Scrap metal recycling
Profitable junk

With the support of an NRC IRAP grant, Intermetco, a Hamilton, Ontario, metal recycling company has developed a new process for recovering non-ferrous metals from obsolete automobiles.

It used to be a shiny new car, trim and sleek, just what you always wanted. When you drove it out of the dealer's yard, his reassuring words merely confirmed your own conviction that it was a car "designed to give you years of faithful service".

Years later, time, and the Canadian climate, have created havoc on the once proud possession, which now gathers dust, as in a junkyard.

Useless? Well, not quite. Although the words "scrap metal" or "junkyard" might evoke images of Gasoline Alley-like characters inefficiently poking at a scrap heap, in reality automobile recycling has become a highly organized business in Canada. Indeed, a whole industry has been built around the profitable recycling of the large amounts of valuable materials that can be recovered from discarded automobiles. In the 1960's, heavy-duty shredders capable of processing an entire discarded automobile were developed to extract desirable scrap steel for the steel industry. The steel and iron were picked up by powerful magnets and recycled as feed for the steelmaking furnaces, while the non-magnetic portion of the metal — roughly 45 kg for the average car — was simply trucked to landfill sites and buried as garbage. No practical process existed in Canada to extract the zinc, copper, aluminum and stainless steel it still contained.

With the hope that it might be possible to develop an economical process for recovering these non-ferrous metals, Abby Goldblatt, executive vice-president of Intermetco, Canada's largest metal recycling company, decided to apply for an NRC grant under the Industrial Research Assistance Program (IRAP). Thanks to the grant, Intermetco was able to hire metallurgist Satinder Vig to work on the new metal recycling process.

Says Satinder Vig: "Like butchers who claim to use everything in a pig but the squeal, companies like Intermetco in the metal recycling business are always looking for more ways to recover useful materials from junked automobiles. With the tremendous increase in the cost of energy and the growing scarcity of many non-renewable materials, this makes good business sense and it benefits the environment. Indeed, in the case of aluminum, the energy cost of recycled metal is one-thirtieth that of metal extracted from ore.

"Most of our laboratory experiments on the reclamation of non-ferrous metals were performed in our Hamilton, Ontario, laboratories. To many people, the word 'experiment' might conjure up images of tiny samples in test tubes, but one has to realize that scrap metal chemistry is performed on

Powerful claws pick up a junked car and lift it to the mouth of a car shredder. On the right is the pneumatic sorter, which removes light debris from shredded car material.

De puissantes mâchoires soulèvent une voiture et la déposent dans la gueule du déchiqueteur. On peut voir, à droite, le classificateur pneumatique qui sert à l'élimination des débris les plus légers.

Michel Brochu