

**PRESIDENT**  
William Shafer  
308 S. East Ave.  
Oak Park Il 60302  
708/383-0186

**F. V. E. A. A. NEWSLETTER**

**JULY 1990**

**VICE PRES.**  
Kenneth Woods  
1264 Harvest Ct.  
Naperville Il 60565  
708/420-1118

**TREASURER**  
Vladimir Vana  
5558 Franklin  
LaGrange Il 60525  
708/246-3046

**MEETING NOTICE**

The next FVEAA meeting will be  
**JULY 20th** at  
College of DuPage Building K  
22nd & Lambert Rd. Glen Ellyn  
Time Meeting 7:30 P.M. sharp.  
We can arrive at 7:00. Guests  
are welcome and need not be  
members to attend the meeting.  
NOTE: Park at WEST end of lot  
and enter at WEST entrance.  
We meet in room # **K-127**

**SECRETARY**  
Paul Harris  
9421 N. Kildare  
Skokie Il 60076  
708/674-6632

**NEWSLETTER EDITOR**  
John Emde  
6542 Fairmount  
Downers Grove Il 60516  
708/968-2692

**DEADLINE** for newsletter *STUFF* - in my hands  
the friday before the next meeting. Editor

**THE PREZSEZ**

Many people saw FVEAA cars since our last meeting. The exhibit at Downers Grove was sandwiched between the blues band stage and downwind from a chicken barbecue grill tent which made for an interesting day. Thanks to the 5 members who had their cars there and to John Emde for making arrangements. John Ahern was recognized by a lot of Wheaton people while he was riding in the lead car from Triton during the 4th of July parade there. Batteries performed well in the 90+ temperatures. ed: (Lead car - as in first - not the heavy metal).

At the July 20th meeting I thought it might help new members get started by having those of us who have built cars discuss their projects around the theme, "WHAT I WOULD DO DIFFERENTLY NEXT TIME". We will also discuss the monthly newsletter.

**Bill**



**FOX VALLEY ELECTRIC  
AUTO ASSOCIATION**  
6542 Fairmount Downers Grove Il 60516

**FIRST CLASS**

ADDRESS CORRECTION  
REQUESTED

## The electronic hobbyist

**E**lectronics used to be fun. Maybe it still is, but sometimes I have doubts. When I was a youngster, I discovered a book in the library entitled *Boy's First Book of Radio*. It was an old book even then, but now it would look archaic. Each chapter gave instructions about how to build an ever more complicated radio, starting with a crystal set in the first chapter and ending with a superhet in the last. I was enthralled with the adventure of it all and eagerly started to build my very own crystal set.

My first great discovery was that crystal sets did not work. I built them both from scratch and from kits, but never got any of them to bring in a single station. That piece of rock on the end of the cat's whisker was a bad idea—solid-state electronics was not ready for the big time. However, undiscouraged, I found that miracles could be wrested from vacuum tubes. All you had to do was to wire them up in endlessly possible configurations, and you could pull voices out of the ether. This was good stuff—electrical engineering was for me.

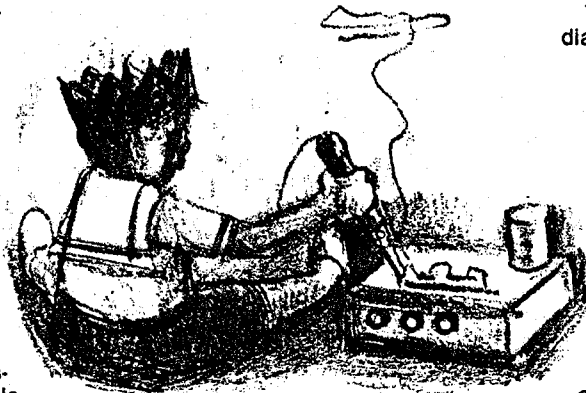
Transistors came along, but no matter, they were just like little tubes, and by wiring them together with resistors and capacitors, you could do neat things. Now I concentrated on kits. See my great hi-fi system? I built it myself, saved a bundle, and if anything ever goes wrong with it, I can fix it. See my TV set? Yep; built it myself. A beauty if I do say so. People marveled at how clever and dexterous I was. Not that it was very hard, following instructions like: "Connect a 3-inch length of hookup wire between connector KK (S-3) and QQ (S-2) of the IF-audio circuit board." It gave me a feeling of accomplishment and pride in the finished product. I have some of those kits—still in working order, too. I keep waiting for them to break so I can fix them myself.

