This FRDA Report contains the proceedings of three Forintek Canada Corp. seminars on sawmill technology held during June 1989 in Prince George, Williams Lake, and Kelowna. Included here are brief summaries of each of the technical presentations.

**MOISTURE SORTING**
by Sita Warren

Sita's 15-page report discusses the importance of sorting green lumber into moisture content (MC) classes before kiln drying in order to improve lumber grade, reduce drying time and energy costs, and increase kiln capacity. The results of studies at 4 mill sites (Finlay Forest Products - MacKenzie, The Pas Lumber - Prince George, Westar - Castlegar, Blue Ridge - Whitecourt, Alberta) are presented (including 10 bar graphs) and give important data on MC distribution.

**BENEFITS OF MOISTURE SORTING**
by Chris Fancy

This report focuses on the benefits of moisture sorting lumber and begins with an overview of the Westar Timber Ltd. system. Data on moisture content is included from Westar Timber's experience as well as some of Forintek's information. Eleven photographs showing various pieces of equipment are included along with descriptions of their use.

The report concludes with a discussion of the benefits of a moisture sorter.

**CAMERA SCANNERS FOR COMPUTER OPTIMIZED BUCKING SYSTEMS**
by D.R. Giles

Computer Optimized Bucking (COB) has been used to improve profitability by bucking the stems into the best combination of sawlogs. As a result of previous studies done by D.R. Giles and Steve Wang, 13 recommendations and requirements were identified for achieving maximum performance from COB log bucking. They are presented in this report along with a description of camera scanning technology, system operation, mill test procedures, preliminary field study results, and a summary.

**LUMBER INCISING**
by D.C. Walser

Canadian wood species, particularly spruce-pine-fir, require special incising due to their low permeability. Special processing is necessary to compete with southern pine which is very permeable and currently supplies the U.S. treated wood market.

Forintek Canada Corp. has developed a prototype lumber incising machine that, unlike those used in the past, is fast – at least 1000 ft/min – allowing it to be used in-line at a sawmill rather than at a treatment plant.

This short report is an interesting introduction to incising methods currently being used and under development.

Two additional papers deal with specific applications for incising:
- **INCISING FOR DRYING**
  by J.F.G. MacKay
- **INCISING/PRESERVATION**
  by Paul Morris

**TRAINING AND EDUCATION**
by J.F.G. MacKay

A new type of training package for kiln operators has been developed and is described in this report.

**CURVE SAWING, CANT OPTIMIZATION, AND LOG ROTATION**
by S.J. Wang

The results of the lumber recovery and lumber size studies conducted jointly by Grand Cache Forest Products and Forintek at Grande Cache Forest Products' sawmill are reported. It was found that curve sawing with gang edgers increased lumber recovery by as much as 16 percent for logs with 4 inch diameter tops.

The results of a sawmill simulation study that compared the performance of three ways of breaking down a cant tradi-
tional manual linebar edging, computer optimized edging, and curve sawing) are covered. The study showed that curve sawing and cant optimization produce the highest lumber and value recoveries. In addition, the impact of log rotation on the performance of the three cant breakdown methods is reviewed.

Wang concludes that log rotation plays an extremely important role in curve sawing. He recommends that Canadian mills sawing a substantial quantity of small, sweepy logs, should consider implementing curve sawing using spacially designed infeed systems.

CURVE SAWING
by John Hards

John provides an interesting history of the Grande Cache sawmill. He gives a detailed description of curve sawing and the improvements which have been made to the system.

TESTING A NEW CIRCULAR SAW GUIDE SYSTEM IN A LARGE PRODUCTION SAWMILL
by E. Kirbach

Improved guiding has been the most important development in substantially improving the cutting performance of circular saws. In this paper, Kirbach gives an overview of a new guide system developed at Forintek Canada Corp.

The guide systems currently being used in Canadian sawmills are reviewed. The results of three test runs using Forintek's Flexo guide system are discussed in detail. Although the results are impressive, recommendations are made for some additional tests. The advantages of the Flexo system include: kerf reduction of at least 0.020 which translates into a potential increase in lumber yield of 2 percent; international market enhancement through the elimination of mismatch resulting from double arbor cut lumber (double arbor cutting is replaced with single arbor cutting); reduced saw costs and saw maintenance costs by reducing the number of saws required by 50 percent.

A SAW CONTROL SYSTEM
by Sita Warren

Outlined in this brief report are two problems encountered in setting up a sensor for monitoring sawing deviations. A description of a new sensor holder designed by Forintek is being tested to eradicate these problems.

Copies of the 150-page report Advances in Sawmill Technology, FRDA Report No. 102, edited by G.R. Middleton, are available while supplies last from:

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Pacific Forestry Centre
506 West Burnside Rd.
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Please refer to FRDA Report No. 102 when ordering.