Annals of Glaciology 1 1980

SOME ENVIRONMENTAL QUESTIONS: AN AFTER-DINNER ADDRESS

(Address presented at the banquet in Trinity College, Cambridge, on 2 April 1980, on the occasion of the second Conference on the Use of Icebergs: Scientific and Practical Feasibility, in the presence of H.R.H. Prince Mohammed al Faisal al Saud and members and guests of the International Glaciological Society)

by

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Your Royal Highness, ladies and gentlemen:

In constructing the programme for a meeting, as in preparing the menu for a good dinner like the one we have just internalized (to use the economist's jargon), there is said to be an art of contrast. The courses should go together to make an agreeable whole, but it is a good thing to have one or two components that are quite different. That, I deduce, is why I, a biologist and an environmental scientist, have been intruded into your programme tonight. I shall hope to be different. But not indigestible.

There have been various proposals for utilizing the ice of the Antarctic. As soon as it was recognized that food left in the huts of early explorers kept tolerably fresh for fifty years or so, and that dead seals in the dry valleys were freeze-dried by nature, it was inevitable that somebody would think of the continent as the world's greatest free refrigerator. Wheat, meat, and New Zealand butter have been proposed for storage there: an Antipodean equivalent to the celebrated butter mountains of Europe. Those who named a headland in Victoria Land "Butter Point" may have been prophetic. Only this year, a publication suggested that "if krill were used as an emergency world food, it could perhaps be stored in Antarctica". Perhaps the code name "Operation Deep Freeze", applied to post-war American expeditions, had hidden meanings?

It was, I think, an American journalist who gave his popular book on the Antarctic the title "Quick before it melts". Such an injunction might fittingly apply to the kind of use of the Antarctic ice to which I have just referred, or to counsel speedy evacuation to those others who have suggested sinking capsules of hot radioactive waste to the base of the continental ice sheet. But I am aware that, for your conference, "Quick before they tow it away" would be a more apt instruction. And this recalls me to what I think I am here for - to say something about the environment and how it may affect and be affected by the theme of your conference.

"Environment" is a much used word today, and it can mean so many things that you almost have to define it every time you use it. I am reminded of such ambiguity by a true story of a colleague of mine when I worked in our government's Central Unit on Environmental Pollution. He had on his wall a cartoon of a howling small boy, his middle wrapped in those absorbent cloths called nappies in England (and diapers elsewhere) that we here happily cannot remember wearing - which, obviously, were no longer comfortable. Beside the child stood a typical bossy elder sister, pointing accusingly. "Mum," she said, "Little Alfie's polluted his environment again."

What is the environment? There are two. One is the natural world of airs, waters, soil, forest, and wild life, within which our communities have evolved and on which we still depend utterly for the essentials of life. The other is the built environment of cities, houses, industries, ships, and artefacts through which we have escaped from the checks and stresses of the first environment, but by which we may damage it through ignorance or carelessness. We know that the world today still needs development as a first priority when so many people in so many lands lack proper food, clean water, or basic shelter. We know that growing more food and providing better water is a first priority in a world where numbers will double in thirty years, where as much soil is lost every year to deserts and through salt as is won from the wilderness, and where far too many children in the Third World die prematurely from water-borne diseases and what the United Nations has called "the pollution of poverty". We know that we must expand the built - the modified - environment if we are to meet those needs. But we also know that we shall defeat our objectives if we conduct this development so heedlessly that we damage the very resources on which we shall depend. That is why developers everywhere are now in the habit of conducting what they call "environmental impact analysis" before they embark on a major urban or industrial activity, or do anything else that could disrupt the complex balances of nature.

"Environmental impact" is also a term

which could mean different things to different men. Imagine the Little Alfie of the cartoon grown up and striding the bridge of a super-tanker. His description of the impact of an iceberg on his professional environment, although expressed in words rather than distressed howls, would in its emotional content have much in common with his previous reaction to a dirty nappy. And the oilman looking off Labrador at iceberg scour marks in the sea bed below five hundred metres of water, or the fisherman worried in case the plumes of cold water trailed behind a berg one of you here had arranged to tow might upset the organisms he was trying to catch, or a Saudi farmer depending on the water ultimately provided for intensive agriculture, would each, and rightly, have their proper perspective. The point is that you have to look at the whole system and check the various possible impacts, how they arise, whether they matter (and to whom), and how to avoid the worst of them (if you can).

