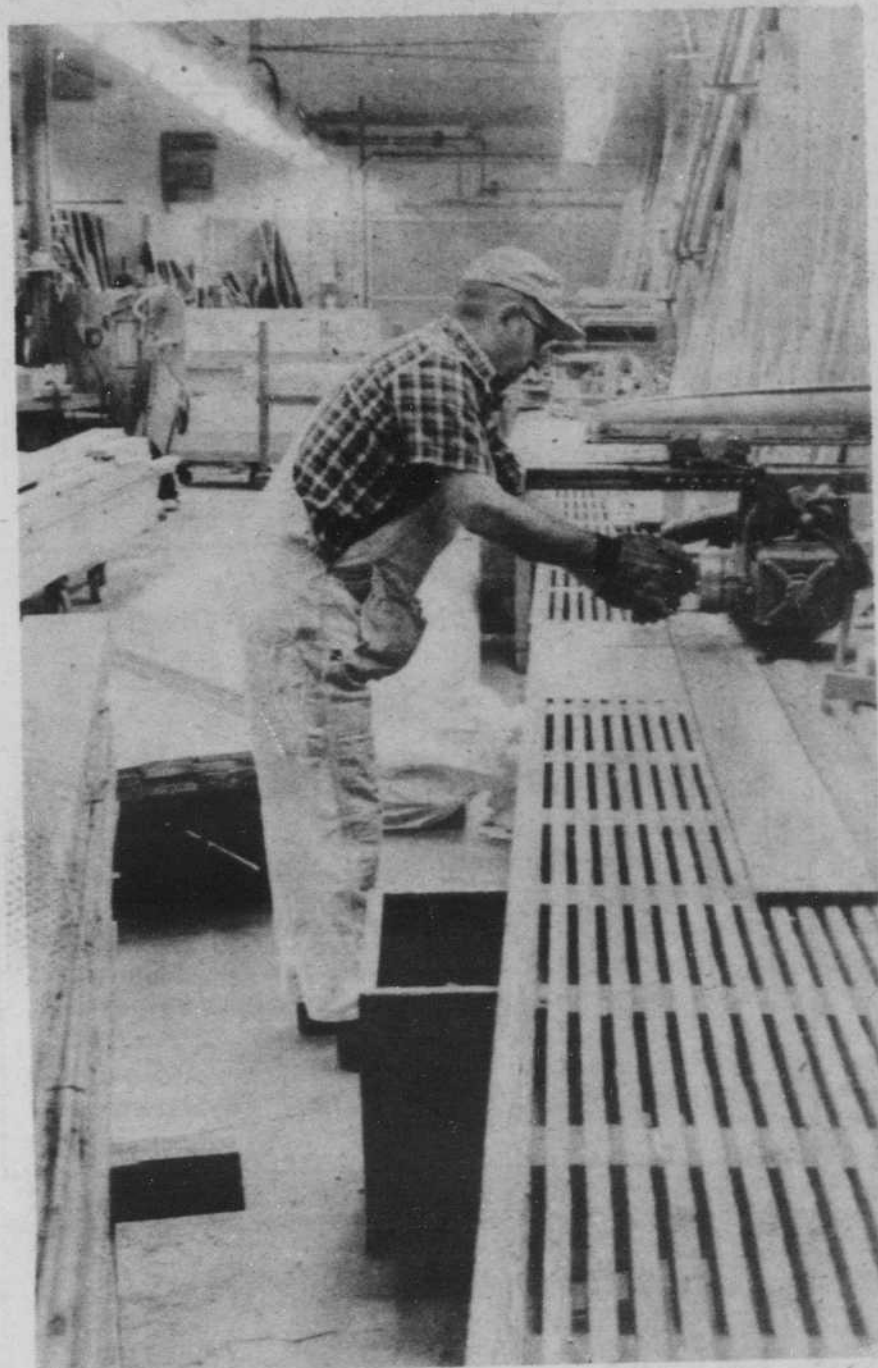


Steam heat Purveyor of campus warmth, light



Skilled carpenters cut one-by-sixes to make unique garbage containers. The plant's carpentry shop is capable of doing much more than it now is doing, Babcock says.

By CATHERINE SIEGNER
Of the Emerald

The University Physical Plant across Franklin Boulevard does more than maintain the campus' external appearance. Without the plant, there would be no heat to keep students warm in the winter, air conditioning to keep them cool in the summer or electricity to help them peruse academic tomes at the library well into the night.

