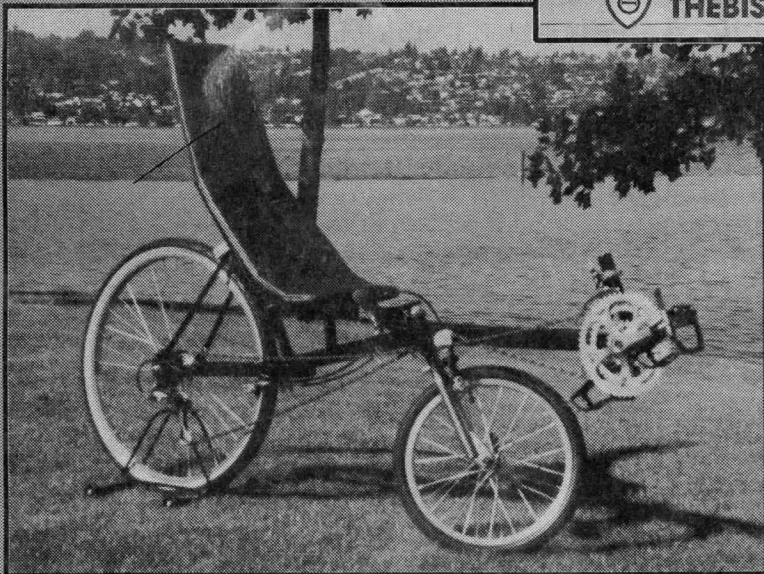
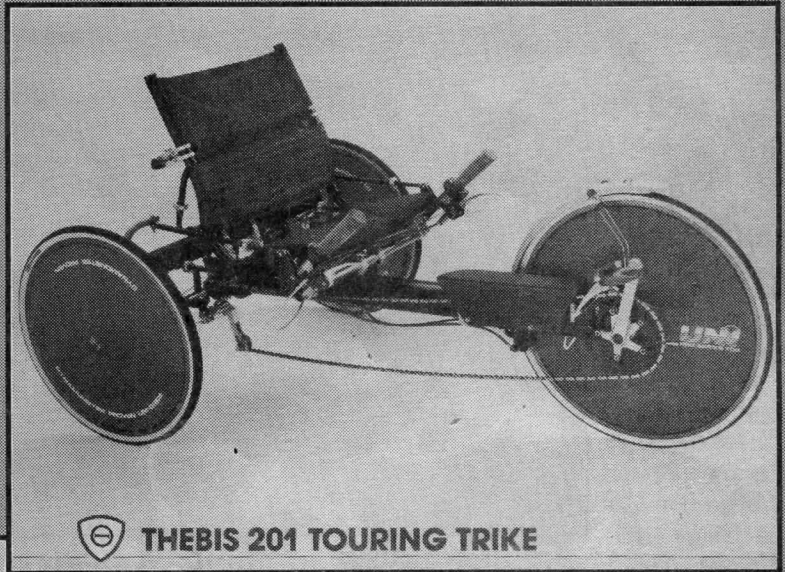


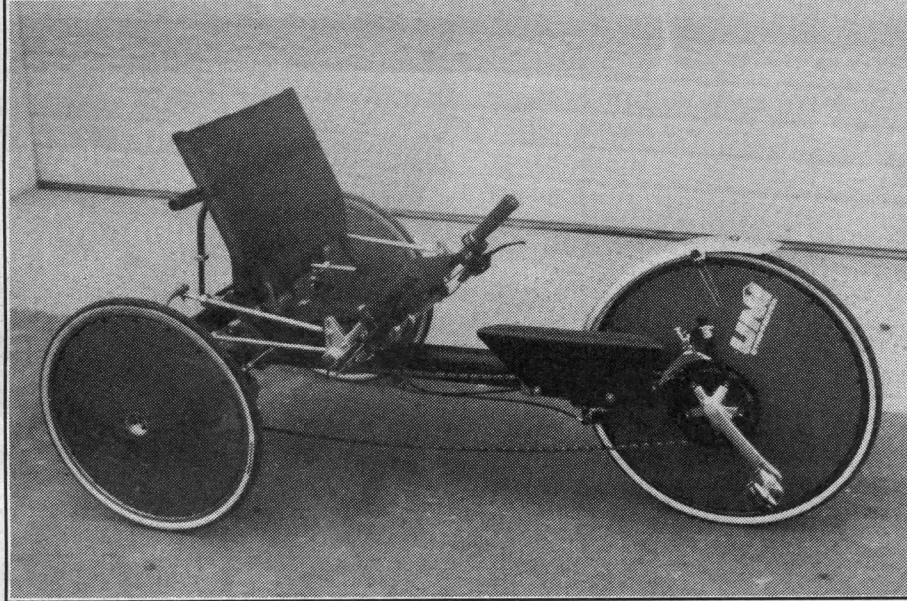
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Recumbent Cyclist

The official magazine of the Recumbent Bicycle Club of America March-April • 1992 RCM#10



Thebis Trike and Laid Back "E" Tests



1993 Thrax 201



THE THEBIS 201 TOURING TRIKE

THE THEBIS:

A state of the art, futuristic and definitely the most hi-tech recumbent vehicle available anywhere. No other recumbent vehicle has created such a stir amongst enthusiasts as the Thebis Tricycle. This trike is like no other: rear wheel steering, crankset through the front axle, U-joints and roller clutches. That's not all. Exotic materials, state of the art components and beautiful meticulous workmanship add to create the most unique HPV ever to hit the road.

THEBIS HISTORY

The Thebis is the long time dream of Canadian attorney, Robert Perkins, and his family. The dream was conceived in 1970. The vision of the Perkins family was that of a non-polluting automobile. This led to more than a decade of research and development. After a dozen prototypes, the Perkins' believe that they have the "HPV of the century."

CROWD PLEASER

The Thebis was ahead of its time back in 1970 when it was just an idea. In 1982 the first prototype was built. In 1992 it appears that technology has caught up with the Perkins' design and it can now be produced in state of the art fashion. This year marks the debut of the first production run of the Thebis 201 Touring Trike. According to Carolyn Perkins, the response to their marketing campaign has been overwhelming and is keeping the company rather busy. It was certainly one of the most popular attractions at both the Seattle Bike Expo and Portland Bicycle Show this past winter.