But then something changed. Integrated circuits came along, and all those transistors and resistors got scrunched into little chips. Worse yet, all the wires were in there, too, with the external wires connecting the chips together etched onto a print-

ed-circuit board. Nobody cut that little wire and wrapped it around the solder lug anymore. They still sold kits, but now all you did was stuff the parts onto the board and solder the connections. It still felt good, but I began to wonder why I was doing this.

Just about the time most of the fun had gone, personal computers came along. Altair got all the experimenters excited. The microprocessor was a fantastic engine, but it was only a single chip. Lots of other stuff had to be designed and wired, and hardly any software existed. The field was wide open. I was more proud of my home-designed computer than of any of those hi-fi kits. This was more like it!

Alas, that lasted only briefly. Now my third-generation home computer is humming quietly to itself while I write these words on one of those ubiquitous word processors. There is something wrong with the computer, but I haven't the chance of the proverbial snowball of fixing it myself. I don't even know what is inside the case anymore. The very large-scale IC



chips confined there have only cryptic markings on them. There is no circuit diagram available anywhere for this clone without a brand name, and, of course, nothing is socketed. How could a respectable engineer fall so low?

I never see ads for kits anymore. It costs more to package a kit than to build the finished product. When you see the PC boards go through the factory, you realize why it makes no sense to wire or solder things yourself. Chunk, chunk, chunk—another perfect board rolls off the line. Ever try to buy the parts that go onto that board? Forget it. They cost a lot more than the finished and tested board. And so what if something goes wrong with that board where nothing seems removable? Buy a new board. Big deal. Chunk, chunk, chunk.

For a while, software seemed the salva-

tion of the hobbyist. The hardware industry had standardized everything anyway. Even if you wanted to design your own system, it made no sense. Only one or two designs were supported the world over. But in software there was infinite variety. Everyone could do his own thing. I wrote operating systems, compilers, editors, neat programs. It was fun, and it was educational. Good for me.

Before I realized its transience, the golden age of personal computers ended. One day I looked around for some program to write, but there was nothing left. Anything I could think of had already been packaged as a commercial program that worked far better than one I could ever write. Worse yet, there was always a free program that was better than anything I could accomplish. There was no excuse for building either hardware or software. You couldn't save money, and you couldn't make anything different.

The magazines that used to have circuit diagrams and software code just turned to reviews of commercial products. Last week, I went to a computer flea market that has been a regular source of experimenter junk for over a decade. Two discouraged men passed by. One shook his head sadly and said, "It's all gone commercial." I raised my eyes and surveyed the field, and I realized that I was looking at five hundred stands and booths all selling the same two dozen commercial products. What was I doing there?

Now what? How about *Boy's and Girl's First Book of VLSI Design*? The kit comes with a bunch of CAD software disks and a certificate to send your finished design in to the VLSI foundry shuttle for fabrication. Or what about *Build Your Own Molecular Beam Epitaxy Machine in Your Spare Time*? And with all the research on finer linewidths using X-ray lithography, maybe there will be a market for home synchrotrons. Be the first to get your neighbors together and run the loop around your block.

I hear that freshman enrollment in electrical engineering has been dropping steadily since those halcyon early days of personal computing. I'm looking at my non-distinctive, keep-your-hands-off clone, and I'm wondering—do you think there is any connection?