The clouds of grey-white smoke pouring out of the plant's smokestacks mean bits of wood waste from nearby lumber mills are burning at a steady rate— heating water for steam.

The waste wood, known as "hog fuel," is delivered to the plant by dumper-trucks, and costs \$7 per 200 cubic feet unit.

Plant Director Harold Babcock says the University buys approximately 60,000 units of hog fuel each year, and that 12 to 15 trucks per day line up to deliver it in the winter.

After delivery, the fuel is mixed and packed to avoid spontaneous combustion—a natural tendency for hog fuel.

"It's warm inside a pile of hog fuel," Babcock says. "Sometimes there are fires deep down, so the men go to where they think it is and pack dry ice under the surface. It kills it real fast."

Hog fuel is much less expensive to burn than almost any other kind. The plant discovered that a couple of years ago, Babcock explains, when a shaft broke on a conveyor belt that brings fuel up into the boilers.

"We spent \$5,000 in just five days burning oil," he says. "Hog fuel costs between one-fifth and one-seventh as much."

The plant does have a large reserve supply of heating oil in case of emergency, but won't use it unless it has to.

Undereath the mountain of wood bits, a large steel chain is constantly dragging slowly through the fuel, bringing it onto the conveyor belt and into the power plant to be burned.

As the fuel moves up the belt, pieces too large for the plant's system are dropped into a machine known as the "hog" and grinds them up before moving on with the rest. Before Babcock was at the plant, these pieces were dumped.

A television camera silently views the conveyor belt. Men in the control center of the power plant building watch carefully to catch any problem in the process.

"We can't close down," Babcock says. "If something goes wrong, people run wild making a correction."

Inside the power plant, the conveyor drops fuel into hoppers over suspension boilers. It's more than 2,000 degrees inside the boilers, and workers insulate the tops of the fuel boxes.

Babcock believes in innovation and conservation. He recently had an aluminum scrubber put on the main smokestack to remove excess ash. The scrubber is now hooked up to two of the plant's four boilers.

"It's a new invention from Palo Alto," he says. "As the smoke comes out, a jacket of pea-sized gravel inside sucks it through. The gravel takes the 'gunk' out and it sinks down. The gravel goes one way, and the gunk goes another. Another 12 hours, the gravel has moved back up and it starts all over."

Babcock has also installed a heat recovery unit to take advantage of waste heat formerly lost out the stacks.

"The fumes had gone out the top at 450 degrees," he says. "Now we bring the heat back through. After the steam is sent through the campus, the water is condensed. Now we send this water back through the boilers over the boiling temperature. All this saves money."

Babcock says the heat recovery unit cost \$140,000 and should save \$50,000 per year.

City water is piped into the boilers to be heated for steam. The plant also pumps some water from Judkins Point on the Willamette River and back into the Millrace.

"There wouldn't be any Millrace if there wasn't any plant," Babcock says. The Millrace water is not hot, and when the plant releases water into it, the temperature is increased by only two degrees, he says.

Inside the control center, employees constantly watch dials and graphs to make sure everything is running according to plan. One wavering graph with blue borders records smokestack effluence.

"The Department of Environmental Quality sends us notices of violation," Babcock explains. "We can have three minutes of violation, but that's an eternity."

Other graphs keep track of steam pressure and the fuel-to-air ratio inside the boilers.

In another part of the power plant, turbines run by steam produce electricity for the University. The Physical Plant produces 60 percent of the campus' power needs and receives the other 40 percent from the Eugene Water & Electric Board.

The plant produces power for slightly more than it would cost directly from federal dams.

The steam and electricity is piped to the University through a series of tunnels that run underneath Franklin Boulevard to various parts of the campus.

There are entrances to these tunnels in some University buildings and in ventilator shafts, but Babcock prefers that the adventurous stay out of the tunnels because they are dangerous.

"It's like being in a mine shaft," he says. "You lose your sense of balance and if you fall against hot steam pipes, you'll be badly burned."

The tunnels are uncomfortably hot, Babcock adds. "The temperature down there is up to 120 degrees because the pipes are poorly insulated."

Babcock wants to introduce even more innovations at the Physical Plant. He would like to start burning refuse derived fuel (RDF), made from garbage at the plant. Glass, plastic and metal are removed, and the rest is processed so no odor remains.

"We have agreed with the county to an experiment in burning it," Babcock says. "We think it will burn just like hog fuel."