HOW IT WORKS

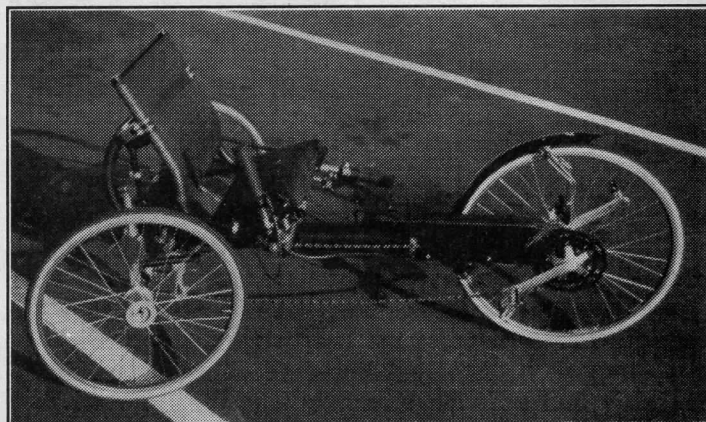
The Thebis is a 21-speed index shifting one-wheel-in-front tricycle. The crankset axle runs through the "free-floating" front hub, which does not affect or drive the front wheel. The pedals drive the chain to the rear axle, where a fixed 7-speed freewheel drives the rear wheels through needle bearing roller clutches and U-joints. The rear axle drives both rear wheels and offers limited slip. The freewheel is a 10-21 with custom Thebis-built and machined small cogs. The roller clutches actually do the "freewheeling" rather than the cluster itself.

REAR WHEEL STEERING

Steering is done via twin steering side-sticks. The movement is back and forth. There is a sprung steering stabilizer that always brings the steering back to the center point. This stabilizer is the key to the ease of rideability and handling on the Thebis. The trike also has adjustable steering ratios. On each side stick control, a knob is positioned to slide up and down when loosened. It can take you from highway cruising mode, where it is not possible to turn around in one lane of traffic, but stable at cruising

speed, to parking lot mode enabling you to make tight maneuvers at low speed. To use the system effectively, you must learn to plan ahead while riding, and plan your ratio-changes; otherwise, you could find yourself in a compromising position.

When you steer the Thebis, it tracks wide as the rear end follows the front to your selected path. It is a new experi-



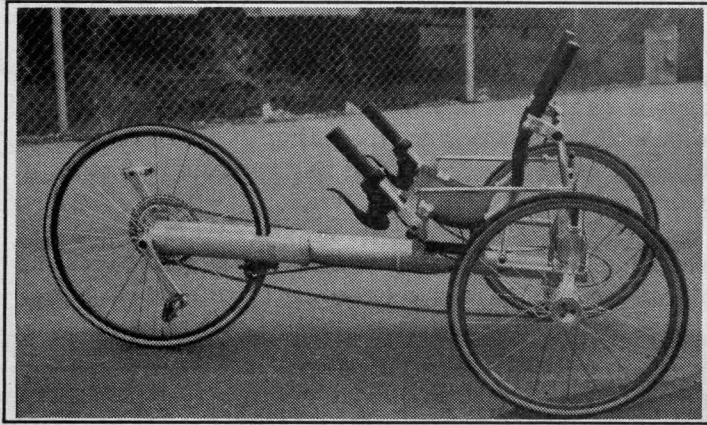
Thebis with wheels turned
(staff photo)

ence for two-wheeled recumbent riders. When testing the Thebis on the Green River trail test loop, you must make some tricky turns to get up to the trail, riding under a bridge and over a pedestrian bridge. This varied terrain made for many changes in steering mode. At first, the constant planning ahead tried my patience. After a few miles, I was able get used to it. Michael Perkins later explained to me that you only need to adjust one of the side-stick variable ratio knobs to change modes. This made quick changes much easier. With a setup like this, there are different techniques to learn, just as when you first learn to ride a recumbent. The ratio adjustment knobs may add slight complexity to your riding, but with the trike design, you never have to worry about lifting your legs back into cleats or toe-clips or balancing and you have more time to do other tasks. Overall, the variable ratio set up makes for an incredible range of maneuverability. A word of caution is in order. The Thebis should not be ridden at cruising speeds in the quicker modes of steering. This can make the bike very sensitive at speeds over 10 m.p.h.

COMPACT SIZE

The overall length (depending on frame size) is 61", 63" and 65." The total width is 36" which is close to the standard in recumbent trike design. The overall height of the Thebis is 32" at the seat. The seat base height is 14." The minimum 360 degree turning radius is 13'10." The standard weight as sold is 33 pounds which makes it the lightest trike currently offered in the USA. The Thebis is a very

compact trike. The only way these compact dimensions are possible, is the rear wheel steering/ axle through the front hub layout.



The Thebis

(Photo courtesy of Thebis International Ltd.)

FRAME

The frame is a mixture of magnesium and aluminum alloy tubing. The main frame tube and many other parts are magnesium alloy. These are very strong, expensive and lightweight. The parts are anodized black and gold, with a special process done to the magnesium called "Dichromate Conversion Coating." The appearance is absolutely striking. Many of the frame sub-systems are bolted together using standard cycling allen bolts, locktight is used on all of the threads so they do not come loose. There is no traditional TIG welding or brazing on this vehicle. With this process, the possibility of parts vibrating loose does exist. Lock-tight being used on nearly every bolt helps to relieve this problem. Thebis recommends a post delivery check up where all systems are given the once over for tightness and adjustment, along with service at regular intervals. The overall workmanship of the frame and all custom-machined parts on the Thebis is excellent.

SEAT

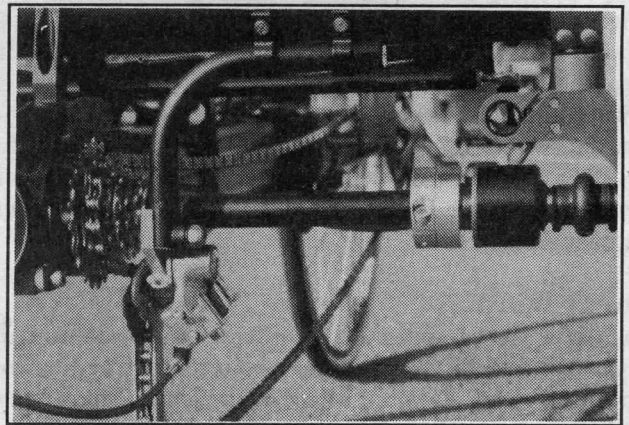
The Thebis seat is wonderful, a real breakthrough to all recumbent manufacturers and enthusiasts. The seat frame is constructed of a mix of aluminum and magnesium tubing, all one inch diameter. The seat adjusts for back height, width and the it slides along the main frame tube. Michael Perkins explained to me that they use of kevlar-49 taping along with a Texilene mesh. This helps to keep power and efficiency loss to a minimum, as the stretching of kevlar/ Texilene is less than that of nylon mesh. During our test, the seat slipped inward (width adjustment) which caused the mesh to sag and lay upon the main frame tube. This was just part of the recommended post delivery check up, and was easily fixed by widening the clamps and the tightening of allen bolts. The shape of the seat frame forms a lumbar support for your lower back that offers good support.

