtres, directed by Gilles Provost, played, for French-speaking children, a

colourful fairy tale, *la Sabotière*, by Gaby Déziel-Hupé.

Each company was made up of 20 students from local high schools who performed the acting, musical and technical duties. The troupes are an extension of the winter project of student theatre companies initiated during the past season by the Youth Division of the National Arts Centre and area school boards to complement school theatre courses.

Performances by the Portage companies were booked through the Youth Division by parks commissions, recreation associations and camps. They took place at various locations in the Ottawa area, and in communities within a 100-mile radius of the city.

PREPARATIONS FOR TEACHING ABROAD

Some 70 English-speaking secondary post-secondary trade and vocational teachers, accompanied by their wives, gathered at Carleton University in Ottawa from July 12 to 21 to prepare for assignments in developing countries.

The educators, who will work to strengthen school systems in the Caribbean, Asia and Africa, came from communities across Canada and were chosen on the basis of competence and experience by the Canadian International Development Agency, with the co-operation of provincial departments of education. Courses given during the briefing sessions were designed to help them clarify specific goals

they will pursue during their assignments and to give them background information on the objectives of CIDA programs.

The volunteers and members of their families also learned about the special problems faced by people moving to countries with different social patterns, climates and living conditions. In addition to staff members of CIDA, representatives of various developing countries and Canadians who have returned recently from CIDA assignments were present to impart first-hand knowledge. Briefings included such specialized subjects as preventive tropical hygiene and medicine, living conditions and care of children.

A similar conference for French-speaking educators met late in June at Cap Rouge, Quebec.

MAN AND HIS WORLD 1971

“Culture Around the World” is the theme this year of Man and His World, Montreal’s annual exhibition, held on the site of Expo 67 since the summer of 1968.

Special attractions in the 60 or so pavilions in this year’s presentation include:

the Iranian display, which marks the 2,500th anniversary of the founding of the first Persian (Achaemenaeen) Empire with art objects 4,000 years old, and the crown jewels, among the exhibits;

an exhibition of American folklore sponsored by the Smithsonian Institute, shown in the distinctive geodesic dome of the United States pavilion;

Czechoslovakia’s pavilion depicting the joys of youth; puppets, toys and an enchanted forest produce a fairytale effect. Czechoslovakia also presents a film, *Ballad of Sounds*, which was created specially for Man and His World;

a collection of about 40 of the greatest racing cars including the winner’s cars at Indianapolis, Le Mans and Mont Tremblant;

a “global-vision” film from Japan, called *Light for Man*, first seen at Osaka last year. This 18-minute documentary, which is shown in the former Bell Telephone pavilion on its 360-degree circular screen, extols the “splendour of man in modern society”;

the Palais des Arts, where superb paintings, sculptures, photographs, lithographs and books are exhibited and artisans labour on the spot. Films are presented by courtesy of la Cinémathèque française;

the Space Pavilion, which surveys man’s achievements in manned spaceflight and satellites. Exhibits are lent by the National Aeronautics and Space Administration of the United States;

“Music of the World”, 90 per cent of which is demonstrated by “live” recitals designed to stimu-

late appreciation of music of all types;

a copy, weighing two tons, of the Soviet Union’s “moon buggy” *Lunokhod*; and a company of artists from the U.S.S.R.

Other participants are from the Netherlands, Belgium, Pakistan, India, Austria, Burma, Canada, Ceylon, Mexico, Morocco and several others, while other pavilions house cars of yesteryear, opera and humour etc. The exhibition will close on September 6.

NURSE IN VIET-NAM

About 12 months have passed since Mrs. Maureen T. Brown of Curling, Newfoundland, left Canada to assume the position of director of nursing at a tuberculosis clinic in the heart of Viet-Nam’s war-zone. The clinic at Quang Ngai, operates the only rural tuberculosis control program in South Viet-Nam.

Begun under the guidance of the Canadian International Development Agency in 1967, it is operated by a staff of five Canadians and 35 Vietnamese.

