New Weyerhauser Paper Machine Heads List Of State Expansion Projects

PLYMOUTH — Weyerhaeuser, "The Tree Grower Company", sank its roots even deeper into North Carolina's soil with the dedication here Friday of the world's fastest and largest fine paper machine.

It is the first ever designed specifically to use up to 30 per cent sawdust as a raw material and will be operated by the Plymouth fiber group. NC-5 is the showpiece of a host of expansion and modernization projects throughout the state.

The investment in North Carolina is what "Business Week" magazine termed part of a "capital spending program such as the industry has never seen before."

In addition to the construction of NC-5, expansion and modernization projects at the Plymouth mill complex included:

— modernization of two older paper machines,

— a secondary fiber recycling facility,

— a new chemical recovery boiler system that replaces three older boilers,

— a rebuild of an existing boiler,

— a new pulp mill and bleach plant,

— a new hogged fuel boiler that will utilize bark and other fiber waste,

— two new power turbines, and

— an upgrading of all utility systems which includes waste treatment facilities, an evaporator, a lime kiln and a causticizing system.

Also within the company's North Carolina region, the expansion included the acquisition and modernization of two fiberboard facilities, one at Moncure and the other at Doswell, Va.; the expansion of a plywood plant at Jacksonville; an efficiency project at the pulp mill in New Bern; a stud mill; a new region headquarters building at New Bern; and three secondary fiber resource recovery centers, one at Charlotte, one at Raleigh and another at Baltimore, Md.

"Weyerhaeuser pioneered what has come to be known as High Yield Forestry," said Keith Lamb, vice president for the North Carolina region. "And with the new NC-5 paper machine, we now manifest our commitment to high yield production as well."

Scientific tree farming by Weyerhaeuser has increased the crop by some 50 per cent per acre during the past three decades. Now, NC-5 can make use of more of this increased crop. Nearly a third of the raw material used by NC-5 is planned to be sawdust — a former waste product that in the past has, at best, been used for fuel.

Weyerhaeuser came to the state in 1957, via purchase of the Kieckhefer Container Corp. in Plymouth. Since that time the company has acquired some 660,000 acres of timberland. With seedlings from its North Carolina nurseries, it has already reforested nearly a fifth of its holdings.

"The fact that — exclusive of buying forest lands — we have invested more that $500-million in North Carolina during the past two decades surely indicates our commitment," remarked Lamb.

High yield production begins in the chip yard at Plymouth. There, to feed NC-5, the company has built a unique screening system filtering dust from sawdust so the latter can provide 30 per cent of the raw material for new paper.

Use of sawdust means that to produce its 500 tons of quality tablet, printing and business papers each day, NC-5 requires almost a third fewer trees than do less advanced machines.

The bleach plant is equally considerate of natural resources: its innovative design needs about half the energy and water normally necessary to make a pound of bleach pulp.

Key to the recovery area is a boiler — one of the three largest in the nation — which minimizes both particultes and odor in the air. Plant water is so effectively recycled that 10-million gallons are re-used each day — 10-million gallons that don't have to be drawn from the nearby Roanoke River.

The new hogged fuel boiler is designed to utilize waste fuel. Despite Plymouth's 25 per cent increase in production, fuel oil consumption will remain at approximately the previous level. That means, in ratio to output, a substantial savings of oil.

Plymouth's secondary fiber facility is designed to produce 300 tons of pulp from recycled waste fiber, thus freeing virgin fiber for higher value end products.

The Plymouth expansion program is one of the largest projects undertaken by any paper company in recent years.

For the NC-5 project alone, more than 1,500 construction workers were needed, to put 2,800 steel pilings in the ground, lay 1.2-million feet of wire and fit 1,680 tons of pipe. NC-5 represented about one-sixth of the total expansion project. The Beloit Corp. in Wisconsin assembled much of NC-5 — pre-fitting all its components — then disassembled the massive 300-foot long machine into modules for shipment to Plymouth and then supervised the reassembly of it at the site.

Four eight-man crews destined to run NC-5 were trained during construction, sometimes working with a ⅜ inch-per-foot scale model of NC-5.

