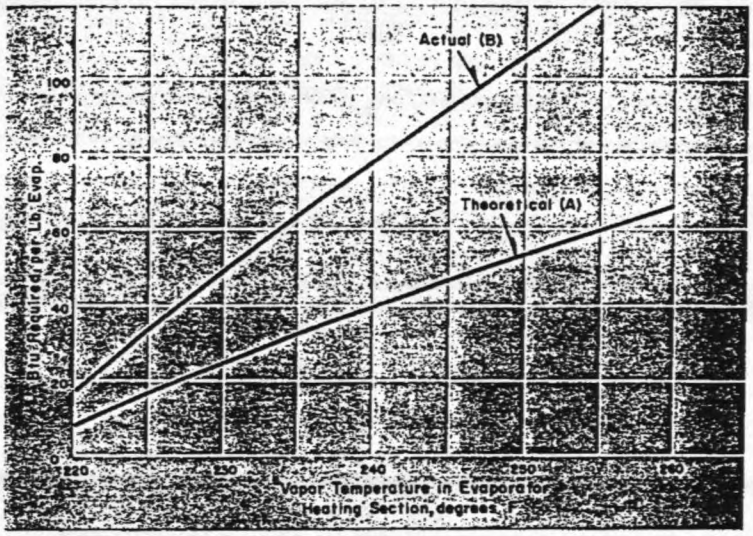

Fig. 1. Energy required by turbine serving evaporator installation. Curve A is based on theoretical figures, while Curve B is based on conventional compressor and turbine designs.

heat energy available in Btu per pound of steam when expanded between two pressure levels. By dividing the heat input required, Curve B, Fig. 1, by the heat available per pound of steam from Fig. 2, the total pounds of steam required per pound of evaporation can be determined. To determine the pounds of steam required for a specified evaporator capacity the following formula can be used:

$$\text{Pounds of steam required per hour} = \frac{\text{Btu input} \times \text{lb per hr evaporation}}{\text{Energy available in Btu}}$$

Engineering studies made to date indicate that the heat balance requirements of pulp and paper mills vary widely, depending upon existing plant equipment and future design plans. The turbine- or motor-driven compressor arrangement offers many possibilities for solving the evaporator requirements of the mill.

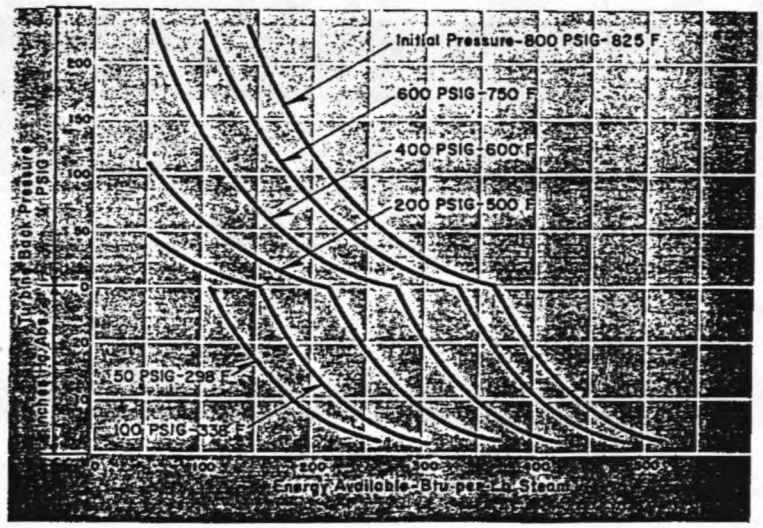

Fig. 2. Curves show heat energy availabl in Btu per pound of steam when expanded between two pressure levels.

Note: The evaporator plant of Lignos Chemicals, Ltd. was designed by the forme E. B. Badger & Son Company, now know as the Badger Division of Stone & Webste Engineering Corporation of Boston, Mass For additional technical data on the instal lation and process, the reader is referred t the following papers:

Craig, D., Elgee, H., and Russell, J. K., TAPPI 38, No. 2 69-74 (1955).

Kleinschmidt, R. V. and Bowen, E. C. Paper presented at Tenth Engineering Conference TAPPI, November 8, 1955 at Houston, Texas.

Coldwell, Frank H., Paper presented at Tenth Engineering Conference TAPPI, November 9, 1955, at Houston, Texas.