The best part about this seat is the "Therm-a-rest" self-inflating air-cushion (encased in Texilene) which offers an

air-cushioned ride. This really added comfort and made two hour rides very enjoyable. This is really a breakthrough in the mesh/ sling seat design. It is remarkably more comfortable than a foam pad over the mesh. It would also be very easy to retrofit any mesh/sling style recumbent seat. I was so impressed with this idea, that I have contacted the manufacturer for samples in various configurations. The manufacturer is Cascade Designs, Inc. and the intended use is for stadium-pads, Kyaks, office chairs and even military helicopters. Many Kyak, office supply and Sporting good stores carry Cascade's Therm-a-rest product. The two models are the "Sports Seat" and the "Back Rest." Thebis uses the Back Rest model on the Thebis seat base. We found these priced locally at \$17.99 each.

COMPONENTS

The main drive-system on the Thebis is Sachs-Huret New Success Aris. From the gruppo, the Thebis gets its front & rear derailleurs, Power-Grip (twist shift) shifters, a triple crankset of 26/ 36/46. The free-wheel is a Shimano DX Hyperglide Cassette with custom Thebis-built 10-11 tooth cogs (10-21). The gear-inch range is 25-93. One of our test riders mentioned that lower mid-range gears would be helpful. None of our test-riders mentioned the rather low high gear. Overall, the stock gearing works well for the intended use of the Thebis.



(R to L) Thebis spindle, U-joint boot, roller clutch, lock ring, axle and cluster.

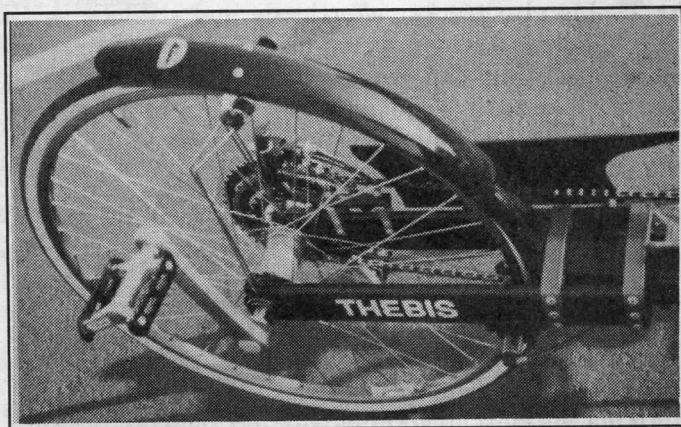
(staff photo)

The twist grip shifters work well and the rear shifting is good, however, they take effort to twist and are somewhat noisy. One of our test riders described the noise as sounding like "breaking glass." These shifters do get quieter and easier to shift as they break in. Besides the noise, another consideration with these hi-tech shifters is the lack of a friction mode. Many recumbent riders and some manufacturers really like the Sachs Power-Shift. The back and forth action of the steering side-sticks combined with the twisting action of the shifters is an interesting combination, according to Peter Perkins, the major benefit to the twist shifters is that to shift, steer and brake, you never have to move your hands more than one half an inch. The front shifting is indexed and seemed to

be a bit more temperamental than the rear. We found the Sachs shifting performance to be adequate, but if given the choice, we'd still prefer tried and true Shimano and Suntour equipment.

DRIVETRAIN WOES

We did experience some problems with our Thebis drive system: clutch, steering dampener and a broken U-joint all caused us problems during the test. Our testing period was cut short and the test bike was sent back to Thebis. Michael and Peter Perkins analyzed the problems and found what looked to be a chain reaction stemming from a bent tie-rod damaged in shipping. These tie rods have since been redesigned and we are informed they are much stronger than the ones on our test bike.



Thebis front end
(Staff photo)

The Thebis has limited slip two wheel rear drive. The axles are stainless steel alloy. The "freewheeling" in the drivetrain is done by the drive clutches. They are Torrington Zero-backlash D.C. needle roller type clutches. The roller clutches work well unless they come out of adjustment (something that does not happen very often). At one point, ours became too tight, causing the drivetrain to stick and not "freewheel" properly when you backpedal or coast, which ultimately causes chain-suck. We also experienced some drivetrain slippage and thought it was the roller-clutches. In our case, the slipping turned out to be the axle, which can be adjusted to the rider's weight. To properly maintain and work on these systems, new skills must be learned by the trike owner or bicycle mechanic. This trike does require more maintenance than the average bicycle.

LATE NOTE

Just before press time, we became aware of two other Thebis trikes that have had broken U-joint problems. Thebis International has been made aware of the problem. Peter Perkins explained to me that this is not a systemic problem with the Thebis design or the concept of rear-wheel-steering, but the culprit was an improperly ground U-joint. Thebis has made plans to examine the broken joints and replacement of the U-joint is all that is needed to correct the problem. The Thebis 201 is a relatively new

design of the Thebis trike concept, with the first "201" being delivered last October. Michael Perkins informed me that in this type of situation, the Thebis 36 month warranty covers both shipping and the necessary repairs.

PEDALS

In the age of the "clipless pedal" most manufacturers do not "spec" expensive pedals as many riders just take them off. The Thebis comes with Sakae platform pedals. There are no clips and my feet occasionally slipped off. An easy remedy for this is a set of clipless pedals. We are extremely impressed with two brands. Shimano SPD and Time TWT, both walkable cleat systems. The SPD have cleats on both sides and are widely available. The TWT are much simpler in design and easier to keep clean, however they are more expensive. Both are fine systems and get our highest recommendation.