—Robert W. Lucky

THE AUTHOR MIGHT TRY BUILDING AN ELECTRIC CAR

*"Put their feet to the fire," cries the environmental lobby. "We can't sell cars the customers won't buy," replies Detroit.*

## Tradeoff time

By Jerry Flint

**N**O ONE CAN QUARREL with the professed aims of the professional environmentalists: clean air, clear water, unsullied nature. But there are times when their shrillness and intolerance make one wonder whether they aren't more interested in wounding capitalism than in saving trees.

Take the clean-air legislation working its way down from the White House and through a Congress that is supersensitive to environmentalist pressures. If these bills pass, the recovering U.S. auto industry could be back on the sick list and the American people saddled with cars they don't want to drive.

President Bush, trying to stay ahead of the fresh-air mob, has sent harsh new emission proposals to Congress.

The boys on Capitol Hill, stung by revelations of their own corruption and apparently looking for a safe target, are making Bush's emissions standards even harsher. When in doubt, bash business. Keeps the voters' minds off other things such as congressional culpability in the great savings and loan robbery.

Congress is also debating tough new rules on safety and mileage. Useful or not, such initiatives make everyone in Washington look good, at least in the short term. (When the factories start closing down, that's another question, but it's easy to blame that on poor management.)

In a recent interview with FORBES, General Motors Chairman Roger Smith mentioned the emissions standards being discussed in the Capitol as a serious threat to Detroit's future.

None of this is to say that the coun-

try and the world shouldn't be worried about protecting and improving the environment. But judging by the record, laws can do more harm than good. And, as we said, the true motives of some of the shriller environmentalists are politically tainted.

Elliott Hall, Ford Motor Co.'s vice president in Washington, puts the industry's case: "We fully expect the clean air bill. But don't give us a plate with clean air, fuel efficiency and safety at once. All these have to be planned in a more strategic way."

Hall blames zealous young staffers on key congressional committees who reflexively take business-bashing positions on almost any subject. It doesn't seem to bother them that ill-considered haste could mean wasted billions, higher prices and a permanent loss of business to foreign com-

**Some bills now being considered in Congress would force auto companies to make cars that run on alternative fuels like methanol. Other proposals would actually require companies to sell such cars. Will Congress pass a law requiring Americans to buy them?**

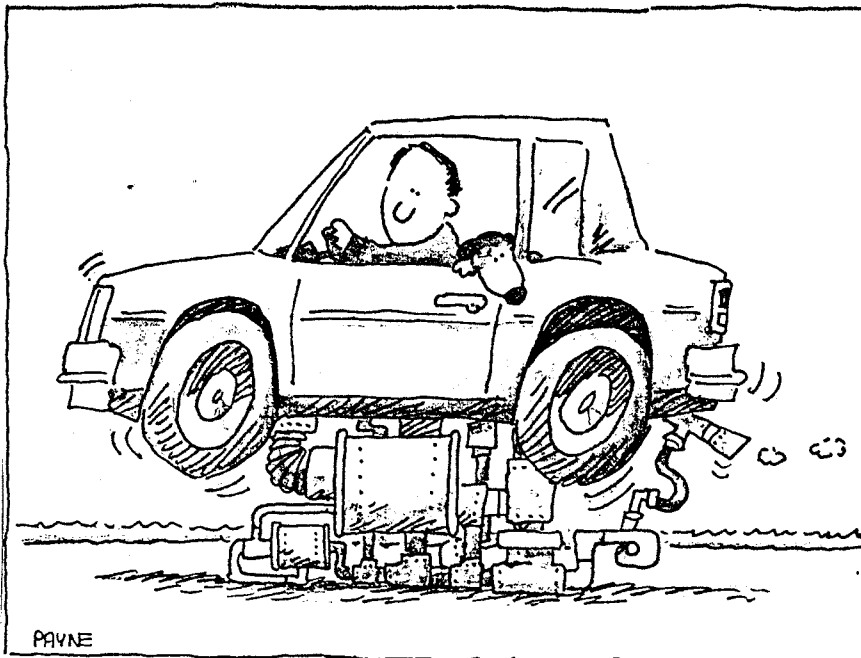
panies. Not to mention depriving consumers of the choice that is the hallmark of a free society.

