

# University harnesses hot air

by Garth Mihalcheon

As humble undergraduates in a vast and complex institution, we seldom have the opportunity to appreciate some of the more esoteric creations of our campus scientists. If you haven't been to the Mechanical Engineering building lately, you're probably not aware of our unique low-speed wind tunnel research facility.

Designed by Dr. David Wilson and Dr. David Marsden, the wind tunnel became operational in January of this year at a cost of \$100,000. It is expected to continue operation into the next century.

The "wind" for the two-storey tunnel is provided by a fan nine feet in diameter with a special 200 h.p. D.C. motor. The motor is capable of creating sufficient power to propel as much air as do 300 household furnace fans. The frictional heating from the air alone would be sufficient to heat five homes.

The airstream from the fan immediately passes through a large test chamber at speeds approaching 35 mph. The chamber is big enough to accommodate larger experiments such as a skier evaluating his racing stance.

After leaving the first chamber, the airstream is directed downwards through a series of vanes and screens that process it into a uniform flow before entering the smaller main test chamber one floor below. Here, research of a more critical nature is undertaken with wind velocities of one to ninety mph.

The uniqueness of this tunnel design derives from the great variability of the special D.C. motor: with wind speeds of one to ninety mph, controlled to within one-quarter per cent, the 100:1 speed ratio is considerably higher than the 2:1 ratio of more conventional tunnel designs.

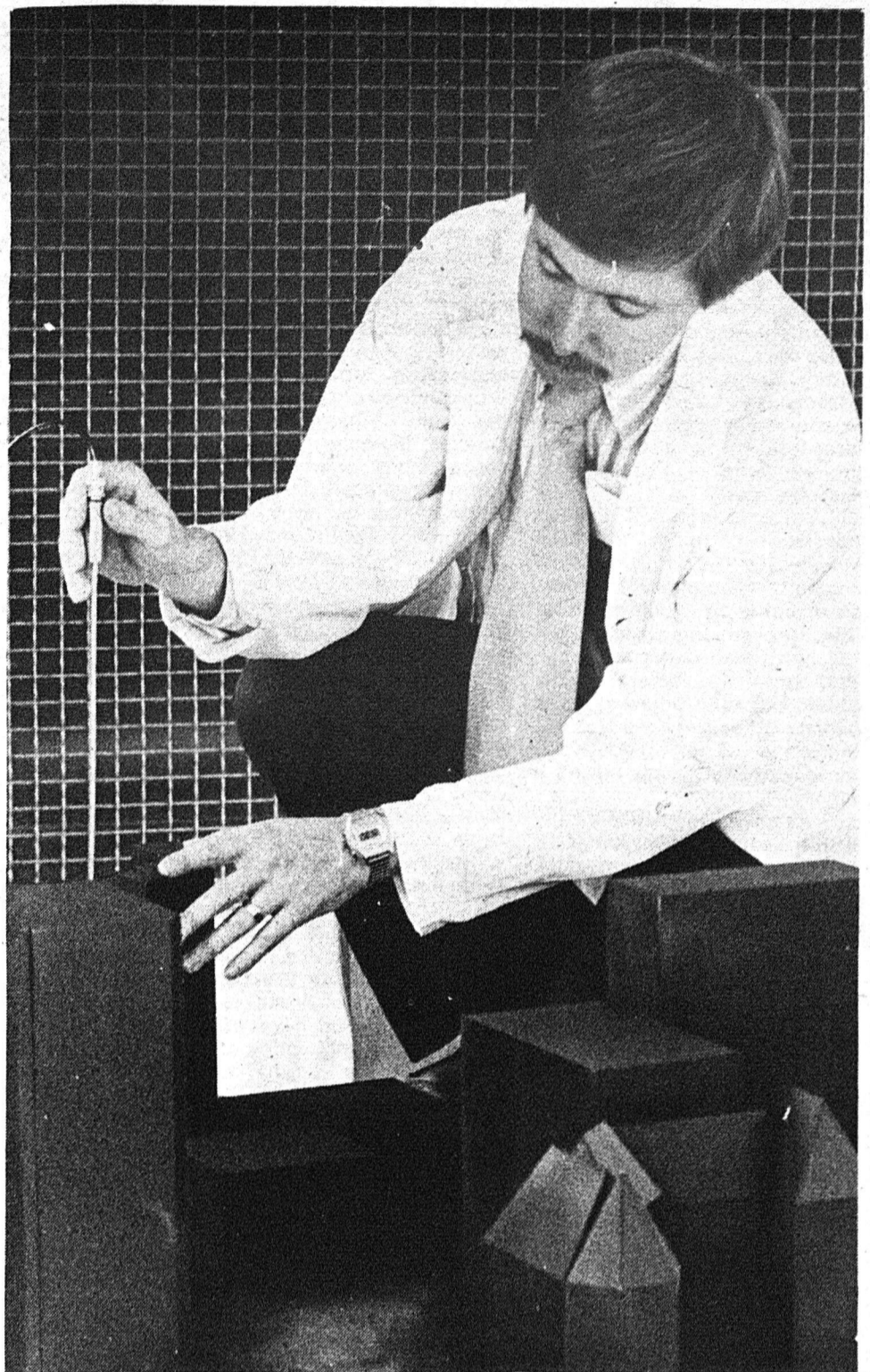
In addition to aerodynamic studies of aircraft wings and fuselages, delicate environmental and pollution research is made possible by the low-speed capabilities of the tunnel.

