

Commentary: Totally Tubular — Northern Science's Most Excellent Adventure

"The fundamental problem we have to address is the fact that science in Canada generally, and northern science in particular, is going down the tubes at an accelerating pace" (Roger King, 7 October 1993, Ottawa, Canadian Polar Commission Conference Planning Committee Meeting [CPCCPCM]). So said a respected northern scientist recently to a group discussing the current state of northern research. Most at the meeting nodded in agreement. It was clear to us that there had been an erosion in levels of funding and activity in northern research. Concern was expressed about the low numbers of students enrolling in northern-oriented courses across the country and the relatively few graduate students pursuing northern topics for their theses. Something, we all agreed, needed to be done.

The second day of our meetings revisited this theme of northern science "going down the tubes." One of us, older and wiser in the ways and achievements of northern research, cautioned against too dim a view of the state of our interest. "While it's undeniable that northern science is going down the tubes, as my colleague suggests," he said, "I think it is also important to realize that some of those tubes are directing us towards some pretty interesting places — increased interdisciplinary work and greater relevance to the northern community itself are two trends which the current funding levels are forcing us to consider as we seek to legitimate our proposed research. These are not, I think, such bad directions to see our activities descend to" (Fred Roots, 8 October 1993, Ottawa, CPCCPCM).

Northern scientific research has made significant contributions to science generally, some of fundamental importance. The work of astrophysical scientists examining polar magnetism is an example of a specific disciplinary contribution, while the ecological research on the northern tundra's relatively simple biome can suggest new models to approach more complex systems elsewhere. The list of achievements could be expanded considerably in other fields as well, from anthropology to zoology. My goal here, however, is to discuss more fully some of the current trajectories of the journey of northern science and suggest that in thinking "tubular" about the trip we can find ourselves in a most excellent adventure.

Northern research, primarily due to its geographic isolation and associated costs, has long relied on a multidisciplinary approach. Vilhjalmur Stefansson's and Franz Boas's early travels in the North were undertaken in the context of the classic exploration party designed to gather all manner of information. While the various reports arising from these voyages were not truly integrated across the various disciplines, they did tend to inform each other.

This broadening of perspectives has remained a feature of research in the North over the years and laid the intellectual groundwork for the emergence of attempts at interdisciplinary research. Some would maintain that a truly interdisciplinary study has yet to be achieved in the North, or indeed elsewhere, but that remains a moot point. The important fact is that northern research encourages a cross-disciplinary perspective on one's own work, emphasizing both the achievements and limitations of disciplinary research. We might say that as a result northern researchers got "attitude."

The second feature of northern research that has been sustained to some degree over the years has been the extent to which local populations have been involved as critical participants in the research. In the early years of poor communications and logistical staging, native northerners often made the difference in the success or failure of a project — at times their guidance, food, habitations and local knowledge quite literally made a difference between life and death. As state intervention in the North increased, aboriginal people became more marginalized in their participation, but the symbiotic heritage remained. It is partly for this reason that the current recognition of the potential for traditional knowledge to contribute to scientific research has been taken most seriously in the North.

Not unrelated to the above points is the third feature of northern science that may slip it into excellence: its increasingly pragmatic and community-bounded nature. Its pragmatism arose predominantly as a response to the needs of northern colonialists — how to erect roads and buildings on permafrost, for example. When we look back over the history of northern scientific research, we can quickly discover activities in which the pragmatism was quite selfishly our own, in which we used northern aboriginal populations as captive guinea pigs or ignored them completely as capitalist appetites sought to dispossess the landscape of some sought-after resource.

Our acknowledgement of these mistakes cannot change history, but it can prevent their recurrence. Perhaps it was partly in reaction to this history that some northern scientists sought to make their work more relevant to local communities; certainly the political power of northerners has grown to the point where they have asserted such connections. Some scientists think this has gone too far, that it infringes on the time for research and, more fundamentally, is anathema to the principle of academic freedom.

While most scientists believe in the power of the peer review process to ensure accuracy of our work, many have difficulty with the notion that similar judgements might be made by the non-scientific citizenry. Some fear that scholarly merit of research will become less important than its community resonance, a sort of political correctness approach that will erode academic freedom. However, this democratization of the research process does have the capacity to achieve what scientists alone have been unable to do: increase the human participation in and resources allocated to northern research and promote the rapprochement of the so-called "traditional" and "scientific" realms of knowledge.

