

EXHIBITIONS

CONTINUING SHOWS

Somersel Mall—Mixed-media fine arts exhibit and sale sponsored by the Creative Council runs through Aug. 12. The exhibit juried by Allen and Carol Rubiner, includes paintings, graphics, fiber, pottery, glass and sculpture by the council's member artists. A pen and ink portrait artist will demonstrate Aug. 11 and 12. The show will be on display during regular mall hours. Big Beaver and Cooldge.

Oakland Community College—Royal Oak campus—An art show by the Arts and Humanities Club of the college will be exhibited in Building B, Washington and Smith in Royal Oak. Many of the exhibitors are from the Birmingham area. The show runs through Aug. 15. Regular hours are Monday-Thursday 9 a.m. to 7 p.m. and Fridays 9 a.m. to 5 p.m. No charge.

Yaw Gallery—"The Art of the Wild Men of Borneo" will be on display through Sept. 15. Hours are 11 a.m. to 5:30 p.m. Tuesday-Saturday, 530 N. Woodward.

Artisans Gallery—"The Other World of David Herman" is a series of oils, pen and ink drawings by the artist. The gallery is at 19866 W. Ten Mile, Southfield.

Ed Gray Gallery—Tapestries by Robert Treiman, glass by Fred Warren, carved alabaster by local sculptor

Hamilton Aldridge, and paintings, lithos and pottery are on display at the Birmingham gallery, 290 N. Woodward. Summer hours in effect: open Wednesday-Saturday, 11 a.m. to 5 p.m.

The Ed Gray Gallery in Elk Rapids Mich., on U.S. 31, ten miles north of Traverse City, offers both studio and courtyard settings for art work. Open 10 a.m. to 9 p.m., seven days a week.

Tray Art Gallery—Summer exhibition of gallery artists features a selection of Japanese woodblock prints as well as works by American, European and Michigan artists and introducing silk screen prints by New York artist Susan Meisel. Hours are Tuesday-Saturday, 11 a.m. to 5 p.m. Closed Saturday during August, 7:55 W. Big Beaver in the Top of Troy concourse, just west of I-75.

The Artist's Guild—A retrospective of paintings and sculpture samplings shown in the past year will be on display at the gallery, Franklin Village, through Sept. 15. Summer hours are: Tuesday-Thursday and Friday, 10 a.m. to 4 p.m. and Wednesday, 11 a.m. to 6 p.m.

Gallery 22—Recent acquisitions including a display of newly arrived paintings, graphics, ceramics, weavings and sculpture includes some familiar names. Among them are Friedlaender, Appel, Coignard, Bailly, Boulanger, Dousseau,

Alvar, Carcan, Fireman and Maxwell. Hours are Tuesday, Wednesday and Friday, 10 a.m. to 6 p.m., Thursday, 10 a.m. to 9 p.m. and Saturday, 10 a.m. to 5 p.m. 22 E. Long Lake at Woodward.

Not exactly the everyday idea of a sewage treatment plant, but these activities are already underway or being considered possible at Michigan State University's Water Quality Management Project.

After 10 years of planning, building and experimenting, scientists are about ready to recommend their design as the way to go for small and medium-sized communities in the Midwest.

The system is in two parts—a lake recycling system and a land recycling system.

The lake system consists of four man-made lakes and three ponds on MSU's south campus. Wastewater from the East Lansing sewage disposal plant is pumped to the first lake and is cleaned of polluting nutrients as it flows to the second, third and fourth lakes.

The cleaning occurs as plants take up nutrients, including phosphorus. Later, the plants are harvested and fed to livestock or used for compost. Thus, the pollutants are removed from the water and put to good use.

Water from the lakes is also pumped to the nearby land system where irrigation sprayers apply the nutrient-laden water, providing fertilizer and moisture to fallow fields, crops and trees.

Robert L. Kidd and Associates—Gallery exhibition continues through the summer. Featured are paintings by New York artist Darryl Hutto, silvers by Carlos Cobos, collages by Glen Brill and paintings by Scott Gregory. Hours are 10 a.m. to 4 p.m. Tuesday-Friday and other times by appointment, 107 Townsend.

W.F. Mullaly Galleries—Exhibition of local, North American and European artists. Hours are Tuesday-Saturday, 10 a.m. to 6 p.m., 1025 Haynes.