WHEELS & TIRES

The Thebis uses two 20" X 1-1/8" IRC Road-lite EX 100 p.s.i. tires on 36 hole Sun rims with the Thebis sealed bearing hubs. The single front is a 24" X 1.25" 90 p.s.i. Wolber Rallye, also mounted on a Sun Rim. Replacements are readily available from Thebis.

BRAKING

The Thebis braking system includes specially made Mathausser dual-cylinders hydraulic brakes. By appearances, the bike seems to have only one brake on the front wheel. On normal Mathausers, one caliper side is a dummy and the other is hydraulic. On the Thebis-Mathausers, both caliper sides of the front brake are hydraulic. The braking is excellent and very strong. A Velcro strap on one of the side-sticks is used as a parking brake.

ACCESSORIES

The Thebis comes with its own tool-kit with mini-pump, spare tubes, a water-bottle cage mounted on the main tube in front of the rider and a Zefal front fender and a Thebis logo safety flag. Michael and Peter Perkins also showed me an optional rear trunk that attaches to the frame behind the seat. For my test rides, I used a MTB stem/handlebar bag to hold my keys and wallet. The best way to carry things on your Thebis is to hang virtually any type of bag from the upper seat cross support. Factory installed UNI wheel discs are also an option for the Thebis.

TRIKE ADVANTAGES & DISADVANTAGES

Recumbent trikes are another hotly debated issue among enthusiasts. Many riders love them, others do not. It is the third major category of recumbent. (LWB, SWB and trike). The distinct advantage of a trike are obvious, easier balancing, compared to a two-wheeler, and the fact that you do not have to continually take your feet in and out of the toe-clips or straps.

Adversely, the width of a trike makes you a vehicle rather

than a cycle. This puts you out in traffic competing with automobiles for your share of the lane. Trikes are also harder to get through the poles/pilons on the bike path. On a two-wheeler you can ride on the shoulder, the lane or even the side-walk if you have to.

SAFETY

Another possible concern is visibility to traffic. According to Thebis, their trike's 14" seat height is high enough to be seen in an auto's rear view mirror. It is, however, lower than a conventional bicycle and most two-wheeled recumbents. Safety in traffic is a viable concern. Author Richard Ballentine commutes daily in traffic on his Speedy Windcheetah trike. He calls it, "the best and safest machine for the job," (from his book, 'Richard's New Bicycle Book'). When considering a recumbent trike you should think about your intended use and outline a safety plan. Options you may want to consider would be bright safety clothing, a lighting system, flashing LED lights such as the Vistalight and a horn. The Thebis comes with its own logo safety flag.

ORDER, DELIVERY & WARRANTY

My Thebis was delivered by truck (non-UPS). The trike is tied to a pallet and has a box built around it. There is no set-up at all—just take the box off and go. (It is a good idea to keep your box around in case of reshipping.) This is the most extensive predelivery set-up that we have ever seen on a recumbent. A very comprehensive 36 month parts and service is also offered by Thebis, as well as customer service and technical assistance phone lines. When you order your new Thebis, you get a guaranteed shipping date for your new HPV. Besides this, a 15 day money-back guarantee is offered to make sure that you love your new trike. Thebis gets two big thumbs up in all of these departments.

The Thebis owner's manual is unsurpassed. The 48 page 8-1/2" x 11" format describes every aspect of owning and riding a Thebis Trike. There are even dealer service forms in the back of the manual for your bike mechanic to sign off the maintenance performed. Every aspect of the Thebis sales, delivery and warranty program resembles an automobile purchase. Could this be the outline for HPV sales of the future? For Thebis, it appears that the future is today.

THE RIDE

The Thebis is easy to ride and although it appears distinctive, beginners adapt very quickly. At the recent Portland and Seattle bike show's, approximately 500 people test rode the Thebis. At these bike shows it became apparent to me that recumbent trikes in general are the easiest form of recumbent to learn on, especially in an enclosed course.

I also adapted quickly to the Thebis. The riding position is near to my definition of the "perfect" recumbent seat position, (bottom bracket axle below the seat). The seating position with air-cushion offered an extremely comfortable

ride. Due to the front-end layout, the crank axle is long, which makes the crankset very wide (Q-factor), the feeling was definitely unique. The rear wheel steering was both fun and different. It allows you to ride effortlessly on three wheels. The amount of steering pressure it takes to turn the Thebis is less than other trikes. One of the first maneuvers many riders try is to "put 'er on two wheels." Will the Thebis go on two wheels? Yes sir. In the variable ratio steering's "quick" mode, the Thebis will go up very easily. This is why the manual warns that this mode should not be used for anything but parking lot speeds or 10 m.p.h. In the "highway" mode, it is much more stable and provided cruising speeds faster than my hybrid bike and about the same as many SWB and LWB underseat steering recumbents.

The Thebis also tracks effortlessly and straight as an arrow. There is a strong spring-loaded steering dampener that always brings the steering back to center. So riding down the bike path, you don't really steer, you "trim" with the side-sticks. One-handed riding or even hands-off riding are also possible, but not recommended.

MARCH RAIN-TEST

After our initial road-testing period was over, Michael and Peter Perkins came by to go for a ride at our Little-Soos Creek "RCM" recumbent test track that winds six miles through the wet woods of South King County, forty minutes south of Seattle. The weather was typical, pouring rain. This is not the most ideal riding weather, but I had been out on a demo ride earlier and was soaked anyway. So, after mounting our personal pedal choices to a pair of trikes, Michael Perkins and I took off down the trail. The front fender keeps you from getting any front wheel spray, and the rear wheels are out past your arms, so the only time they throw water is when they are turning. Many parts of the trail are narrow, so when we went single file, we ate mud from our respective roostertails. In rain like this, attempts to stay dry are wasted efforts.

Trikes seem to outhandle any other recumbents in this type of weather and traction was never a problem. We came upon slick wooden bridges, off camber surprise turns, wooded dropoffs, occasional auto crossings, broken branches on the trail, necessitating a few last minute downshifts. The Thebis handled it all with ease. Michael is a "pro" on his machine. When he cornered or rode side by side on the trail, he often would drag his inside wheel through the grass of gravel shoulder—something most of us two-wheelers would never even consider doing in the rain. The ride was fast, furious, wet and so good, that it should be on a Thebis promo video tape. This was undoubtedly the highlight of my Thebis test and a ride Michael Perkins and I won't soon forget.

