

Probing the plant cell's secret life

NRC's Prairie Regional Laboratory

The distinction between basic and applied science, difficult to make at the best of times, is hopelessly blurred at NRC's Prairie Regional Laboratory. One distinguishing feature often cited between the two is the lag time from the discovery of something to its conversion into a valuable commodity. Normally, there is a lengthy delay with basic research but a much shorter interval with applied work. The problem with PRL is that new knowledge of either stripe has a habit of translating into useful applications with almost unseemly haste.

In the past, sensitive analyses of rape-

seed's oils and proteins helped create a crop now worth a billion dollars annually to Canadians; more recently, knowledge of how to grow and preserve plant cells is permitting an international exchange of valuable crop strains without risk of disease transfer; cell culture combined with chemistry is pointing to valuable new medical drugs; lab-created organic molecules are being used to mimic insect sexual scents, providing better control over infestations... the list goes on.

PRL's success is due in part to its concentration on agricultural research — all its eggs in one basket if you like — but despite

this narrowed field, the scientific activities are incredibly diverse. Last summer, NRC photographer Bruce Kane captured something of the lab's varietal nature on film, and although what follows is not meant to be comprehensive, it touches on the major areas of PRL's scientific enterprise. □

Wayne Campbell

The Prairie Regional Laboratory, on the campus of the University of Saskatchewan in Saskatoon.

Le Laboratoire régional des Prairies, situé sur les terrains de l'Université de la Saskatchewan, à Saskatoon.

Greenhouses at PRL produce the plants needed for cell culture work, particularly the study of a medically-important family of substances called alkaloids. It turns out that cell lines from a given plant vary in their ability to synthesize and accumulate these compounds. Finding the right cell line and determining the best growth conditions for production of a specific alkaloid may be the way to greatly reduce the cost of certain pharmaceuticals.

Les serres du LRP fournissent les plantes utilisées pour les recherches phylogénétiques et notamment pour les cultures cellulaires qui servent à l'étude des alcaloïdes, substances thérapeutiques très importantes. Les différentes lignées de cellules obtenues à partir d'une plante donnée peuvent varier dans leur aptitude à synthétiser et accumuler ces composés. L'identification de lignées de cellules présentant les caractéristiques recherchées et la mise en évidence des conditions optimales de croissance favorisant la production d'un alcaloïde particulier pourraient aboutir à une réduction considérable du coût de certains produits pharmaceutiques.

