

to a conclusion so successful it has become a company trademark.

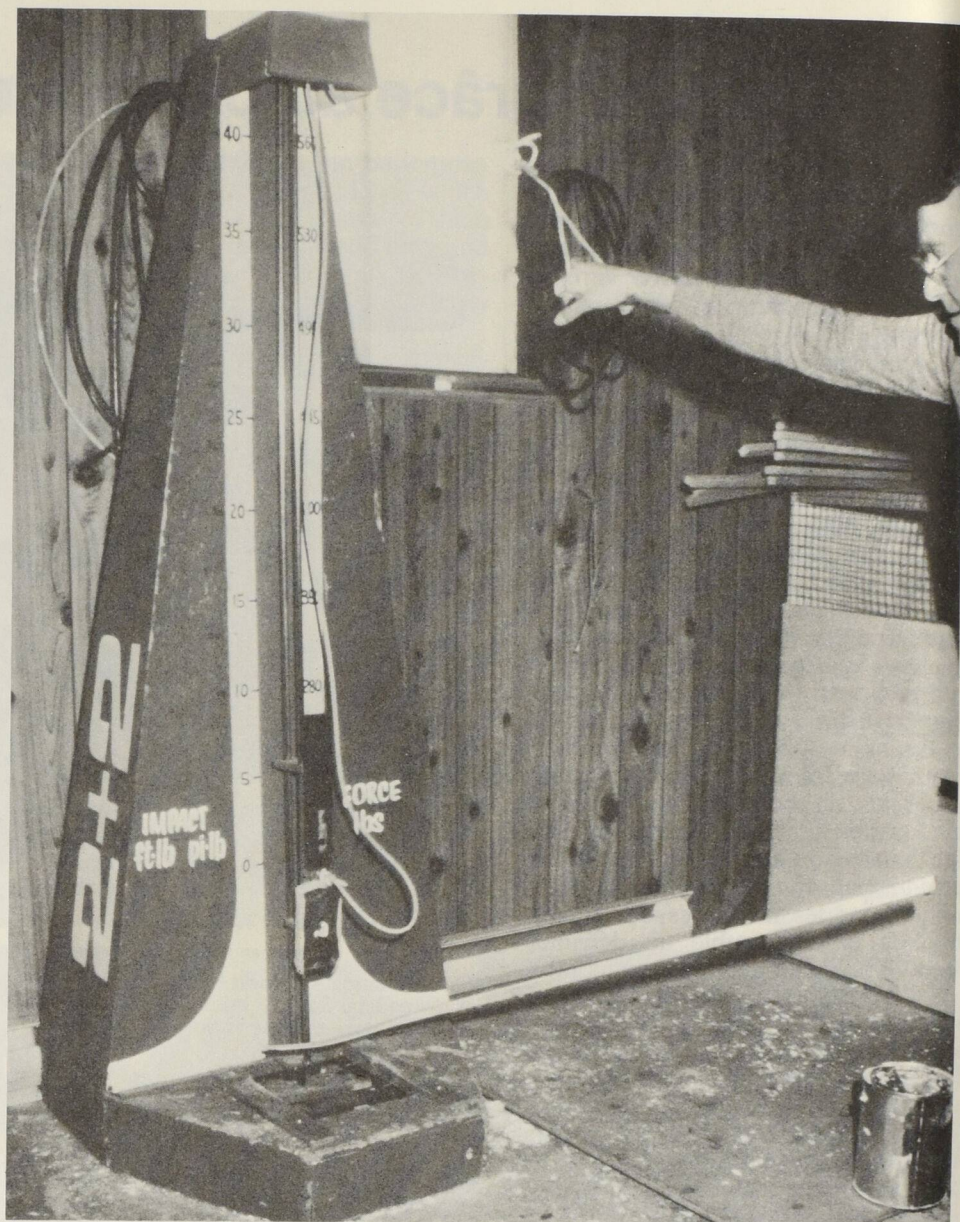
From this first step the research team turned to the problem of the stick handle and it is here that the issue of foreign plywood is of major concern. Those 41-ply Finnish handles combine strength with flexibility — characteristics demanded by professionals and amateurs alike. "Our aim was to combine fibreglass, plastic and epoxy to duplicate the character of wood," Tessier says. "And we have actually surpassed it by adding strength while keeping flexibility and weight."

The Drummondville group began by laminating glass to the handles — a pioneer move in the industry. Experiments with woods — including, at one point, 100 per cent incoming quality control — led to a truly successful model after a year's work. Not content with revolutionizing the manufacturing of hockey sticks, Marc Ruel viewed the spare, white length of the handle as another area for innovation. As a secondary development the company began to produce the first colored handles in the trade. Marc Ruel does not deny that "cosmetics enhanced sales", — but he notes that improved appearance was not achieved by sacrificing quality, rather the reverse.

With these innovations Léo Tessier's development team kept pace with a full range of manufacturing technology. Hand operations were reduced to a minimum. Where competitors used fibreglass tape to strengthen blades, they turned to yarn, and the team produced a machine to wrap it uniformly and quickly. A press for the lamination process was designed and built as was an oven for curing. In fact, the fabrication area now contains only one commercially available machine, a sander for shaping wood blades. Semi-automated methods have raised the level of output to 2,600 sticks per day — but sales have outstripped production capability.

Léo Tessier attributes success to his insistence on maintaining quality in the product — and the standard of excellence used is the best professional wood stick. Duplicating or surpassing the best wooden stick in synthetic materials is his goal.

How well they succeeded is, literally, in the hands of hockey players. The crowning achievement of this effort is the company's new stick with an all glass and plastic blade. When Canadian Hockey Industries Inc. first approached the IRAP office with a research proposal, an all synthetic stick idea was simply a concept. No prototype existed, and the manufacturing methods were bridges in the future to be crossed. Léo Tessier's design team



Stephen A. Haines, NRC/CNRC

**Testing the product. A weight is dropped on the blade of one of the all-plastic sticks designed by Canadian Hockey Industries Inc. to determine its impact strength. Strength and flexibility are major features of the new plastic sticks.**

**Le produit à l'essai. On laisse tomber un poids sur la lame de l'un des bâtons en plastique fabriqués par Les Industries du Hockey Canadien Inc. pour déterminer sa résistance au choc. La résistance et l'élasticité sont les principales caractéristiques de ces nouveaux bâtons.**

spent more than a year on blade design and manufacture. The result: a plastic core sandwiched between fibreglass layers. The blade is strong, lightweight and more elastic than wooden ones. Even more significant is the blade's thin cross section. An airborne puck is a goalie's nightmare and the synthetic blade allows the shooter to loft the puck higher when making a slap shot.

Professional acceptance of the new stick has been slow, but it is growing. Synthetic sticks have been tested in laboratories and arenas and have surpassed the designer's own expectations. "We expect younger players to use it first, then take it with them into

the professional ranks," he says. "We are world leaders in synthetic materials and we expect to stay there."

He is quick to praise the IRAP philosophy in contributing to his success. "It is the perfect government program," he stresses. "The combination of funding with the use of consultants, universities and government information services to develop the concept into a product is an ideal situation for a beginning company. We would not be where we are today without NRC and the IRAP program." A significant statement from a man whose concept helped generate \$5 million in annual sales in eight years. □

**Stephen A. Haines**