The Thebis is a serious human powered machine, and the Perkins' have done a beautiful job with it. Every aspect of this trike is beautifully done. A machine for the HPV connoisseur. The first class treatment throughout comes at

a price—the Thebis retails in the low to medium \$3000. range for USA delivery and you receive the most hi-tech HPV available with automobile-purchase like amenities. Thebis Trikes are sold through specially trained dealers and direct from their Sydney British Columbia, Canada, World headquarters. For more information, call Tel./ Fax

1-604-656-1237 or 1-800-667-6801. Thebis International Ltd., 110-2031 Malaview Ave., Sydney B.C., Canada V8L 3X9.

By Robert J. Bryant

A Brief History of the Thebis

The Thebis project had its origin in a conversation in Toronto between Mr. Robert Perkins, a Toronto lawyer, and his son Peter (then aged 8) in the early spring of 1970. They were discussing the problem of the automobile with regard to such aspects as air and noise pollution, congestion, dangers in collisions and the effect of roads dividing up communities.

After the discussion of several ideas, Peter said, "Why don't we build an anti-pollution car, dad?" This suggestion interested Mr. Perkins and he started to consider the idea of a "one-man" car which would not pollute.

In 1974, Mr. Perkins built the first model of this car. It was a two-wheels-in-front trike with a fiberglass body. This new model was christened The Willowdale Handcar. The only prototype of this car was completed and test driven in 1977 and in 1979, U.S. patents were granted for it. Mr. Perkins was not satisfied with the "Willowdale design" and, between 1978 and 1982, he devoted a great deal of time to the study of the development of cycles, concentrating on activities in England and France between 1830 and 1919.

Late in the evening of Feb. 18, 1982 Mr. Perkins realized the Thebis configuration as it now exists.

During the winter of 1982-83, Phoenix Custom Machines, Inc. of Toronto built the first prototype of the Thebis trike with the assistance of Maurice Parrott. It was tested and altered several times and then, in February, it was exhibited at the 24th annual International Cycle Show in New York City. This first Thebis was constructed of 1" aluminum tubes with a 1-3/4" diameter main tube in a "space-frame"; it had a track width of 32" and a wheelbase of 47". The front wheel was supported by a single fork blade on its left side. When this was found to be inadequate, a standard fork was welded in its place. The first Thebis also featured a moulded bucket seat.

The 45 pound Thebis was then taken to the 9th IHPVA Speed Championships in Indianapolis, Indiana, where Mr. Perkins was officially clocked at 29.75 m.p.h. on Oct., 1983. On October 22nd, the Thebis was exhibited at the Ontario Bicycle Show. In May of 1984, Mr. Perkins was granted an American patent for the Thebis configuration.

Mr. Perkins and his son, Michael, built a heavy fairing for the Phoenix Thebis and then Peter and Michael drove it to Le Festival International de la Bicyclette in Quebec where it was awarded "best Canadian design" and 6th overall

place.

In June of 1984, a second prototype was built. Its frame was constructed of 2" diameter square tube in a "T" shape.

During the summer of 1984, Mr. Perkins built the third prototype (the Disney-cycle). This was the first steel framed Thebis. Its three wheels were connected by four triangles of 4130 chromoly tubing. Two in the vertical and two in the horizontal plane. This space-frame was usually described as "diamond-shaped." Disney Pictures used this vehicle in the last summer and autumn for a film entitled, "One Magic Christmas," which was released late summer 1985. (The Thebis also appeared in another Disney movie, "The Edison Twins.")

During the winter of 1984-85, Mr. Perkins cut steel tubes for two more Thebises, which were welded by Sparweld Metal Products. One red and one blue model were exhibited at the New York City Bicycle Show. These models had a neutral gear which could be shifted at a stop.

In the Summer of 1985, Mr. Perkins constructed a new flat-topped 4130 steel framed Thebis (called the "steering-wheeler"). Like its predecessors, the first version of this trike steered by handlebars. This new prototype was the first Thebis to utilize a framed suspension seat, with textile fabric laced to the seat frame. All subsequent models have followed this pattern.

In July of 1986 Mr. Perkins was granted a Canadian patent on the Thebis Trike.

By the summer of 1986, a new flat-topped prototype (the "America") had been built. This prototype had a 30" track and a 40" wheelbase. It was built of 4130 steel tubes and weighed 42 pounds.

By November of 1986, Michael Perkins had built two more Thebis Americas. The first of these was sold in Toronto and was the first Thebis ever sold. The second went to Santa Cruz, CA. in November of 1986.

In the Spring of 1987, a third America was constructed. It was shipped to Hammacher-Schlemmer in New York City and was displayed in its window for a couple of months.

In the Spring of 1987, Mr. Perkins removed the handlebars from the "steering wheeler" and tried alternate steering configurations. Its second version was steered by means of

Brutally Efficient

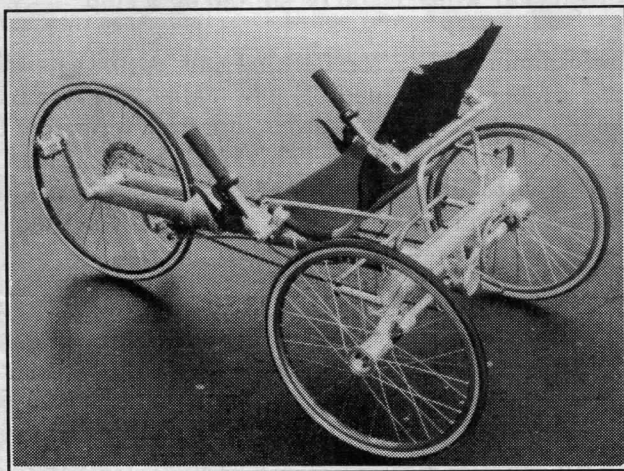
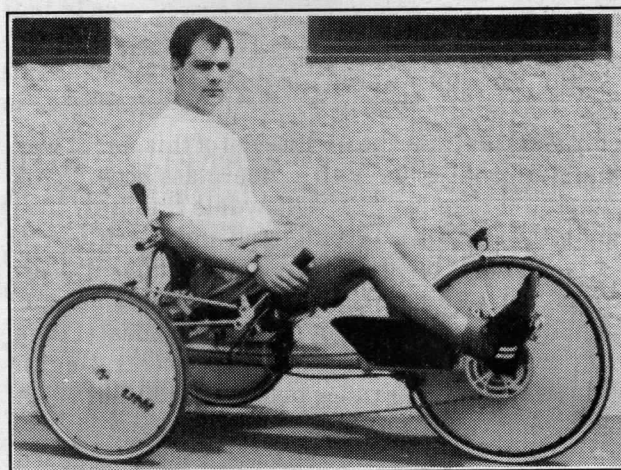
Sinfully Comfortable

26 Pounds

Thebis 201 Touring Trike

by Perkins

- Dual Hydraulic "fail safe" brakes.
- Fully adjustable orthopaedic seat.
- 21 speed gearing with twist grip, indexed shifters.
- "Air bag" seat cushion.