"The model allowed us to locate possible trouble spots before the machine was built and we made modifications to NC-5 right there on the site," Lamb said. "In reality, the planning and installation of NC-5 was like having a half-dozen different people all working on the same jig-saw puzzle."

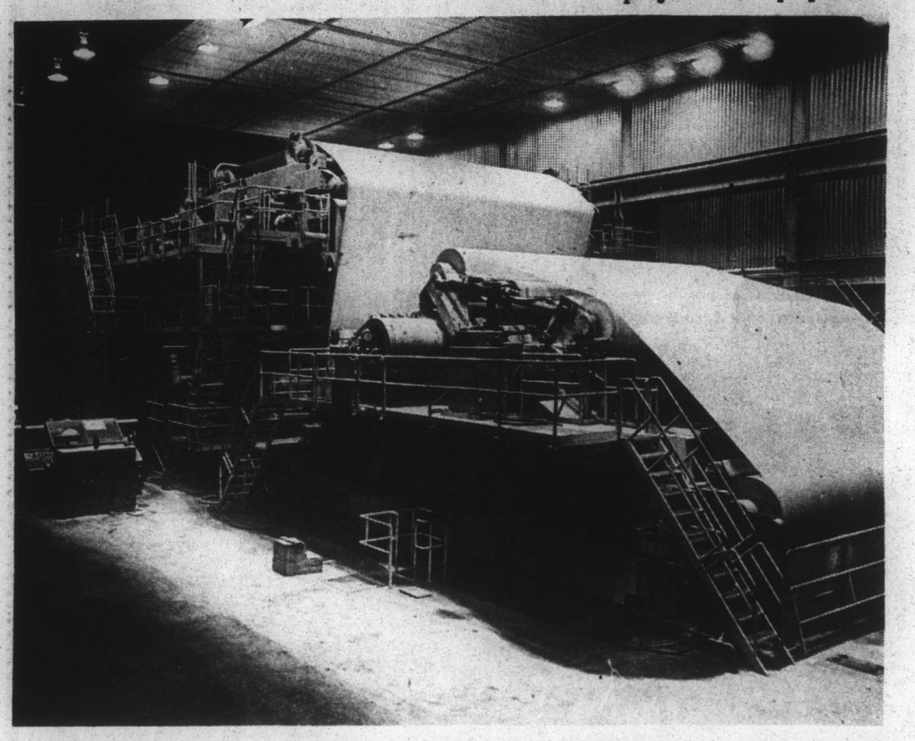
Did everything fit?

"The fact that we produced our first roll of paper in mid-December — 2-½ months ahead of schedule — really tells the story," remarked Lamb.

While Beloit was building the machine, and Plymouth was preparing for it, planners were making sure NC-5 would have adequate raw materials to operate it; and marketing people were lining up customers for the new product.

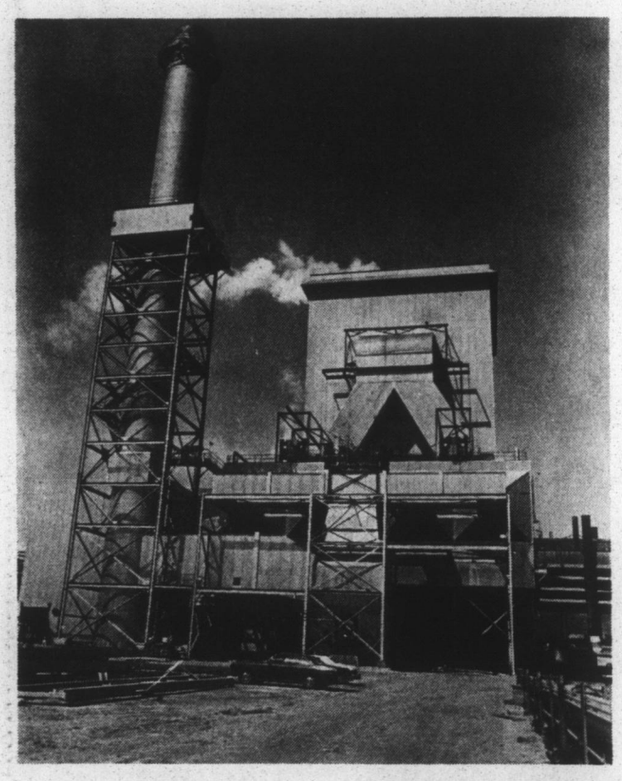
"We know the market is there," explains Lamb. "It was simply a matter of familiarizing potential customers with what we were doing, and with what we intended to provide."

