

snow plow

the blade at an angle of 40° from the vertical. To obtain optimum power conditions this angle has to be reduced to 20° , and for maximum lateral cast, an angle 10° forward is required.

"To obtain a blade which will operate within this range, it is necessary to hook the discharge end of the blade forward," Mr. Henry explains.

"The difference in blade angle settings between the two optimum conditions can differ by as much as 35 degrees. Our Hooker provides a compromise between the two settings. It results from the company's decision to go with one unit rather than cover the full range of possibilities."

In the development of the Hooker design much use was made of the University of Waterloo's Department of Mechanical Engineering. Frink used facilities within the University's fluids laboratory as well as the aid of three faculty members.

"For us, a first step was to decide on the basic research studies which needed to be done before the manufacturer could tackle his problem," said Dr. G.F. Pearce of the Department.

Aiding in the project were Dr. F.M. Bragg and G.T. Csanady.

The latter's research took the form of theoretical analysis which helped in the understanding of the factors dictating power requirements and lateral cast. The former's main contribution came in analyzing some of the data from full-scale tests.

"We used the University's flow tank within the fluid lab to test plow models at various water speeds. We even built an addition to the flow channel through which movies could be taken to show what happened when the water hit the plow model," Mr. Henry said, adding that water was chosen as a test medium because it was felt that snow acts much like a fluid.

With the Hooker development completed, Mr. Henry, working with another engineer, Jan H. Verseef, and a student from Waterloo University, is continuing the IRAP project with an investigation of snow removal problems concerning two recently-designed prototypes. One is a high-speed plow, exclusively for airport use. It would move at 40 miles per hour and cast snow 80 to 90 feet. The second is a snowloader for mounting on trucks. □ Arthur Mantell

