

mercial forests of the southern United States. Are we to face as well the man-made further disadvantage of acid rain?

In Europe, the Organization for Economic Co-operation and Development (OECD) expressed the view in a recent report that the worst effects of acid rain were not likely to be on lakes and forests but on building surfaces and human health. We know less about both of these than we do about lakes but I scarcely find the OECD's comments comforting. The deterioration of building surfaces would be gradual rather than sudden and therefore not necessarily noticeable, much less dramatic, except perhaps for valuable statuary. Yet I am told that if some of the early studies are valid the hidden cost to the Canadian and United States economies of more frequent building repairs could be enormous.

...My colleague, Monique Bégin, the Minister of National Health and Welfare, is concerned enough and has begun a major expensive program of study into the possible health effects of acid rain. A British report on the health hazards of lead recently concluded that the major focus of concern over this problem should be on the lead being absorbed from lead pipes by the acidic waters of Scotland. Why are these waters acidic? At least in part because of acid rain falling on poorly buffered streams and lakes. The Scots are suffering because of their famous soft water, very much like that of the Canadian shield. In Canada most of our major population centres draw their water from harder, better buffered sources but what of New York City? What is the history of pH levels in its reservoirs? I am not suggesting a problem equivalent to that of Scotland if for no other reason than the much rarer use of lead piping. However one could wonder what other metals may be picked up and what implications they may have.

Yet having referred to heavy metals, I must say that the principal concerns over health effects cited by most authorities are in another area entirely — the inhalation of fine particulates. Here the concern relates primarily to effects on people with respiratory ailments. More research is needed, the arguments continue but so does acid rain.

We know for a fact that the increased acidity in the rain — and in dry particulate deposition — is caused by sulfates and nitrates — in about 70 per cent to 30 per cent proportions — the precursors of which

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are sulphur dioxide and oxides of nitrogen. There are arguments about the precise behaviour of nitrogen oxides in the atmosphere but much less about sulphur dioxide. We know that high stacks designed to reduce local pollution not only send the sulphur dioxide and nitrogen oxides further afield but, in the case of the former, provide more time for it to be changed into the acid-causing sulfates. And we know where the pollutants are coming from in both countries. Atmospheric modelling is a relatively new science and the arguments go on about the accuracy of this or that specific calculation of the movement and transformation of pollutants. But from where I sit the arguments are mostly over points of detail — precise amounts of fall-out in a given place from a given source. No knowledgeable person questions the basic fact that these pollutants are going up, moving considerable distances and coming down in an acid-causing form. Also we know that at least half of the acid rain falling in Canada has its origin in the United States.

Reducing acid causing emissions

The solution is therefore very straight forward. We must reduce drastically the amount of acid-causing pollution that is being emitted in both our countries. I am told that it is technically possible to effect such reductions. The only stumbling block is cost. How much and to whom?

In Canada we are examining that question urgently — not from the perspective of wondering whether we should take action but with the intention of selecting the best means of doing the job. The provincial government has already begun in Ontario by putting a lid on INCO's sulphur dioxide emissions at a level of 1,100 tons a day below current allowable emissions and mandating a further 25 per cent reduction in two years.... Through a joint Canada-Ontario structure we will be developing much tighter emission requirements to be implemented later in this decade. We are also going after other major polluters both smelters and power plants. In a word we've started to move. I might add that our newest smelter at Timmins, Ontario, now under construc-

tion, will have 97 per cent sulphur dioxide removal....

Canada and the United States have committed themselves to develop an air quality agreement designed to deal with this problem. I sense that it will be some time before any agreement with real bite can be signed mainly because the legislative authorities needed in the United States to bring about rapid and major reductions in sulphur dioxide and nitrogen oxide emissions appear to be lacking.

For that reason we are also pressing for an interim understanding which would oblige both the United States and Canada to use existing authorities to the full limit in an effort to bring about some improvement in emission reduction while an agreement is being prepared.

Critics of early control action within Canada argue that there is no point in imposing expensive control requirements because the growth in U.S. emissions will simply occupy the space we are thereby vacating. That argument fails to recognize the geographic location of some of our major emitters and the relief which reductions obtained from them can offer some of our most sensitive areas. Nonetheless, there is enough truth in the argument for me to place equal importance on securing major reductions in U.S. emissions. Stated very bluntly I see no reason why Canada's ecosystems — let me be blunter yet — Canada's people — tourist camp operators, fishing guides, commercial fishermen, loggers, other forest product workers, building owners and tenants and possibly our asthmatics or others with respiratory illnesses — should have to pay the price of keeping the electricity rates of those coal-producing middle western states well below those now being paid along the United States eastern seaboard.

Need for action

Some Canadians among us have spoken darkly about "environmental aggression". I reject that phrase because it suggests a deliberate act designed to hurt another. There is no malice in the acid rain from the United States, nor I assure you in the much smaller amount of acid rain we send back. What we are experiencing is the result of a genuine lack of understanding of the consequences of what seemed like a reasonable cost effective control mechanism — high stacks and dispersion. What we failed to do was to build into our equations the hidden cost,

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