Industrial materials in Montreal

New NRC Research Institute

The Industrial Materials Research Institute hopes to improve the durability and performance of the raw materials used by industry. NRC's newest division is in Quebec and its working language is French.

Dr. George Bata, Director of the Institute.

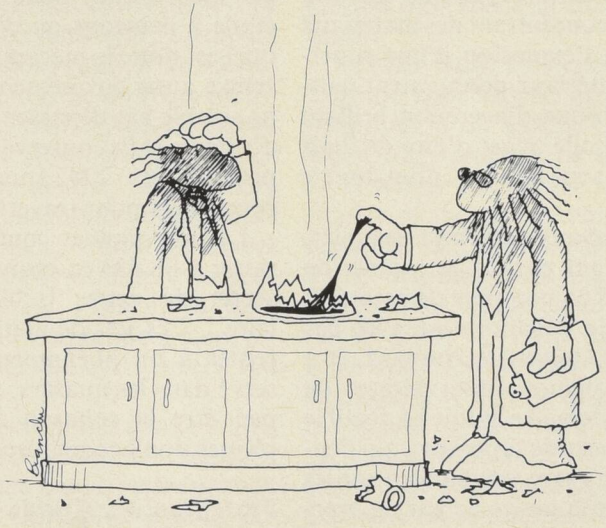
Le Dr Georges Bata, directeur de l'institut.

"In 1939," relates Dr. Leszek Utracki, a genial polymer chemist, "two British researchers found at the bottom of a flask, after it had exploded, an unknown, waxy substance. They were forbidden by the company for which they worked to continue their obviously risky experiments, but they did, secretly. They had discovered polyethylene. The new material was ignored for a while, until World War Two, when it turned out to be a marvellous insulator and was used to coat cables for carrying radar signals which are weak."

Since then many more of the man-made molecular chains now popularly known as plastics (or polymers technically) have joined polyethylene. The volume of these synthetic materials we use has grown to staggering size. According to Dr. Utracki's calculation, all the plastics produced in the world during 1978, if formed into a solid ring whose diameter is about what a man can span with extended arms, would completely circle the globe.

To any thoughtful person the mastery of atomic architecture which makes possible the proliferation of plastics is as astonishing as was the discovery, at the dawn of civilization, that potters could turn clay to stone by heating it, or that smiths could forge ploughs and swords from metal-bearing rock.

And plastics are only a part of the galaxy of materials we manipulate. The mass of the stuff of our planet which we transform every year into glass, grease, paint and a myriad of other products, comes to 21 tons per Canadian.



The skill with which this abundance of materials is used leaves something to be desired. Consider the following estimates drawn from a 1977 report commissioned by NRC and prepared by GEM (Groupe d'étude des matériaux — Materials Study Group). The losses which can be attributed to the deterioration or aging of materials in Canada's rigorous climate — to cars rusting, paint flaking, bricks crumbling, and so on — runs around $5 billion annually. A quarter or more of these losses could be avoided simply by communicating existing technical information and, without major expense, by using applied research to develop more information.