As director of nursing, Mrs. Brown is responsible for the vaccination program and, since her arrival, she has been responsible for the vaccination of 69,000 Vietnamese against tuberculosis.

Mrs. Brown has held a variety of nursing positions in different parts of Canada and immediately prior to accepting her post with CIDA, was research co-ordinator in the University of British Columbia’s Department of Medicine.

In Viet-Nam, Mrs. Brown travels to villages, refugee camps and schools within a radius of some 40 miles of the Quang Ngai clinic. Very often the helicopter is the main means of transportation. In one day, she might organize the team that gives 700 vaccinations and see about 200 patients in the clinic.

QUARANTINE STATION

An aerial view of the maximum security cattle quarantine station on the French island of St. Pierre, located off the south shore of Newfoundland, where cattle from Europe are quarantined, as they are on Grosse Ile, Quebec. The cattle, if they meet Canadian health standards, are released after four to six months. This year, 569 permits were issued to Canadian farmers to import almost 900 head of cattle from Europe.



VISIT OF FRENCH FOREIGN MINISTER

The Secretary of State for External Affairs, Mr. Mitchell Sharp, has announced an official visit by the French Foreign Minister, Mr. Maurice Schumann.

Mr. Schumann will arrive in Ottawa on September 22 and remain in the capital until the evening of the following day. He will attend the current session of the United Nations in New York and will return the next week as the guest of the government of Quebec in Quebec City on October 1.

DIPLOMATIC APPOINTMENTS

The Secretary of State for External Affairs, Mr. Mitchell Sharp, recently announced the appointment of the following senior officers of the Departments of External Affairs, and of Industry, Trade and Commerce.

Mr. Donald M. Cornett of Kingston, head of the Commonwealth Institutions Division of the Department of External Affairs, to become Ambassador to Denmark, replacing Mr. M.H. Wershof.

Mr. Christian Hardy of Montreal, Canadian Ambassador in Brazil, to become Canada's first resident Ambassador to Algeria.

Mr. Gerald F.G. Hughes of Quebec, a senior officer of the Trade Commissioner Service of the Department of Industry, Trade and Commerce, serving as Minister-Counsellor at the Canadian Embassy in Rome, to become Ambassador to Turkey. He will replace Mr. Klaus Goldschlag.

Mr. John A. McCordick of Toronto, who is at present on special assignment in the Scientific Relations and Environmental Problems Division of the Department of External Affairs, to become Ambassador to Poland, replacing Miss P.A. McDougall.

Mr. David Stansfield of Ottawa, head of the Co-ordination Division of the Department of External Affairs, to become Ambassador to Cairo, succeeding Mr. Thomas Carter.

Mr. Barry C. Steers of London, Ontario, Director of the Market Development Group of the Department of Industry, Trade and Commerce, to become Ambassador to Brazil, replacing Mr. C. Hardy.

Mr. M.H. Wershof of Ottawa, Ambassador in Denmark, to become Canadian Ambassador to Czechoslovakia and Hungary, replacing Mr. T. Wainman-Wood.

POPULATION MAP OF CANADA

Seventy-five per cent of the population of Canada now lives in towns and cities — and one out of every three city-dwellers is in Montreal, Toronto or Vancouver. This shift from rural to urban living is not revealed by any orthodox map of Canada, but a new map produced for the Department of the Environment indicates such trends at a glance. It shows

where the environment may be endangered because of high concentrations of population, where manufacturers can satisfy their needs for large markets and labour pools, and where people can get away from crowds. It also serves as a constant reminder of where the main pressures are going to come from for waste disposal, transportation, recreation and education.

Changing trends in Canadian thought, with an increased tendency to consider people as well as things, are reflected in this map. Geographers describe it as "isodemographic" (equal in population); and it shows the number of people in each census region of Canada.

The effect is sometimes startling. For example, on the regular map, Winnipeg appears as a tiny splotch. But on the isodemographic map Winnipeg covers 53 per cent of the total area — proportionate to its share of the province's population.