The demand for relevancy of research topics at the community level in the North is in a sense an attempt to decolonialize northern scientific research, to transpose it to a meaningful key that can be heard, understood and appreciated in the North. It seeks to redefine the role of the North in research in a more pluralistic fashion, reminding scientists that the empiricism that orientates our efforts is only one of several ways of knowing and encouraging efforts towards the integration of knowledge and place. It seeks recognition of and sensitivity towards the existing cultural traditions of knowledge that have prevailed in the North, not with a goal of supplanting empirical knowledge but to expand its capacity for northern relevance by forcing its vision towards issues and concerns of local interest.

To achieve this reorientation would have several significant effects. First, because it is seen to be relevant, we can expect that northern residents themselves will take up career goals within northern sciences. Second, northern science would extend its constituency beyond those who practise it directly, which could affect the dollars directed towards northern research. Since the allocation of scarce resources is an inherently political process, the larger the constituency supporting northern research the better, especially one that cross-cuts social enclaves.

A third effect of the move towards greater community involvement is both more subtle and ambiguous, and its implications for science everywhere are considerable. If we accept that the community has a role in setting the research agenda, how much farther can or should this involvement extend? To control over the actual research process? To participation in the assessment of a research project's conclusions? To decisions regarding the publication of results?

This is occurring already without the fearful results that it might seem to imply. Research in many northern communities is controlled to some degree by advisory committees to ensure that it proceeds with sensitivity to local concerns. These serve as useful evaluators of research, a community peer group that assesses the truth value of conclusions at the local level in much the same way as our academic peers. Indeed, it can be argued that in many respects such committees are better informed and fulfill this role with more integrity than many of our peers, whose commentaries may be made from an aloofness of the context of the research. Similarly, many northern residents have perceptions of misrepresentation of their communities in some research. The assessment of the appropriateness of private information becoming public is one of primary concern to all citizens, northerners no less.

On the other hand, does acceptance of these new levels of community involvement in the activities of scientists and the knowledge they produce unnecessarily hinder our need for the free flow of information and other principles of academic freedom? I do not know. What is certain is that in the North, probably more than anywhere else, practising scientists and the community in which they operate are engaged in debating the extent to which science should or can be democratized without compromising its goals.

The responses this debate spawns are of fundamental importance to science everywhere. It is a particular tube down which science must travel if it is to continue its most excellent adventure into the next century with a renewed commitment to the advancement of our species in measurable ways beyond the narrow confines of our discipline or financial sponsors.

A good many northern scientists look back on the 1960s and '70s as the halcyon days of northern research, a time when there was seemingly inexhaustible funding and access to logistical support. While there is no doubt that the amount and breadth of research in the North since those times has seriously eroded, it behooves us to recall with precision what it was that promoted and supported the level of research activity in those decades — the desire of multinational resource companies to develop the North for their own profit. That the reports of public inquiries, along with a downturn in world petroleum prices, effectively ended the grand schemes of these interests and their associated research should demonstrate pretty clearly the relationship between science and the business community. This is a relationship that many of us assume without a second thought; why then the trepidation displayed at the prospect of greater involvement of wider local community interests in research?

These are not just academic issues of informed debate for this journal and our conference libations; they are critical to the emergence of a legitimate indigenous northern scholarly tradition and that role that northern-orientated academics are going to play in it.

Through eight years of teaching at Yukon College, researching, and living in Yukon, I have been forced to acknowledge that at times my effort has strayed from a committed understanding of what it is northerners want. It includes all the knowledge and technology that my scientific heritage has developed through its own methods, but it also includes community relevancy. Relevancy — *meaningfulness* within northern communities of the work of science — is a means by which my colonial intellectual prejudices are being eroded and replaced with a clearer understanding of what I was taught in school and never really learned until I lived with people who not only believed it intellectually but used it as a premise of their community life: that shared experience and developed consensus are the final arbiter of truth, whether in "science" or "traditional knowledge." Science ain't square, man, it's tubular, and the more radical, the more excellent.

And if you don't get that, well, that's okay too — just give the North room to move to its beat.

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