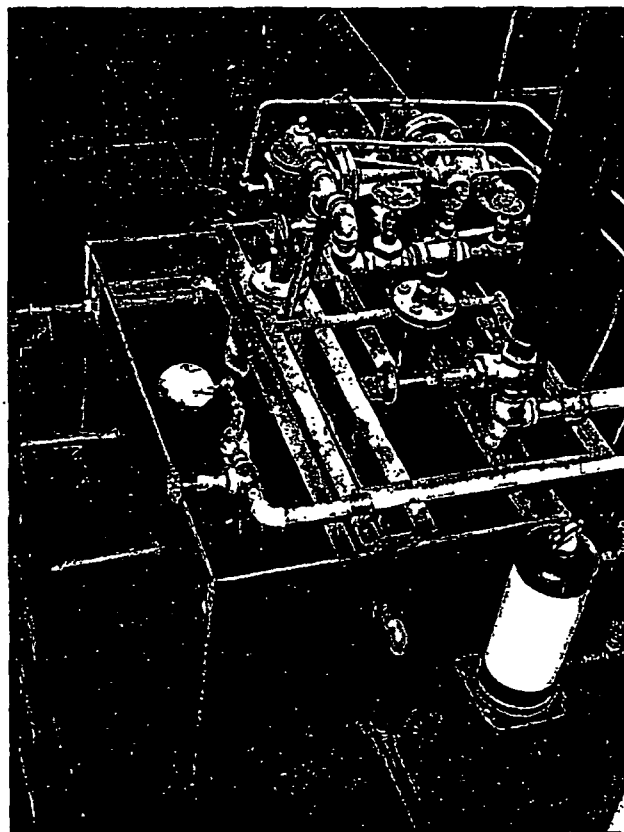


● Elliott steam jet ejectors, by virtue of their ability to attain and maintain high vacuum, or low absolute pressures, economically, are often used in new processes involving the use of vacuum. A recent application is in connection with the impregnation of wood with synthetic resin. This is a new and exciting development in the lumber industry. Wood treated with synthetic resins and heat-dried under pressure acquires a smooth, highly polished surface without sanding or polishing.

ejector vacuum used in Lumber Impregnation



A dye may be added at the time of impregnation, giving permanent color without painting or staining. This makes possible a wide range of decorative effects.

Bruce E. Anderson, vice-president of The Gavan Company, Inc., and a charter member of Forest Products Research Society, recently made a report on this development before the American Wood Preserving Association at Portland, Ore. Some of the points brought out in his report are briefly listed here. Mr. Anderson started his work in 1944 as a member of the staff of the engineering experimental station of the Georgia School of Technology. Upon completion of his work on the original pilot plant, he joined The Gavan Company which is devoted to the development, manufacture, and sale of plastic impregnated wood.

In the first small pilot plant, fundamental principles were established such as optimum pressure, temperature, vacuum, and timing. Presteam of the wood, for instance, was ruled out, and it was

found that the pH of the impregnating urea-dimethylolurea mixture was most important.

It was definitely found that a vacuum of less than 1 in. mercury absolute was preferable. There seems to be a direct relationship between the degree of vacuum pulled on the wood in the treating chamber and the rapidity with which this wood is treated. Vacuum in the range of 2 in. to 3 in. absolute is relatively unsatisfactory to a remarkable extent as compared with vacuum ranges under 1 in. absolute.

The first small pilot plant used a small mechanical vacuum pump, but the second plant built in 1945 used the Elliott ejector illustrated. This plant was also provided with complete mechanical handling of fluids throughout and a battery of mixing tanks.

It was found that the process was actually one involving chemical change, rather than the simple mechanical impregnation of a liquid into the wood, and the removal of water from the wood.

Conclusions reached from Mr. Anderson's experiments have indicated the possibilities and limita-