If a map is needed to show the characteristics of a population — age, income, education, etc. — the new map gives a more realistic picture than conventional maps. It will not however, entirely supplant them, since they provide an excellent base for anything directly related to land area, such as roads, settlement patterns or areas of wheat production.

The map was developed at the School of Community and Regional Planning, University of British Columbia, under a contract with the Federal Government. The work was directed by Dr. Peter Oberlander, the Director of the School, but the actual research was carried out by two senior cartographers, Mr. John Robertson and Mr. Louis Skoda.

NRC INDUSTRIAL FELLOWSHIPS

The National Research Council of Canada has announced an expansion of its program of scholarships and fellowships designed to encourage increased collaboration between Canadian universities and industries.

Starting this year, the Council will grant Senior Industrial Fellowships to a limited number of university faculty members to enable them to spend at least a year in an industrial environment in Canada. Priority will be given to applicants with little or no industrial experience, who have spent between two and five years on the faculty of a Canadian university.

The Fellowships will complement three other methods the Council has introduced to foster industry-university relations. These include Post-Industrial Experience Research (PIER) Fellowships, Industrial Postdoctoral Fellowships and Deferred Scholarships.

No restrictions will be placed on the kind of work to be conducted during the tenure of a Senior Industrial Fellowship, whether it is in a plant, an office or a laboratory. The Council hopes that companies will profit not only from the incumbent's expertise as a scientist or engineer but also from the

continuing and mutually stimulating interactions which will be initiated.

The Fellowships will be tenable with industrial organizations in Canada and with certain quasi-industrial federal corporations and provincial utilities such as Air Canada and Hydro-Quebec. NRC will contribute toward the salary and provide a travel grant for the Fellow and family. The salary component of the NRC award will be payable to the university and will supplement the university's salary contribution, so as to ensure that the Fellow receives an amount equal to his normal salary. The industry concerned need not contribute to the salary, but it may, of course, provide him or his university with other forms of assistance or compensation.

SCIENCE AND THE POPULATION EXPLOSION

(Continued from P. 2)

cities from rural areas has made our urban problems more acute, and is also one of the important effects of our continuing failure to solve the problems of regional economic disparities. We must soon face the fact that we cannot continue indefinitely to pour subsidies indiscriminately into areas where population is dropping and where industry cannot be viable, nor should we assume that the life-style of our industrialized regions is desirable in all parts of the country. Nor can we continue to accept without question the results of economic forces which tend to over-concentrate industry and population in large urban aggregations. There is a need for a national population distribution policy for Canada which will take into account the economic viability of different industries in the various regions of the country and which will try to establish a "balance of attractive-

ness" among our different regions. There will, of course, be special reasons of social or national policy which will dictate the maintenance of populations in areas where their presence is not justifiable on solely economic grounds. These will have to be subsidized, but they should be subsidized very clearly as part of the implementation of the national population distribution policy, rather than merely as a first aid measure for a failing local economy.

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Nowhere is a population policy more urgently needed than in the Canadian North. However, comparisons between the Canadian and Russian Arctics should be viewed with great caution. The Canadian Arctic is much more barren and inhospitable than comparable areas in Russia, and its capacity to support an indigenous population, even before the influx of people from the South, was very much smaller. There are a good many knowledgeable people who maintain that the Canadian Arctic is already overpopulated. Certainly, if the local population is expected to survive by the old-fashioned hunting methods, this is obviously true.

So we must start asking ourselves, "How big should Canada's population become?" "What is the optimum size?" Perhaps an even more pressing question is, "Where do we want Canadians to live?" Do we want to see today's Quebec-Windsor corridor filled up to become one huge megalopolis containing most Canadians? I think not, but if we decide that this is not going to happen, what kind of actions or policies are feasible to let us arrive at a better population distribution - one that will avoid the problems of overcrowding, of alienation, of urban decay, which are becoming so common a feature of the largest of the world's cities?