Consider:

*Controls on carbon dioxide* Regarded as fairly harmless up to now, carbon dioxide is suddenly being blamed for the greenhouse effect and global warming, both still theories, not facts. A bill in the Senate would for the first time in history limit tailpipe emissions of carbon dioxide.

How do you cut down on tailpipe emissions? By producing smaller engines and cars, whether the public wants them or not. Bills now under consideration call for carbon dioxide emissions to be cut to 242 grams per mile by 1995 and 170 by 2003. GM's smallest import, the Geo Metro, gets 50-plus miles per gallon from its three-cylinder engine and emits only 137 grams. That's great, but seven out of eight American car buyers don't want such tiny cars. A typical car with a six-cylinder engine—the size most Americans need and want—emits about 350 grams. Just check the Senate parking lot. "You spot a lot of Mercedes but not many Metros up there," sighs James Johnston, GM vice president in Washington.

We can see it now: Force Detroit to



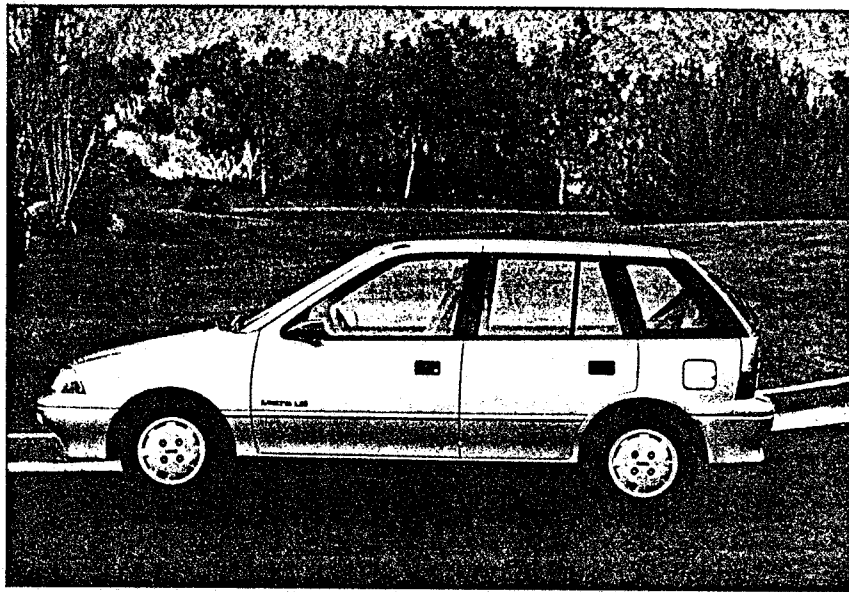
build small, cramped cars, then blame the closed plants on complacent industry fat cats.

These new rules would give the Japanese, who generally make smaller cars, a big advantage over their Detroit counterparts. But even the Japanese may not like the new standards, because they are pushing into the market for larger, pricier high-performance cars, which means they'll be having the same problem Detroit has.

*Tougher standards for hydrocarbon emissions* Simply put, these emissions are the fumes from unburned gasoline. Today cars are allowed to emit 0.41 of a gram of hydrocarbon per mile. That compares with about 10 grams that would be emitted from an engine without today's pollution controls. The President's bill would cut the emission to 0.25 of a gram.

A commendable goal, but the problem, says Gary Dickinson, GM's vice president of technical staffs, is this: "It's like taking the high jump bar from 7 feet, 8 inches to 8 feet. To the guy who just jumped at 7-foot-8, it's a pretty big increase."