Artisans Unlimited—Oils and watercolors by Mary Town will be exhibited at this gallery, which is part of the Courtyard, 870 Bowers, Ms. Town is one of the most successful of local artists and is featured in the May issue of American Artist magazine. Hours are Tuesday-Saturday, 10 a.m. to 4 p.m.

Scientists recycle sewage for lakes

Snow drifts gently down as skaters trace delicate patterns across the ice. A few months later, a fisherman casts a fly line across the water, the fly lands with an inaudible plop and almost immediately disappears in an explosion of water as a "lunker" largemouth bass takes it and draws the line taut.

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SCIENTISTS from the MSU Agricultural Experiment Station have been heavily involved in the project since the initial idea stages. Their contributions include evaluations of the system's efficiency and applicability.

Howard Johnson, fisheries and wildlife scientist, has been studying the role that fish can play in the lake system. "Smaller species feed on the small aquatic lifeforms that live in the lake four," he says. "In turn, the largemouth bass we have introduced live off of these smaller fish.

"The environment is apparently ideal for the bass," says Johnson. "Their growth and maturity rates appear comparable to those for bass in Louisiana and Florida waters."

Across Interstate Route 96 from the lake system, crop and soil scientists M.B. Tesar and James Hook have been applying wastewater from the lakes to experimental plots for four years. "Our results show that corn, alfalfa and grasses can be used effectively, in a single year, to remove nitrates and phosphorus from wastewater," Tesar says. "There is little, if any, contamination of the soil water or streams."

Alfalfa and perennial grasses, such as orchardgrass, are most effective at removing phosphorus from the effluent. Even at high irrigation rates these crops can remove more phosphorus than is present in the water.

Corn could be used in July and August to remove the nitrates, according to Tesar. Additional nitrogen would be needed, however, if yields of more than 100 bushels per acre were desired. Alfalfa and perennial grasses could be used in the spring and fall—before and after corn's peak nitrogen needs.

"According to our data, this would effectively keep nitrates in the soil below accepted Environmental Protection Agency standards from early April through mid-November," Hook says.

THIS LEADS Tesar and Hook to believe that municipalities of 10,000 people could effectively dispose of their sewage wastewater by applying it to 250 acres of land. The cropland could be either owned by the city, or the effluent could be piped underground to individual farmers.

In the same cropland areas, Gene Safr, plant pathologist, is looking into the soil to see if the wastewater irrigation is having an effect on key fungus organisms. "We are interested in certain types of soil fungi, called mycorrhizal fungi, that assist plants in taking up nutrients and water from the soil," Safr says.

"Our questions include: Are the fungi there? Are they helping the crops? And, does sewage irrigation affect their symbiotic relationship

with the crops; either positively or negatively?"

Next to the crop plots, trees shade the sprinkler pipes and the water makes a different noise as it splashes on the forest floor. Here forestry scientists are investigating the potential that conifer and hardwood plantations have as a means of cleaning municipal wastewater.

According to forestry professor Don White, "the major 'cleaning' has so far been occurring in the soil. However, we think that the trees may take up and use a greater portion of the nutrients as they mature and develop larger root systems."

No toxic symptoms or other detrimental growth patterns have been observed. The trees that responded with the most growth were cottonwoods and black walnuts. Other trees that have benefited from wastewater nutrients were white ash, red oak, and white spruce.

An MSU entomologist also frequently haunts the forested portion of the WQMP. Harold Newson's activities center around the biting insect populations in the wooded area. "We are interested in whether or not the sewage irrigation influences the numbers of these insects—particularly mosquitoes," he says.

C'ville raises pay of school employees

Non-union Clarenceville School District employees will receive pay raises about equal to the increases negotiated for teachers next year.

A seven per cent wage increase was approved by the board of education last week for most personnel not covered by a union agreement.

These included professionals and non-certified personnel, principals, directors and several members of the central office staff.

In earlier negotiations, the board agreed to pay all union employees a seven per cent salary increase for the coming year.

The largest salary adjustments went to Robert Vedder, supervisor of custodial and maintenance personnel, and to Glen Silverman, supervisor of transportation. The board approved an increase of nearly \$2,000 for 1978-79 for each of the two men.

The raises will equate the men's salaries with those of their counterparts in neighboring districts.

Edward Salisz, business manager, and David McDowell, school superintendent, also received comparable increases.

Mr. Salisz' salary of \$29,400 for 1977-78 was raised to \$30,300 for the coming year. The board approved a \$2,300 increase for McDowell. He will be paid \$40,000 per year for the next three years.

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