"North Carolina," he said, "is strategically located to serve the massive Eastern market, as well as much of the rest of the nation."

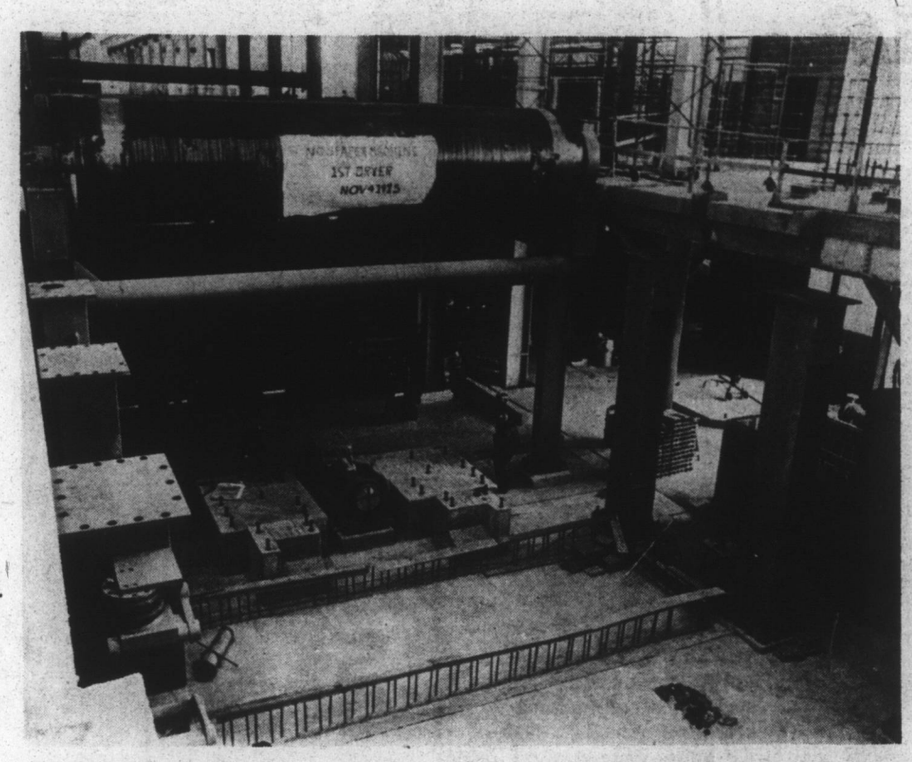


BIG MACHINE — The forming, pressing and drying sections of NC-5 fine paper machine, shown here, stretch the length of a football field and produce at a rate of up to 500 tons of paper per day.

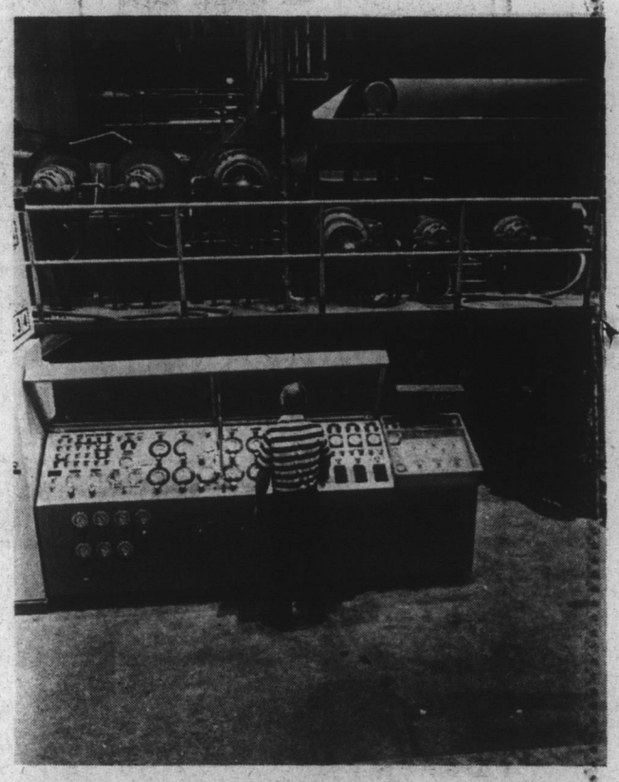
GETTING STARTED — Keith L. Lamb, Weyerhaeuser's North Carolina Region vice president, center, turns over the first shovelful of earth during ground breaking ceremonies for the expansion project on March 15, 1974. Sam Liles, president of Tidewater Construction Co.., left, major contractor for the project, and George Wrigley, chairman of J.E. Sirrine Co., consulting engineers, join in the ceremony.