Congressmen pandering to the extreme environmentalist lobby want to take it further, cutting hydrocarbon emissions to 0.125 of a gram by the year 2000. What's more, they are insisting that any system limiting hydrocarbon emissions must remain effective for 100,000 miles, double the current 50,000 minimum, which is hard enough to meet. They also want to eliminate concepts like averaging emissions among a company's car



*The Geo Metro, three cylinders and a good CO<sub>2</sub> rating*  
**But you see more Mercedes than Metros in the Senate parking lot.**

models. This would mean trouble for companies like GM and Ford that offer full lines of cars, big as well as small.

If the new rules pass, expect higher car prices and, for much of the 1990s, an increase in recalls and badly running cars. Remember 1974 and the debut of the catalytic converters? This could be a lot worse.

Even at today's standards, millions of cars must be recalled. Just last year some 3.4 million cars were called back for emission problems (and better than 10% of them were foreign). In 1987 it was 3.2 million.

*Cars that run on alternative fuels*

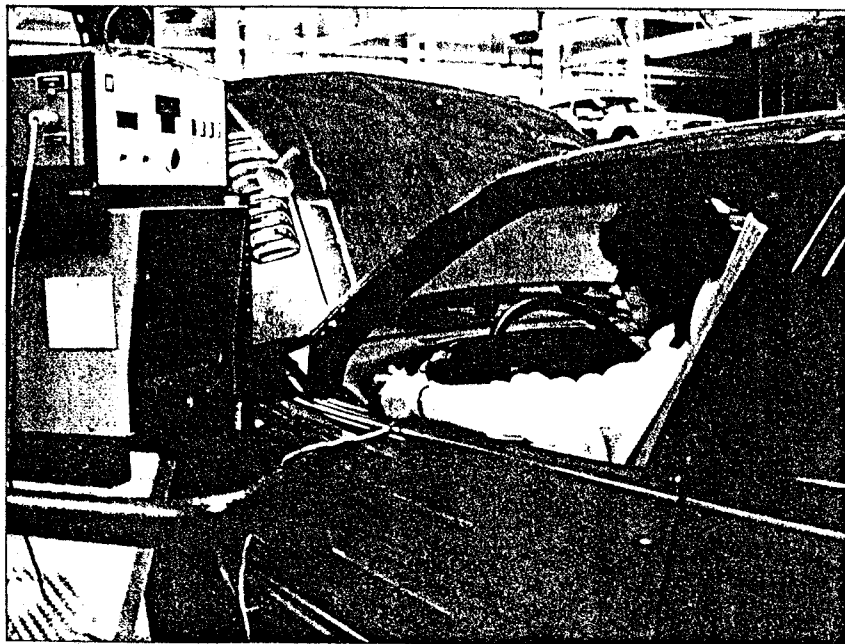
Some proposed laws would force auto companies to make cars that run on alternative fuels like methanol. Other proposed rules would actually force companies to *sell* such cars. Or try to. One proposal calls for U.S.-based car factories to turn out a total of 500,000 alternative-fuel cars in 1995, 750,000 in 1996, and 1 million in 1997. These cars run the risk of polluting the atmosphere with different, but potentially equally harmful, gases. They also could be quite costly, inefficient and difficult to fuel. And nearly impossible to sell unless Congress wants to pass a law ordering Americans to drive such contraptions.

*Higher fuel-efficiency requirements*

For gasoline-powered cars, Congress may increase the fuel-efficiency requirements to more than 30mpg, from the current 27.5mpg minimum.

*Refueling fumes* To restrict these fumes, which escape from the gasoline station pump while fueling, the most efficient method would be to put devices on the gas station equipment. But there are more gasoline station owners than automakers. So the pressure is to put a more costly—figuring it has to go into 15 million new vehicles each year—charcoal canister in each car to store the fumes. There is such a canister in cars now, but proposals call for a second, larger one to be installed.

Congress and the Administration had better face the fact: Excessive haste on automobile-related environmental measures will carry a heavy price in unemployment and consumer unhappiness. It's the kind of thing that will almost surely come back and bite the politicians. ■



*Emissions testing at General Motors*  
**"It's like taking the high jump bar from 7 feet 8 inches to 8 feet."**

# Fiat Shows Panda Elettra EV

MARK TOSH

**G**ENEVA (FNS) — Fiat's electric-powered Panda Elettra debuted at the International Automobile show here last week, while new vehicles from Mercedes-Benz and Porsche also attracted attention from show participants.

