

A Greener Sudbury - Canada's Best Kept Secret

By Keith Winterhalder

Visitors to Science North, Sudbury's unique lakeside science centre, are impressed by the magnificent view of Ramsey Lake - a rare jewel in the midst of an industrial city of 100,000 people. Today, the 1,965 acres of clear, spring-fed water supports sailboats, beaches, lakeside homes and saunas. Prior to 1872, when many of the red and white pines that clothed its shores went to rebuild Chicago after the great fire, the peace of this lake called Bimimigamasing was disturbed only by the paddles of the Ojibway who trapped muskrat and beaver in the surrounding creeks.

In 1883, the Canadian Pacific Railway construction crews reached what is now Sudbury, and named it Lost Lake after realizing they were several miles off course. As railroad construction proceeded, blacksmith Tom Flanagan noticed a rusty stain in a cutting, leading to the discovery of the Sudbury Basin's rich deposit of copper and nickel ore.

During the first few years of mining, the ore was shipped to other centres for processing. But in 1886, the first roast yard and smelter were built. Soon, clouds of sulphurous gas containing minute particles of copper and nickel oxide rolled across the landscape, killing the more sensitive plants and acidifying and metal-contaminating the soil. The smaller timber remaining after logging was cut to fuel the roast beds - great



1983 - Barren lands along the shore of Lake Kelly near Coniston before land reclamation.

Photo courtesy of Keith Winterhalder.



1988 - The same view along the shore of Lake Kelly near Coniston five years later after land reclamation.

Photo courtesy of Keith Winterhalder.

mounds of ore that were set on fire and burned for weeks on end. Before long, the only remaining plants were a few stunted individuals of birch, poplar and maple. The soil became so toxic that roots of germinating seeds would not penetrate the surface and the seedlings died of drought.

By 1969, when Inco Ltd., Sudbury's major mining company, announced its plan to cut emissions and construct a 1,250 foot smokestack, extensive zones of barren land covering 140 square miles existed around each smelter. The an-

nouncement stimulated Ted McHale and Ed Kraker of the Ontario Department of Lands and Forests and Dr. G.M. Courtin and myself of Laurentian University to propose a joint rehabilitation project which became known as the Sudbury Environmental Enhancement Program (SEEP). At the time, the toxic nature of the soil was not known, and it was assumed that the enhancement of air quality would remove the major existing barrier to plant growth.

During the first two years, preliminary tree-planting trials were initiated using species readily available from L & F nurseries. The results of the planting of several thousand pine trees clearly demonstrated that the soil was a totally unsuitable growth medium in its existing condition; it was extremely acid and contained high levels of copper and nickel.

In 1971, I initiated experiments to determine the best way of treating this toxic soil so that it could support plant growth. Attention was temporarily transferred from the growth of trees to that of grasses, on the theory that the presence of grass cover would improve the physical conditions at the soil surface, allowing the later successful planting of trees. It became clear that the application of ground limestone to the soil - the procedure used by farmers and gardeners to reduce acidity - was the key to