- Magnesium alloy - main frame, fork, rear axle, hubs, clutch housing, king pin housings etc.
- Automatic "self-centering" rear steering, with variable ("town & country") ratios.
- Dual rear-wheel drive (Torrington needle roller clutches and "Boeing" light bearings.)

Call Toll Free (800) 667-6801
for Free Package of Photographs and
Technical Specifications

Thebis International Ltd.

#110 - 2031 Malaview Ave., Sidney, B.C. V8L 3X9 Canada
(A Canadian Western Economic Diversification Project)

sliding push-bars; its third, by vertical mini-wheels at each side; and its fourth and last version, by a small steering wheel which was erected in front of the cyclist and from which a plastic windscreen was mounted. The steering-wheeler provided steering which was not sensitive enough for the convenient turning of sharp corners at slower speeds.

In September of 1987, Michael Perkins and a friend drove the most recently built Thebis America to the offices of Hammacher-Schlemmer in Chicago, where it was photographed and advertised in and on the front page of its Holiday Supplement Catalog of 1987.

In February of 1988, Michael and Peter Perkins formed a partnership with three of their friends and a cousin. The firm opened a shop in Mississauga, Ontario. They also exhibited two Thebis America's at the 1988 Toronto Bicycle Show.

In 1988, the Mississauga firm made and sold nine more Thebis America's.

In August of 1988, Mr. and Mrs. Perkins moved from Toronto to Victoria, British Columbia, Canada.

In the Autumn of 1988, the Mississauga partnership built a new prototype in aluminum ("the Farleycart"). It featured limited slip dual drive for the first time and weighed in at 52 pounds, with a track of 32" and a wheelbase of 40".

On December 7, 1988, Mr. Perkins was granted a European patent in eleven countries.

Over the winter of 1988-89, the partnership built a new aluminum prototype (the "Mississauga-1") which featured single drive and mechanically-operated variable-ratio steering (using a cam system), and was the first Thebis to steer by "side-sticks" (as are featured on the 1992 Thebis 201). It was first tested in April of 1989.

In March of 1989, the partnership exhibited the Farleycart and a steel Thebis America at the Toronto Bicycle Show.

From the spring to the late autumn of 1989, the firm

produced and sold seven aluminum Thebises (Mississauga-1 models).

In the autumn, the partnership successfully built a system of electrically-controlled variable-ratio steering and installed it on two customer's Thebises.

Over the winter of 1989-1990, the partnership built a new prototype in aluminum (the "Mississauga-2"), which, in its frame, is distinct in having a much shorter vertical "mast" but to connect the main tube and cross-spar. This new version originally utilized electrically-operated variable-ratio steering and was fitted with captured self-centering springs.

The firm closed its doors in Mississauga in June, 1990, so that Michael and Peter could rejoin their parents to continue the business in British Columbia. In July, 1990, Thebis International Ltd. opened a shop at #110-2031 Malaview Ave. Sidney, B.C., Canada on Vancouver Island.

Thebis International, Ltd. exhibited three Mississauga Thebises in Anaheim, California at the Interbike Exposition. The last of the "Mississauga" models was sold in October of 1990.

The prototype for the Thebis 201 Touring Trike was tested in April 1991. It utilizes magnesium and aluminum tubing and weighs 32.3 pounds. It has been calculated that a completely magnesium frame can be built even lighter. If titanium spokes and tubular racing tires are used, this trike would weigh as little as 26 pounds.

In 1991, Thebis International, Ltd. started construction of 50 units for the spring market of 1992.

In 1992, Michael and Peter Perkins attended the Seattle Bike Expo and the Portland Bicycle Show where they displayed the Thebis 201 Touring Trike. They also offered test rides at both shows. More than 500 attendees were able to ride the 201.

Between 1982 and 1992, 42 Thebises have been built.

Written by Peter Perkins
Edited by Robert J. Bryant

MAIL BAG

RECUMBENT PERFORMANCE?

Dear Recumbent Cyclist Magazine,

I am uncomfortable about what I read in your brochure, "Have you ever considered a Recumbent Bicycle?" as well as some recumbent manufacturer's brochures. Many publications plainly state the recumbents are 10% faster than diamond frame bikes. With 1000 miles on my LWB underseat steering recumbent, I can't come close to saying that. Average speeds on my unfaired bike are in the mid-16 m.p.h. range. I have tested a Zzipper Fairing that brought that number up to 18.5 m.p.h. My diamond frame averages are over 20 m.p.h. If "bents" are faster, which ones are? Am I riding the wrong type? Have I not developed the elusive recumbent specific efficiency? Maybe I am the exception rather than the rule.....

Please don't "file 13" this letter like the major publications do. Love your publication-hope some day its 12 issues per year 100 pages each!

Tom Beuligmann
Mt. Carmel, IL.

Tom, thanks for the letter. To answer your performance questions: recumbents are fast; they hold all major speed records. The Gold Rush is in the Smithsonian for breaking 65 m.p.h. and the "Bean" holds the Worlds One Hour Record for going 46.9 miles in one hour. Each rider's performance on a recumbent bike will differ. If performance is a consideration, you should choose a performance

oriented bike. Many commercially built recumbents offer some performance options or even performance models. Upright steered recumbents are proven faster because of the aerodynamic advantage. If you feel the need for speed, I suggest you take a look at the Easy Racers, Rotator and the Counterpoint Presto Performance. In our reader's survey, (RCM#7) our results show that performance for recumbents riding on the flats are as follows: faster-65%, slower-15% and the same-15%. —Editor

Dear Bob and Club Membership,

Enclosed is some info re: Bike Nashbars (nee: Bike Warehouse) once and former foray into the wild world of recumbent bicycle marketing and manufacturing. The copies of recumbent ads are from their catalogs from the early 1980's are from my recumbent scrapbook. Included were the Avatar 2000, Infinity and the FunCycle. They also had someone build a few "Nashbar" recumbents exclusively for sale through their store. I assume not many bikes sold since all recumbents disappeared from the catalog, further proof that extensive test rides are usually necessary to sell one.