The Elettra is a battery-powered version of the standard Panda. Fiat officials, who said the car will be available in Italy only beginning in June, conceded that the Elettra is "not revolutionary," but decided to go ahead and put it on the market. "You have to make a decision," one Fiat official said. He added that Fiat is also developing a hybrid car, but declined to predict a date for its release. The hybrid would use a conventional Panda gasoline engine, he said.

The Elettra is powered by 12 6-V lead batteries. It seats two

people in the front and has a luggage compartment above the batteries in the rear. No date for releasing the Elettra in the U.S. has been set.

"At the moment, it hasn't been decided whether to sell it abroad," the Fiat official said. "It's just an experiment in Italy."

Fiat, which calls the Elettra the first electric car to be volume produced, wants to make and sell about 300 Elettras this year. The officials acknowledged that the high price (about \$20,000), short range and low speed are drawbacks to reaching a mass market, but they said volume production and higher demand would result in lower prices in the future.

The Elettra's batteries can be recharged in about 8 hours for about \$2, the official said. Several hundred battery-powered versions of the Panda were produced in cooperation with Swiss and Austrian man-

ufacturers already for use in the public sector.

In announcing the Elettra, Fiat said the electric model is "to meet the demand of the market which is increasingly conditioned by the need to protect the environment."

Concerns about the environment were prevalent on the show floor. For example, Mercedes-Benz used catalytic converters for diesel engines, as well as a diesel fuel additive. The additive aims to work in conjunction with Mercedes' previously released exhaust particulate filters to create a more efficient system. An iron-based substance, the additive is automatically added to the fuel in the tank and works to keep soot from building up in the filter. The system is not ready for production yet, but it is expected to be in a few years.

"Diesel isn't stagnant," a Mercedes spokesman said. He added that diesel fuel, from

production to combustion, puts out 45 percent less carbon dioxide than gasoline.

Mercedes-Benz also unveiled its 190E Evolution II model, but said only 500 units would be produced — mainly to make the car eligible for touring and car racing. The Evolution II features the automatic level control and adjustment system on its front and rear axles and a 2.5-L engine with 235 hp. Top speed is rated at 150 mph.

Porsche showed the new 911 Turbo at the Geneva show. The model retains the same 3.3-L engine, but it now delivers 320 hp. The 911 Turbo, which will not go on sale in the U.S. until October or November, features a Bosch anti-lock braking system, air bags and a modified power steering.

Porsche officials discussed adding features such as fully active suspension, but decided against the move. □

## ■ Electric car introduced

Sir Clive Sinclair, intrepid inventor and 49-year-old chairman of Britain's MENSA Higher Intelligence Society, has a vision of another world in which high-speed trains replace airplanes and electric cars replace petroleum guzzling polluters.

To assist in that end Sir Clive has introduced his new environmentally friendly C15 electric car, which can travel up to 200 miles on one charge. The C15 holds two adults and two kids and travels 75 miles farther than the new electric car by General Motors, its closest competitor.

## Iacocca hits town with blast at GM's electric 'golf cart'

Lee Iacocca, who has been blasting Japanese import autos in a television ad campaign, broadened his attack Wednesday to include General Motors' recently announced battery car, which he said was little more than a golf cart with a fancy skin.

"Electric cars. Forget it. Everyone's putting new skin on a golf cart. Will people pay a premium to say, 'My tailpipe's cleaner than your tailpipe.' No."

"I hope the government doesn't mandate electric cars unless it plans to subsidize people to buy them. Electrics sound great. People say, 'All I gotta do is plug it into a socket.' But somebody's gotta develop and pay for the electricity," he said.

