



brilliance and color. But it is poisonous — an excess of lead, for instance, can permanently damage a child's brain — and it can be picked up from a glazed pot by orange juice or other acidic foods. Most countries, including Canada, have standards which set maximum permissible rates at which ceramic ware may release lead. A commercial pottery in Ontario has found and patented an oxide which, when added to a glaze, dramatically inhibits the shedding of lead. No one, as yet, can explain how it works. IMRI is cooperating with this company and with the Ontario Research Foundation in a study of the enigmatic mechanisms and a search for alternative, benign glazes.

### Coated Concrete

Skiers driving from Montreal into the Laurentian Mountains are separated from south-flowing traffic at the Sainte-Adèle toll station by a concrete barrier coated in glossy grey epoxy. Ciments Canada Lafarge Ltée., in part-

nership with IMRI, developed this spray-on coat and ways of bonding it to concrete. That it gives protection against the combined attack of salt and freezing was first demonstrated on small samples of concrete by means of accelerated weathering tests in the laboratory. Now it is being tested out on the highway.

### Plastic Lab

Plastics, in Canada, are raw materials for a modern cottage industry. There are some 14,000 manufacturers in the country producing everything from tiny vials to giant pipes. The majority are small — they rarely employ more than 50 people, and even more rarely do these employees include engineers or chemists. What technical know-how is available comes, usually, from the multinational companies which supply resin and the manufacturers of the machines for forming it.

To help the plastics industry, IMRI is building a facility unique in the country — a laboratory accessible to all,



Marie-Élise Ambroise with technical assistant Michel Thibodeau observing a specimen in an optical metallograph.

Mlle Marie-Élise Ambroise et le technicien Michel Thibodeau observent un spécimen au moyen d'un microscope optique métallographique.

equipped with, among other things, the machines a manufacturer would use. There will be commercial mixers and tumblers; extruders in which powdered resins are heated and out of which they are squeezed, like thick molasses, to be shaped by dies; and injection molds, with hundreds of tons of clamping pressure. There will be instruments for testing the performance of finished products — for subjecting venetian blinds to ultraviolet rays, for instance. To support the work in this computer-controlled processing facility, a specialized library is being assembled.

Flipping through a thick sheaf of pages, the product of a computer's search through the literature of his field, Dr. Utracki expounds: "We have no achievements to report, yet. The lab is still being organized, and our building isn't ready.

"Because some of our equipment is of commercial size, we will be able to try out new recipes, new molds, without blocking a manufacturer's production line.

"Using intuition, and science, just as the discoverers of polyethylene did, we're going to come up with superior plastics and cheaper processing techniques, and we're going to be able to demonstrate them in a very practical way." □

Séan McCutcheon