For example, helium gas is

released at some specific location and its relative concentrations are measured as the gas slowly passes along scale models of urban and rural landscapes; thus simulating actual environmental conditions affecting pollutant dispersal from an industrial stack.

Scale models are also utilized to explore wind problems inherent in large buildings. Models of downtown Edmonton have been subjected to various amounts of wind and the subsequent currents analyzed in terms of human comfort and safety. Anyone walking near MacCauley Plaza realizes how breezes can be intensified by the interactions between buildings and air currents.

According to Dr. Wilson, one of the main reasons for using wind tunnels is to counteract the fallibility of theoretical predictions of



In the main test chamber of the low-speed wind tunnel, Dr. David Wilson measures the intensity of small wind currents in a mock-up of downtown Edmonton. The sensitive probe provides localized measurements which have helped to evaluate wind problems specific to buildings in the MacCauley Plaza area.

environmental occurrences. Interestingly enough, theoretical studies predicted that a 300 ft. stack would be necessary for the university power plant; a far cry from the 170 ft. recommended by wind tunnel tests.

Dr. Wilson stressed the immediate social relevance of this

research in relation to problem of pollution control. He said that although society needs idealists who strive to reduce environmental pollution to zero levels, we need people who have the technology to find the elusive perfect compromise between economics and ecological reality.

## FSAC boycott

Prepared by: Mark Lathrop Kimball Cariou for the Corporate Investments Committee, FSAC

The FSAC Corporate Investments Committee has started to research the importation of South African goods, and we are also investigating products made by South African controlled firms operating in Canada. We are hoping to launch a boycott in the near future, but for the present here is a preliminary list of things not to buy. Please let us know of any possible additions or further information for this project.

1. Foods  
Gardenside Grapefruit Section (canned. Distributed by Empress Foods)  
Taste Tells Apricots (canned. Empress Foods)  
Outspan Oranges (seasonal. Marked on peel)  
Black Grapes (seasonal. They are usually from California or Chile, so do not buy them at all, unless they are UFW)  
Granny Smith Apples (these can

be from South Africa or from New Zealand so ask)

2. Cigarettes and Tobaccos  
Rothmans of Pall Mall Canada is the holding company here for the Rothmans world group. This includes Rothmans International which is either associated with or a subsidiary of Rembrandt Tobacco Corp.. South Africa.

Rothmans tobacco products in Canada include:  
Rothmans, Dunhill, Amstel, Craven 'A', Peter Stuyvesant,

3. Liquor  
Paarl. The only South African produced liquors on sale in Alberta are Paarl products, including:  
Paarl 5-Star Brandy  
Paarl Oloroso Cream Sherry (dessert wine)  
Paarl Muscatel (dessert wine)  
Paarl Pale Dry Sherry (dessert wine)

Paarl Cinsaur (red table wine)  
Paarl Roodeberg (red table wine)  
Paarl Late Vintage (white table wine)  
Paarl Riesling (white table wine)  
Paarl Petillant blanc and rose (bubbling wines)

Carling O'Keefe. Information from 1974 indicates that Carling O'Keefe is 50.1% owned by Rothmans of Canada and that Sir Francis de Guingand is a member of the board of directors. Carling O'Keefe products (or those of its subsidiaries) include the following beers:  
Alta 3.9 (no loss), Black Label, Bohemian Maid, Calgary Export Lager, Carlsberg, Cascade Pilsner, Golden West, Heidelberg, Old Vienna, Extra Old Stock.

Carling O'Keefe also controls the following domestic wine producers: Jordan Valley Wines, Villa Wines, Growers Wines, Chalet Wines.