Regarding recumbents built by Huffy, they did indeed build a recumbent in the early 1980's featuring two small steered front wheels, a large driven rear wheel, and steering by a lever at each side of the seat. It resembled the "Slingshot" of the late 70's. I was told that it was very difficult to control and would easily out perform it's shakey

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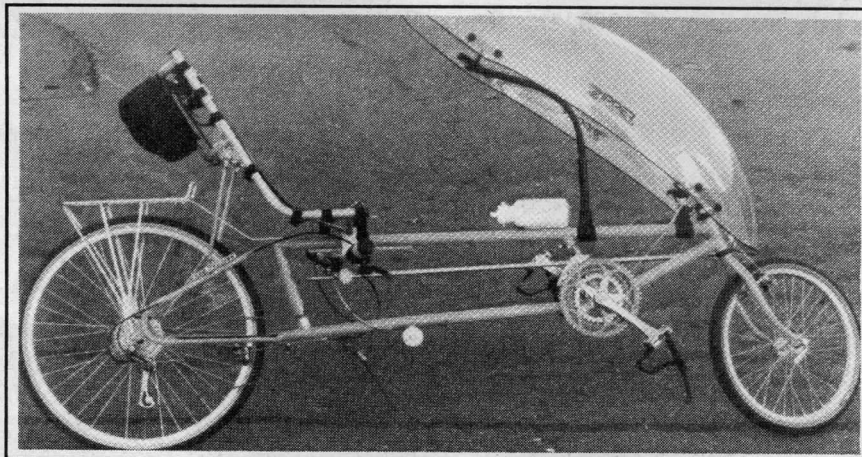
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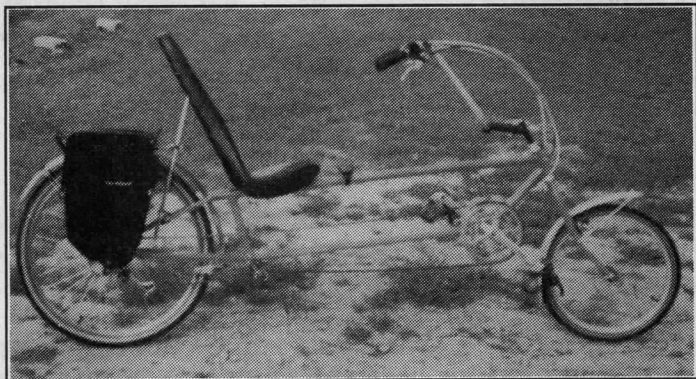
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braking capacity.

I was privileged to visit the Huffy Development Center in Miamisburg (Dayton) Ohio once in 1986 and saw a Roulandt hanging from an overhead rack along with a very similar recumbent. I asked them about it and was told they had been experimenting but had no plans to market a recumbent.



Ralph Cady's Rad Cycle homebuilt Easy Racer
(photo by Ralph Cady)

Enclosed is a photo of my self-built "Easy Racer" designed by Gardner Martin. I commute on it every weekday and never ride by old Cannondale launch vehicle anymore. To build it I used a mountainbike frame and some pieces of True Temper chromoly plus some instruction in frame building from Richard Talbot's "How to Build your own Frameset" book.

Thanks for the fantastic publication!

Ralph F. Cady
Vicksburg, MS

Ralph, thanks for the great information. A few years back, Murray, showed up at IHPSC with a LWB and SWB with the Murray name on them. Here is a photo of the SWB. The LWB was a Tour Easy like recumbent. Kelvin Clark from Angle Lake Cyclery called to say that he actually has a Huffy Trike at the store.

LAID BACK policy

Dear Robert,

In your article on the R-20 you state that this bike is the only SWB without a steering dampener, that is not so and you of all people should know this, have you noticed a steering dampener on any of my bikes? Lets be truthful.....

Sincerely,

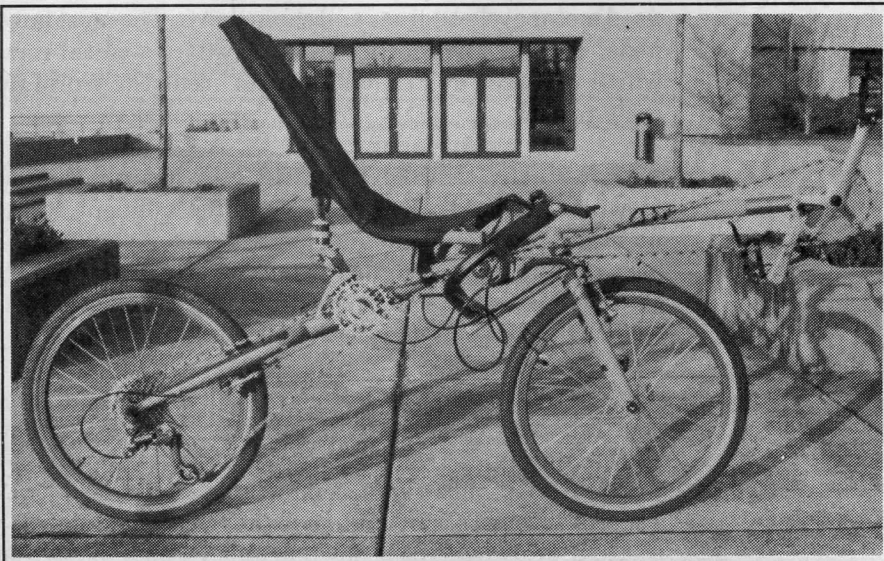
Milt Turner
Turner Enterprises/ Laid-Back Bicycles

Dear Milt, thanks for the letter. We stand corrected and please accept our apologies. This was not an intentional mistake, as we are aware that the Laid Back Bicycle's do not have headset steering dampeners. At the time the article

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was written, we were only considering recumbents that are sold as ready to ride bikes. The LB is not a ready to ride recumbent. But after receiving your letter and some careful thought, we realize that this was both a narrow and legalistic view. So, in the future, comparisons such as this will include any commercially built recumbent vehicles, frameset or complete bike. How's that for quick policy change.
-Editor

Get online! The GENie COMPUTER NETWORK

Dear Mr. Bryant,

My son lent me <RCM> back issues and I was extremely impressed. It's my personal belief that the automobiles days are numbered and machines such as those listed in your magazine will take over the bulk of human transport. For your reference, you may want to check out the March issue of Bicycling <pg. 52> for their futuristic look at a mass transit system based on elevated recumbents. I have also signed onto GENie services, though I've been unsuccessful trying to make the connection.