In many ways, towing Antarctic icebergs to arid countries is an environmentalist's dream. The resource being exploited is totally renewable. Nature kindly provides it for you in various sizes and shapes on a kind of watery conveyor belt at the bottom end of the Southern Ocean. After use it leaves no troublesome residue: it goes back into the great cycle by which the world's water interchanges between air, land, and ocean. It confers benefit on the user, but nobody is deprived by its removal. By the time your tugs might catch it, somewhere around the Antarctic Convergence, it is steadily being re-cycled to the ocean, and almost certainly well outside any coastal state's territorial sea or exclusive economic zone.

What environmental impacts could this beneficent activity have? Well, the sea around a melting iceberg obviously gets diluted and chilled. Assuming you tow one to Saudi Arabia, Chile or Western Australia, seas now outside the zones where ice drifts naturally will get an unaccustomed cold douche. No doubt nasty shocks will be given to sensitive marine life, but most of this will be mobile and able to give the fishy equivalent of a rude comment before getting out of the way. On any conceivable scale, the traffic could not cause a general cooling of the tropical seas or affect the overall ecology of their marine life.

It would be different at the destination, assuming a stream of bergs was brought in so that some inshore waters were cooled consistently. The results would be biologically interesting. Where sub-Antarctic waters well up off the coasts of South Africa, a small area of sea and shore is inhabited by life otherwise typical of more polar climes. You might create a patch of cold-water flora and fauna in the tropical seas, although I hasten to add that I would not foresee the addition of penguins to the fabled zoology of Arabia.

The real problem, it seems to me, is Alfie - Big Alfie on his supertanker. Can you guarantee that a towed berg will not leave a stream of bergy bits bitting and growlers growling right across the shipping lanes? Big Alfie and his kind have been known to have trouble missing rocks they ought to have been expecting off the British coasts. Will they really be expecting icebergs in the central Indian Ocean? For if they make a mistake, the environmental consequences for the reefs of the Seychelles, the turtles of Aldabra, or the beaches of Kenya could be disastrous.

I note from your programme that you are contemplating preservation, although (as some other conferees have said) the topic appears to be being considered "in title only". Somebody - I think it was Charles Swithinbank - said that this might be done by adding "a bit of skirt". I am not quite sure what he meant, but assume he was using the term scientifically. My point in mentioning this is that if you enveloped a berg in foam (say) that entered the sea, the environmental impact of the foam would also need to be considered. It would be much more significant than just cold water.

I would not wish to bring politics into a scientific conference, but one other awkward thought did strike me when preparing these rambling remarks. Who owns an iceberg? If it comes off a Greenland glacier, is it a part of Greenland, like those bits of land you can find on old English maps described as "Blankshire - detached". If Greenland (detached) hits Big Alfie, Greenland presumably disclaims responsibility, because the detachment was an act of God or of nature. But if I take Greenland (detached) in tow presumably I assume responsibility for it. And if I then sell it in Carolina, can Greenland claim a rake-off as the original owner of the resource? And (to end hastily on a note of total confusion) could Antarctic icebergs (if they become valuable) ever be claimed as part of the common heritage of mankind. Once you give value to something that everyone has always assumed to be useless and to belong to nobody, all sorts of people are liable to arrive and claim a share! Consider only the manganese nodules of the ocean floor, if you want an example that has generated more frictional heat than light. But no doubt you have these complications, of which I as a scientist am happy to claim ignorance, well in tow in your conference.

I must confess to personal fascination at the audacity, the beautiful simplicity, of the idea behind this use of icebergs. As an environmentalist, and setting my friend Captain Alfie aside (a big reservation, I admit), I can see no reason why the angels of environmental benefit should not be on your side. But I confess to suspicions of the economist. In my experience, they are the people who put a stop to elegant new ideas. So I stand here rather as that celebrated poet and fellow of this college, A.E. Housman, once did after dinner in this very hall, having perhaps consumed more wine than a prudent poet should. "This hall," he said, "has seen many strange things. It has seen Wordsworth drunk, and Porson sober. And here stand I - a better scholar than Wordsworth, a better poet than Porson - betwixt and between!" Your Royal Highness, I stand betwixt and between hope and confidence that the ideas you are discussing here will bring the unrivalled benefit of pure water to the people of your country and of other arid lands, without harm to the environment of the Antarctic or of the seas between, and fear lest the costs of the process and the problems of precaution against accident will override you. But it has been a privilege to be with you tonight. I thank you most warmly for an excellent dinner and I hope that your hopes come true.