

# Human locomotion - not by legs alone

## Three-wheel manuped breezes by ten - speeds

Fred Tatch might have a solution for this country's energy crisis.

Tatch's solution is a "human powered vehicle" (hmv) that he says runs more efficiently than a 10-speed bicycle and moves at speeds that almost match an automobile's.

He calls his invention a manuped, a modified tri-cycle with 12 gears, seven sprockets, and three chains. He sits in a supine position amid all this hardware and propels himself using both hand and foot power. Nylon stretched over a steel frame serves as a trailer or passenger seat, which rides between the two back wheels.

The machine weighs 30 pounds without the trailer, 55 pounds with.

**Story by Caroline Petrich  
Graphic by Max DeRungs**



The manuped compliments Tatch's premise that two things move society — its means of transportation and its attitudes. During his time as a University environmental studies major, he concluded that changing the means was easier than altering attitudes.

Tatch, a former auto mechanic, has designed manupeds since 1975. Although the patent for the first manuped design is owned by former University student, John Thomas, Tatch has redesigned the machine seven times. He now rides his eighth manuped.

## A transportation renaissance

Tatch, 32, belongs to a new movement that could be called a transportation renaissance. He says the movement began in 1974 when Chester Kyle coordinated the Human Power Vehicles Association. The association provided an impetus for inventors like Tatch to create a medium between bicycles and automobiles.

With his machine, Tatch has caught the courteous disdain of other hmv designers and standard cyclists.

One of the manuped's chief competitors is the vector, a similar machine designed along some of the same aerodynamic principles. Like the manuped, it rides on three wheels, but unlike Tatch's invention it utilizes leg power alone. At 51 pounds, it has only six speeds and sports a foam-padded, reclining seat, posh accommodations compared with Fred's fiberglass and packing-bubbles seat.

Vector riders have averaged speeds of 50 mph and have clocked sprints at 62 mph. The vehicle traveled from Stockton, Calif., to Sacramento, Calif.

in 42 minutes at 50 mph on the freeway.

But Tatch outbiked the machine in 1979 at the International Human Power Speed Races. He attributes his victory to the manuped's ability to lean into turns more than the vector.

The vector and manuped both incorporate "fairings" or streamline devices that cover the entire machine. The rounded airfoil decreases wind resistance — a constant adversary of cyclists — by 90 percent, says Tatch, who just obtained a patent for his fairing design.

Though Tatch's fairing does pose some advantages in cycling technology, critics like cyclist Russell Morton call it "dangerous."

## A question of visibility

Morton, a 10-year cycling veteran from Eugene, argues that the fairing inhibits visibility and invites crosswinds to blow it over.

"I've always been impressed by (Tatch's) unfaltering attitude with his manuped," Morton says. "As a device for commuting, I find the manuped dangerously low to cars," despite its "aerodynamic advantage."

"Mechanically, it seems like there's a lot more things to go wrong," he notes, adding that people would have trouble learning to coordinate the hand and foot pedals.

Tatch bristles with impatience at such critiques. "People always complain," he scowls. "All I have to do is go for a ride and people stare."

He refutes Morton, saying that visibility actually is

better. The manuped's low seat compares to a sportscar's seat level, Tatch says, and Porsche drivers have no trouble in traffic.

A cyclist, who rides high and bent forward, is in an unnatural position and must peer around to see traffic, an unsafe maneuver, Tatch says. He points out that if a cyclist and manupedaler collided, the cyclist would probably retain more serious injuries.

Besides that, in his manuped, Tatch stands out in traffic.

"People know that it can't work and then see that it does," he observes, matter-of-factly.

"Most bicycle racers are very into what they do," adds Tatch, who raced the entire Eugene Cycling Club in 1980 and won despite a 30-second handicap.

"They tend to be closed-minded. The bicyclists will continue with what they've got and someday they'll see an old lady pass them by" — riding a manuped, of course.

Tatch says he hopes the manuped will be mass-produced someday, but doubts it will happen soon. Right now, it costs \$2,000 to construct one. To build many, Tatch says it would take at least a \$1 million investment, and it's "real hard to find a rich investor."

Still rich investors can present some drawbacks.

"I have to be able to deal with very rich people," Tatch says. "I've always been one of the less affluent, the working class. Because of that, my feelings are real wrong that the workers would be controlled by the workers."

"You won't find people with a large amount of money who agree with that frame of mind."



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