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FORUM

AN ESSAY ON CANADA'S POPULATION WITH REMARKS ON RODERIC BEAUJOT'S OBSERVATIONS

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Introduction

Demography has surprisingly wide and deep ramifications shamefully underappreciated by most social scientists. Roderic Beaujot's (1985) challenging article 'Population Policy Development in Canadian Demography' calls for a correspondingly wide-ranging response. In part, this is because answers to many of the important questions he raises come either from other disciplines or from beyond the frontier of agreed scientific knowledge – from that zone of uncertainty, of speculation, hypotheses, biases and vague notions of varying reliability.

Role of Research for Policy Development

Since we must often act or recommend action before all relevant information is at hand, we must draw from the "zone of uncertainty" what we think is most likely to be true. In this zone our values often guide us to wise choices

without our knowing exactly why. But our values themselves are open to study. They are part of the "zone of uncertainty", potentially, but not yet fully, explored.

Beaujot quotes Simon (1981) to the effect that we cannot judge whether a population is too large or too small. "Such judgments depend upon our values, a matter about which science is silent." This is a common error. We do try to exclude our values from some stages of the process – the experiment or the collection of new data – but science is a human activity with costs and benefits, and it is certainly not devoid of values nor unable to comment on values. Substitute the English "knowledge" or "knowing" for the Latin "science". Will we say "knowing can tell us nothing about values"? It becomes clear that this is merely an assertion that we cannot know about values, and a device of those who would limit the role of science. Values have a strange future orientation. I think they should be seen as partly innate, partly learned strategies to maximize our inclusive genetic fitness.

Admittedly, people-counting alone, especially in only one country, will not usually tell us whether a region is too populated or populating too fast. We must know more. Ecology provides enough evidence to convince many of us that human increase, and increase of our machine progeny, threatens many things we value. Pollution, city erosion of farmland, deforestation, shrinking habitats of valued species, such as the other primates (Jolly, 1985), are examples.

On the other hand, there is a basic consideration at which Beaujot hints in mentioning world opinion of our empty spaces: are there enough people to defend and till our land? This is why these questions cannot be answered by studying Canada alone. Mechanization of weapons, industry and agriculture enables developed nations to defend and till the land with fewer people than in the past, but the sad fact is that we still need to know and react in some way to the threat from without.

Population Growth and Intercompensation

He claims that his paper's "focus is exclusively on Canadian issues", but he does himself an injustice because he raises matters that imply comparison with other countries. He implies that Canada's growth in population, status and power during the last 100 years indicates that we should continue to grow "at or near the world average", lest our empty spaces provoke envy in more crowded populations. They will surely consider our latitude and climate. He cannot have forgotten what his native Saskatchewan, and in fact most of Canada,

looks like for five-twelfths of the year – a white plain with zero crop growth and very slow degradation of wastes. Edmonton already pollutes the North Saskatchewan river to the frequent discomfort of Prince Albert, 800 kilometres downstream.

Canada's demographic circumstances have changed since 1971, so that population growth has different sources and consequences now. Growth up to 1971 was essentially a stage of transitional growth, with a high natural increase being augmented by positive net immigration – a part of Europeans' transitional growth, who by migrating to Canada enhanced their genetic fitness. Since 1971, with all other developed countries, we have entered a stage of much more cautious growth. As elsewhere, the transitional growth was made possible by improvements in agriculture, industry, hygiene and medicine, and, in our case, by improvements in transport, making migration to and within Canada easier.

In human population biology, we are familiar with these stages of growth as part of the "demographic transition", but animal population biologists call it "intercompensation", referring to population growth between two periods of equilibrium. Some environmental control is lifted, allowing population to rise until density-dependent controls reimpose a new but higher limit (Wilson, 1975). In the last 10 years, despite Canada's great area, we have been "catching up" with Europe, in the sense that we are now encountering density-dependent population controls which have been limiting growth their somewhat longer and more stringently.

Density Dependence

Density-dependent controls are those that become critically more effective in slowing population growth as some limit or carrying capacity is approached (Wilson, 1975). The fact that the limit is difficult to calculate for a species that lives at such variable density, and consumes at such variable rates, does not mean that it is nonexistent. Our numbers bear some relationship to the land, although urban living obscures it. But individual young couples sense the approaching limit in the form of density-dependent controls – rising costs and rents, scarcer accommodation, scarcer jobs and higher morbidity for the less fortunate.