"I hate to be a cynic," Iacocca said in an interview after the program, "but GM says the car has a 125-mile range before recharging. Unless they have a secret, we say it's really 85 miles and if you floor the pedal to get uphill you lose half that range."

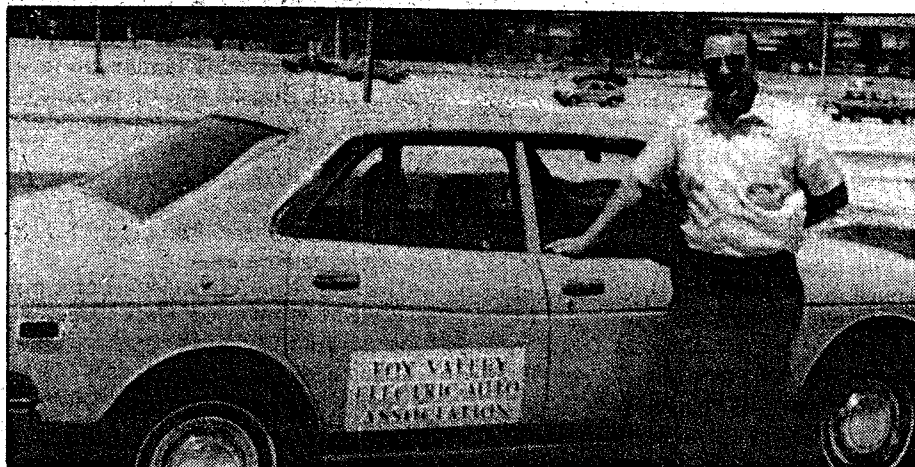
STAR JUNE 26, 1990

## STAR PEOPLE

**ELECTRIFYING:** ED BEGLEY JR. shocked the staff of the Cannon Theatre, where he was appearing in *Love Letters*, when he requested a 100 ft. extension cord. On further investigation, the staff learned it was for environmentalist Ed's electric car parked outside.

AN FVEAA  
ELECTRIC CAR  
AT THAT!

## HERITAGE FESTIVAL



**ELECTRIC CARS** — John Emde of Downers Grove will be one of the estimated 50 members of the Fox Valley Electric Association displaying cars at Heritage Festival.

# Electricity will power cars to street festival

by Mike Solley

For most people, a hobby is something they go home to, spending leisure time with their stamp collections or weeding and cultivating the garden.

John Emde of Downers Grove used to drive his hobby to work, and back every day.

Emde and the 49 or so other members of the Fox Valley Electric Automobile Association are taking their hobby to Heritage Festival this year with a display on how they converted their compact, gasoline-powered cars into electric transportation.

"This is our hobby," Emde said. "We don't sell these cars or make them for anyone else."

But they will tell others how to do it and Emde said he hopes more will pick up on the notion of a cleaner, quieter car.

Economically, it costs about 3¢ per mile to operate an electric car plus about \$700 every 20,000 miles to replace the batteries, stored in the car's trunk.

An advantage of electric cars is they're quiet, Emde said. There are practically no emissions.

On the other hand, the range of an electric car is limited — about 30 miles per

charge, less if speeds reach the 65 mph maximum of Emde's vehicle. Batteries can be recharged via a conventional household current.

Emde used to drive his car to work every day but extra driving requirements forced him to cut back on that practice.

Emde got into electric transportation in the late 1970s. After enduring an "energy crisis" and 2 gasoline shortages followed by price markups, Emde decided to do something. So he looked into alternate ways of getting to his job in Lyons.

"I figured there had to be another way."

So Emde turned to his hobby, electronics. He ripped the gas engine and its exhaust components out of his compact car and, at a cost of about \$2,000 in parts, replaced them with an electric motor and battery system.

The result is "cheap, efficient" transportation.

"It's an alternative-energy vehicle," Emde said.

Association members have converted 20 small cars from gasoline to electric since the club was founded in 1975, Emde said.

Six cars will be on display this year at Heritage Festival, the first time the club has had a booth at the 3-day festival.