He would eventually like to pipe RDF directly from the county's recovery station in Glenwood to the plant.

Babcock says another possibility is to find a use for the ash residue from burning hog fuel. The plant produces two tons of the black, dusty-looking material each day, none of which can be dumped in landfills because spontaneous combustion will start fires, he says.

"We know there's a use for it," he explains. "There's not enough carbon in it to send back through a gain. Cattle like to eat the stuff, so it may wind up as cattle feed or as a farm additive—or it could be mixed into blocks for salt."

The ash residue is now dumped on the plant's own property and buried.

With all these challenges, does Babcock like his job?

"I love it," he says. "I wouldn't be here if I didn't. It's a headache at times, but I enjoy it."

... and they even feed the ducks

By JANIE NAFSINGER
Of the Emerald

No one seems to pay much attention to the group of buildings behind the Millrace across Franklin Boulevard. For most, the main attractions on that side of the street are the ducks and geese that flock to the pond's warm waters.

But the building complex also houses the University Physical Plant, the department that keeps the campus running.

"It's like a small city here," says Plant Director Harold Babcock.

The plant generates 60 percent of the University's electricity, as well as heat and air conditioning. Additionally its crews also paint buildings, replace electrical wiring, mend broken pipes, upholster furniture and service University vehicles. If something needs repair, the Physical Plant has someone to do it.

Its employees even feed the ducks.

The plant at one time was closer to campus, Babcock says. It was originally located in Lawrence Hall, but a fire in the 1940s destroyed it and the plant was moved to its present site.

It has 250 employees— including 20 women, Babcock estimates— most of whom are members of the Oregon State Employees' Association union. The plant also has a few students as part-time custodians.

Babcock, who came here seven years ago and holds a master's degree in education, is happy to guide interested visitors through the plant's various shops.

The Physical Plant is fairly quiet inside, and Babcock explains most workers are working at a variety of jobs throughout the campus. These work-

ers normally include 15 or 20 painters and 75 custodians.

In the cabinet shop, carpenters are building covered wooden garbage cans.

"Garbage is a big concern with us," Babcock says.

At one time, the cabinet shop was a much larger operation. All of the dormitory furniture was made here, Babcock says. But due to union contracts and other labor constraints, the staff has dwindled from more than a dozen down to only three or four.

"These are very qualified individuals," Babcock says of the cabinet-makers. "But we're not allowed to do what we could do here."

A stack of chairs and couches are piled up outside the shop, waiting for repair. "We just lost our upholsterer," Babcock explains.

The tour includes an electronics shop, a sheet metal shop and a "hardware store" that houses "everything we use for maintenance," Babcock says, nodding toward pipe, nails, linoleum, lavatory supplies, corkboard and other supplies.

In the machine shop a barrel holds the remains of broken pipes and radiators— casualties of the "big freeze" that gripped Eugene during the Christmas break.

"That sure kept us busy," Babcock says as he sorts through the rusted, cracked radiator parts. The crews will be working on the radiators and plumbing for some time yet, he adds.

The plant's 100 pieces of "rolling stock"— trucks and other vehicles— are kept in shape in the mobile equipment shop, which also services vehicles for the athletic department and the EMU.

The maintenance crews are never without

work, Babcock says. In fact, it's hard to keep up with needed repairs, he admits.

"There are a lot of old, run-down buildings around here," Babcock says. "It's embarrassing to see the campus run down the way it is... there are buildings that haven't been painted in 20 years."

The main problem, he says, is money. People aren't interested in spending money on maintenance. "A brand-new building is more glamorous than the idea of having to repair an old one."

Manpower is also a problem. The physical plant has only three electricians and three plumbers paid for by its budget, although it can hire up to nine others for special jobs.

"Can you imagine taking care of a whole campus with only three electricians?" Babcock asks. "We're not doing the job we could be doing."

Babcock says the problem at the University is no worse than anywhere else in the country and that the situation is improving. "People are becoming more aware of the importance of maintenance."

The University's campus is seeing improvement all the time. A few months ago, the Collier House (previously the Faculty Club) received a new coat of paint— thanks to supplies donated by the Collier family. Hendricks and Susan Campbell Halls, once University dormitories, are currently undergoing "safety remodeling."

Babcock says the University administration has asked the Oregon Legislature to provide a percentage of the school's capitalized value for maintenance. "If the Legislature okays the money, then we can keep it up (the campus) the way it should be kept up."