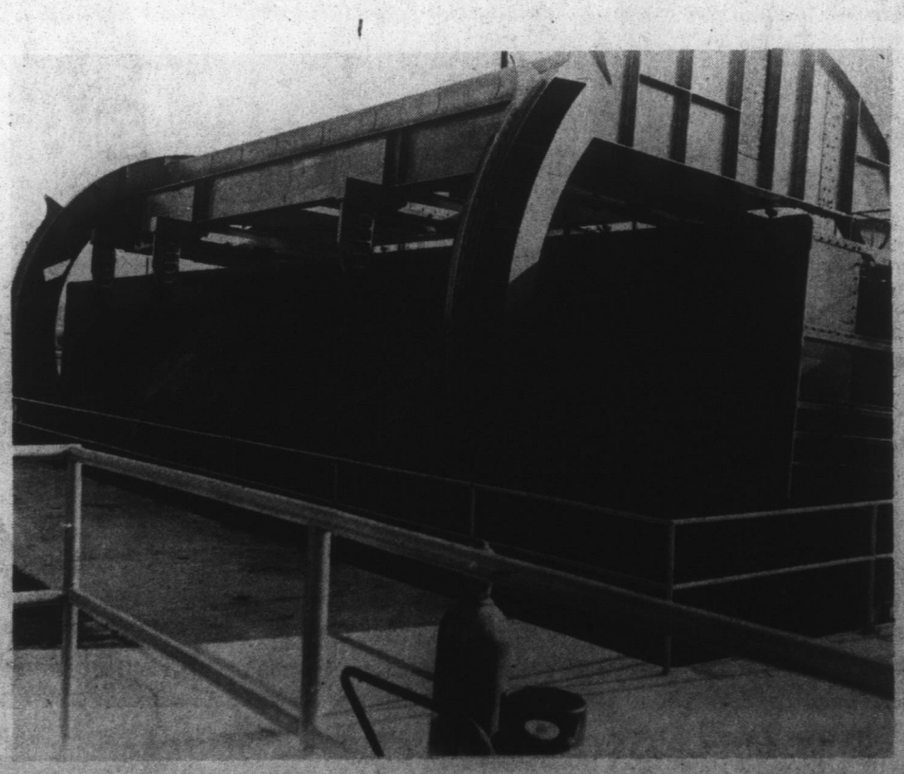
NEW BOILER — This low-odor chemical recovery boiler, located at the Plymouth facility, is one of the three largest in use in the country, and replaced three older boilers.



ROLLER INSTALLED — NC-5's first dryer roll, shown here, was installed on November 4, 1975. These rolls—there are 42 of them on NC-5 — are six feet in diameter and weigh more than 20 tons each. As a contrast to their great size, they had to be installed within tolerances of one ten-thousandths of an inch.



NEW CONCEPT — NC-5's gate roll size press permits the application of surface size (starch) to both sides of the paper simultaneously at three times higher solids, resulting in savings of as much as 30,000 lbs. of steam per hour.



MOVING TOWARD PAPER — Railcar dumper in new raw materials handling yard dumps carload of chips onto underground conveyor in one brief roll and then rights the railcar in approximately 90 seconds.

NEW PULP MILL — The new pulp mill and dynamic bleaching plant: the bleach plant is the second of its kind in the world. It uses half the water and half the energy of previous systems.