For some purposes, machines should be counted as part of the work force, and some automation-induced unemployment is likely to be with us for at least a generation. Young Canadian couples can see that the niche for various skills has contracted for themselves and for their children's future, and they have

wisely reduced their fertility. This will enable them to give more and longer parental care to their fewer children. In short, the present and future ecology calls for intense K-strategy (MacArthur 1962), although we cannot calculate K, the carrying capacity of our territory. The opposite, r-strategy or pronatalism entails a high cost if it is wrong.

Immigration

Immigration also involves considering conditions outside Canada, as Beaujot is wisely aware. He properly suggests that we could be more welcoming to refugees from man-made and natural disasters. I heartily agree, but perhaps he will forgive being reminded that the current low fertility of young Canadians makes hospitality toward immigrants easier. The considerations he raises can be seen as the first halting steps toward a population distribution policy for the planet, a subject upon which immigrant demographers – "deliberate Canadians" – are as fit to speak as natives. If we decide in 1991 or 2001 that we are too few, the sad state of the world guarantees an eager flow of would-be Canadians. Hong Kong and Afghanistan alone might provide all the immigrants we feel able to accept.

Population Aging

Most of us will agree with Beaujot's comments under this heading. I wish that he had been explicit that the unemployed should be one of the "categories of population....to be considered for the numerator of dependency ratios." Including them reveals as needless the fear that zero growth will result in relatively too few workers. When we have found work for all in their working years, then we can start to delay retirement and get a bit more work out of machines – a delightful problem.

Fertility and Genetic Fitness

Beaujot generously describes English-speaking demographers as holding that they should either help couples reduce their fertility or refrain from any influence, whereas he implies that French-Canadian demographers are more likely to be pronatalist. But he ascribes these Anglo-French differences to "political circumstances", which is ambiguous. I think we can do better than that. I know he can.

Civilized people seek the least damaging way of resolving conflict, but language difference is basic, and a difficult test for our rationality. Learning a language in childhood or later is a big cerebral investment, causing us all keen interest in estimates of future numbers of co-linguists.

Linguistic minority males – even such a large "minority" as French Canadians – may understandably worry about their women's low fertility and its implications for their own long-term genetic fitness. But they may take comfort from the thought that young French *and* English Canadians' current low fertility is part of a world trend. The important outcome for genetic fitness – the proportion one's descendents constitute in future generations – is not how many children parents have (their fertility), but how many they bring to maturity, wisdom and independence.

Furthermore, even if families, ethnic groups and developed nations may be impairing their genetic fitness in the short run by reducing their fertility, they do not thereby reduce their power. Social scientists, of course, can readily explain this biological paradox: power in the modern world depends increasingly on the tools of material and social culture rather than upon numbers of kith and kin, and small families are a good response to the longer more complex socialization required by a mechanized environment.

Culturgenic Fitness: A Suggestion

The reproductive performance of different ethnies (a French usage favoured by Van den Berghe, 1981) is a favourite topic of Canadian demographers. Biologists would say we are comparing their genetic fitness, but this does not quite fit the present situation, partly because of the continual blurring of ethnies' genetic boundaries by intermarriage, and partly for the reasons described in the previous paragraph. We need a cultural analogue of genetic fitness to refer to the relative success of ethnies and their cultural traits.

Anthropologists have long found it useful to think about elements of culture, using words such as trait, artifact, mentifact. Oxford biologist Dawkins (1976) suggests "meme" for this purpose, from the French *même*, something mimicked or replicated, but sociobiologists Lumsden and Wilson (1981) choose "culturgen" which happily suggests an element or "gene" of culture transmitted by tradition rather than reproduction. Hence, I recommend the term "culturgenic fitness" for survival potential generated by culture, and for the ability to spread one's culturgens, both horizontally among peers and vertically to descendents. In general, the hybrid or heterozygous state, with different alleles derived from each parent, is more fit than the pure homozygous or "double-

dose" state. Likewise "culturgenic fitness" suggests that "culturgenic" or cultural purity is as unwise as genetic purity. In seeking purity at either level, we risk inbreeding depression and forgo the advantage of hybrid vigour. Therefore, let "franglais" flourish.

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