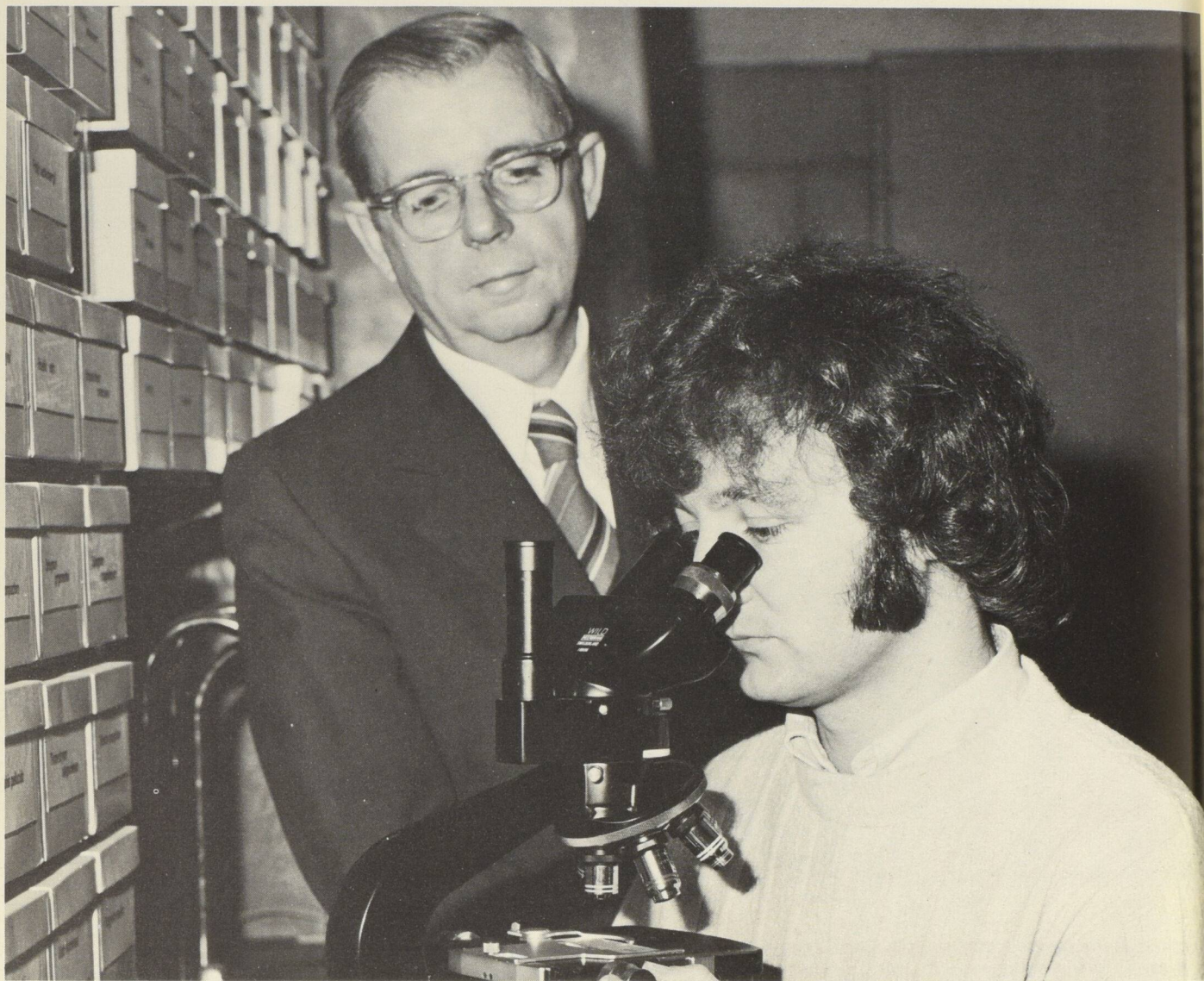


Epiphytes in our cities — Indicators of urban pollution



Obligate epiphytes are small plants which colonize tree trunks; more sensitive than vascular plants to the various pollutants in our metropolitan and industrial centres, they are excellent indicators of atmospheric pollution.

The word "epiphyte" is derived from the Greek "epi" and "phuton" meaning "on" and "plant" respectively; we are then referring to a plant which grows attached to another plant without deriving its sustenance from it, as would parasitic flora. Epiphytes suffer cankers, etiolation and other reactions when exposed to the damaging influence of toxic substances, especially sulphur dioxide and sulphur trioxide, fluorine and certain heavy metals.

Of no major economic importance, in spite of their great variety, these obligate epiphytes are easy to study in the field; also, their hardy nature facilitates transportation to and cultivation in laboratories, thus permitting year-round study. The results obtained have the further benefit of being transferable or extrapolable, up to a certain point, to cultivated plants of economic importance whose growth can also be influenced by air pollution.

Dr. Fabius LeBlanc, s.c., Professor of Biology at the University of Ottawa, is an expert in the study of mosses and lichens. During the course of his research, funded by the National Research Council of Canada, he has sustained a vital interest in these colonies of epiphytes which permit him

Dr. Fabius LeBlanc and Gilles Robitaille, a graduate student working out of Murdochville, Quebec, examine the effects of sulphur dioxide on chlorophyll. Laboratory experiments have shown that mosses and lichens steadily lose their chlorophyll when exposed to large doses of SO₂ and that the speed of disintegration is proportional to the amount of humidity in the air.

Le Dr Fabius LeBlanc et Gilles Robitaille, un étudiant gradué qui travaille présentement à Murdochville, Québec examinent les effets de l'anhydride sulfureux sur la chlorophylle. En effet, des essais en laboratoire ont démontré que les mousses et lichens perdent graduellement leur chlorophylle lorsqu'ils sont exposés à de fortes doses de SO₂ et que la vitesse de désagrégation est d'autant plus rapide quand le degré d'humidité dans l'air est plus élevé.

to make biological tests of atmospheric pollution. For more than 10 years now, he has studied the ecology and phytosociology of mosses and lichens in Quebec and Ontario. In his doctorate thesis, published in 1963, he had put forth the concept of the Epiphytic Quotient, and demonstrated how this quotient varies with different vegetative associations in forests. More recently, his studies have concentrated on the long-range effects of atmospheric pollution in our cities.

Bryologists and lichenologists can identify hundreds of species of mosses and lichens in our regions. Professor