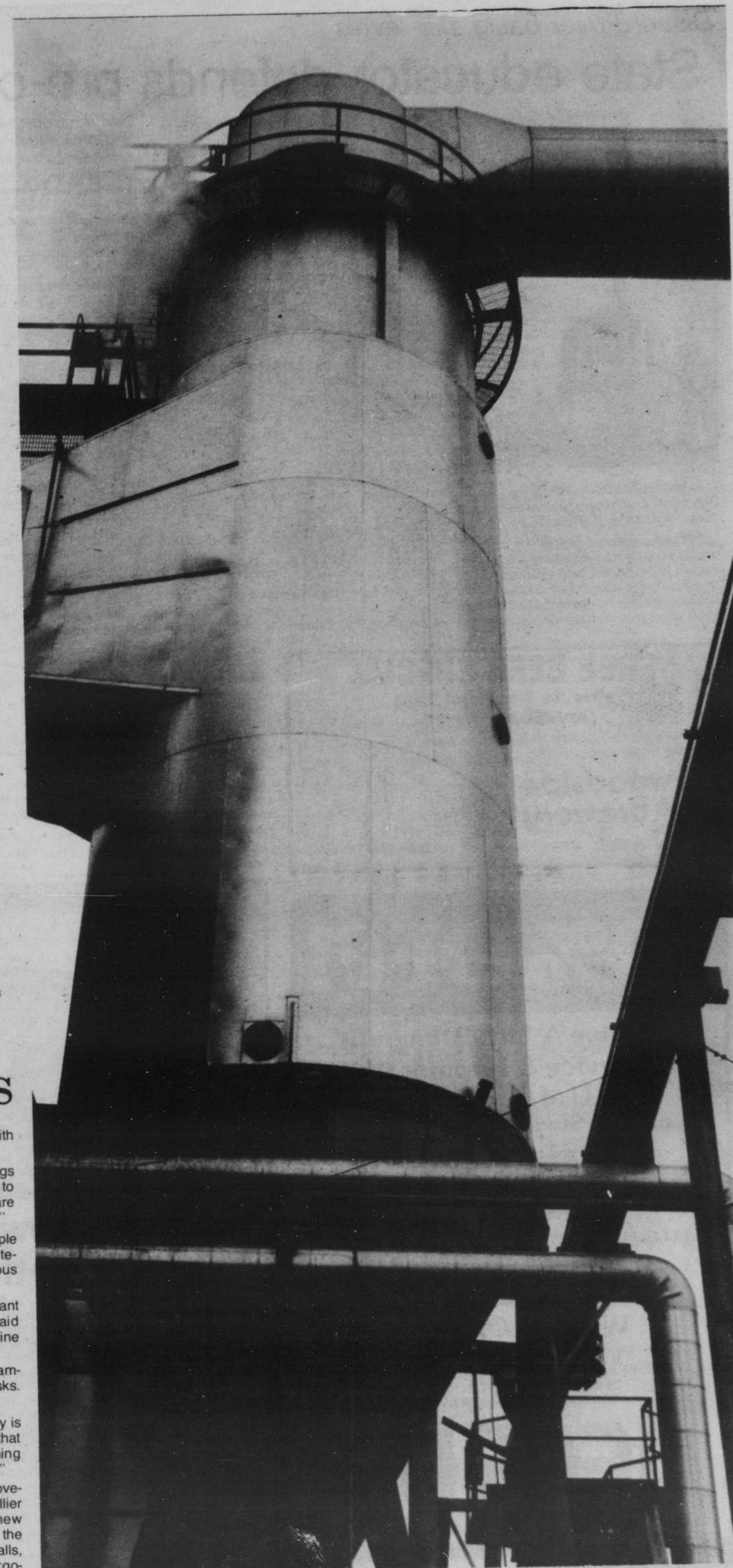
Oregon Daily Emerald

Tuesday, January 30, 1979



Photos by
Keith Allen

Harold Babcock, director of the University Physical Plant for the past seven years, has increased innovation and conservation at the plant. His ideas have saved money for the campus, too. "It's like a small city here," Babcock says.



Ash residue is removed from smoke by this new aluminum scrubber the Physical Plant recently installed. It filters smoke from burning hog fuel through gravel to remove excess particles. The gravel is then recycled and starts the whole process again. Babcock wants to find a new use for the residue. He says cattle like to eat the black, dusty-looking material, so it could be used in feed or salt blocks. The plant produces two tons of ash residue every day.