Many thanks and keep up the good work,

Glen Stanberry
Buffalo MN.

Thanks Glen, if you have a computer and modem, you need to hook up to the GENie online network. If you play it right, it will only cost you \$4.95 per month. We have an ongoing very active discussion on recumbents that you can leave messages on and read other's messages. Here is how you hookup. Set your system to 2400 baud, half duplex (local echo) and dial 1-800-638-8369. After you connect, type HHH. You will get a prompt from GENie that appears as: U#=. Type GTX99514 and press return. The system will start asking for personal data, so have a credit card ready. The Star Services area is where we are, on the SPORTS bulletin board, under Cycling, category 15 topic 11. If you already have GENie, type "M8009;9" then type "3" and then "15" and then "11." Sounds easy enough.....Yeah right! It's worth the effort. It's like an on-line RCM! -Editor*

RECUMBENT REACTION TRAINING

Dear Robert,

We both have had our Lightning's for over a year now, so we read your review with interest. Your comments about the frame design were spot-on, including those about the steering being quick, but I don't think it is that much of a problem. With enough riding time, you quickly become used to it. It may be that your reactions need a little training.....

Sincerely yours,
Jeff Wills
Goleta, CA.



Aerocoupe without body
(photo by John Riley)

P.S. I was a partner in Aerocoupe, Inc. and had great fun with them. I believe we built a total of 14 Aerocoupe trikes. <pictured in RCM#8>

First I need to develop special reflexes and now I need reaction training.....what next! -Editor

Dear Bob,

Have at last joined the RBCA and received my first issue of the magazine - you certainly are doing a great job.

I am writing to take issue with your correspondent Mark Murphy who quite wrongly informed you that a three wheeler with TWO wheels at the front is known as a CYCLECAR. Not so! Ever since the dawn of cycling three wheeled vehicles have been known as TRICYCLES whether the two wheels be at the back or front. It is important that you correct this false impression.

Cyclecar is a name given to a series of pedal cars with bodies like automobiles with side by side seating just after World War I when petrol was scarce. They normally had four wheels but some had three. The name was also used in the auto industry for various small cars which mainly used motor cycle engines and chain drive. The most famous pedal car was the Mochet Velocar, the two wheel version which was used by Francis Faure to break the World Hour cycle record.

ATP R-20 UNDERSEAT STEERING: From a European viewpoint I would take issue with your statement, "there is no other production underseat steering recumbent with bars that are this well thought out." At the European HPV Championships the German Harig, Dutch M5 (for which we are the U.K. agents) both have similar setups.

NEWS FROM CRYSTAL ENGINEERING: (U.S.A. Agent Ken Trueba; Eco Cycle) The 1992 Ross Recumbent (SWB) has an aluminum framed seat with polyester stretch cover which is not only more comfortable but much lighter. Together with a slight change to the frame that eliminates the rear pully, weight is down to only 24 pounds. A choice

of above or underseat steering is available.

Yours Sincerely,
 Peter Ross
 Crystal Engineering (manufacturers of the Trice and Ross)
 Cornwall England

Dear Peter, thanks for the letter and clarification on tri-

cycles. My statement on the ATP R-20 was in comparison to what is readily available in the North American recumbent market. Sales & delivery information on the M5 is currently hard to find in the USA and I have not heard or the "Harig." Maybe you can supply us with specs, prices and shipping info for the Ross and M5. Thanks for your membership and letter. —Editor

RCM INFORMATION

The Recumbent Cyclist Magazine is dedicated to promoting recumbent bicycles and providing and encouraging communications between HPV enthusiasts, dealers and commercial manufacturers of recumbent bicycles.

SUBSCRIPTION INFO: The Recumbent Cyclist is the official newsletter of the Recumbent Bicycle Club of America and is published five to six times per year. To subscribe to the Recumbent Cyclist, please send \$25 to subscribe (First Class Mail-USA), \$20 Bulk Rate (USA) and \$30 world wide & Canada (USA FUNDS). The First class subscription will get you your issue 2+ weeks earlier than the standard rate. The club patch is also available from the RBCA office for \$4.00 each shipped. Back issues #2-#9 are \$4 each (one free if you order all 8 issues (Canadian back issue orders ad 25%, Worldwide Air ad 50%).

R.B.C.A. DATABASE: The database is finally finished, it consists of names, addresses, phone numbers and types of bikes ridden for R.B.C.A. members. We will be updating it three to four times per year. In its finished form, it is 28 pages long! We cannot afford to send this to all members, as it is the size of a complete RCM issue. What we have decided to do is this: the complete database will be available for \$8. It will be broken down in state order and then by then type of recumbent. We

DEVOTED PRODUCTION STAFF: Editor & Publisher: Robert J. Bryant, Business Manager: Marilyn J. McKee-Bryant, Production Assistant: Jeanene Smith, Graphic Services & Printing courtesy of DeskTop Publishing & Printing in beautiful downtown Renton, Washington.

COVER: The Thebis Rear Wheel Steering Recumbent Trike, photo courtesy of Thebis Ltd.

will also offer it in one-third sections at \$4 each. This will be split equally in West Coast, Central and East Coast sections (approx. 8-10 pages per section). Please list the states or areas of North America you are interested in.

NEWSLETTER SUBMISSIONS: We want your photo's, letters, stories and recumbent information for publication. Send a story/ article about your bike and please don't forget a picture. Print your name on the back of anything sent to the RC office so we can credit the source. If you can send your submission on computer disc, we use an Apple Macintosh (Microsoft Works 2.) that will read IBM 3.5" discs in ASCII format only. If you don't have a computer, we will take it in a letter form or whatever.

NEW ADDRESS: Please send submissions to:
R.B.C.A./ Recumbent Cyclist
 17650-B6-140th Ave. SE, Ste.341
 Renton, WA 98058.

NEW RECUMBENT HOTLINE: (206) 630-7200

WANTED: More recumbent modification and builders corner stories. Have you built a FWD or homebuilt recumbent? Do you own one a Rans, Counterpoint Presto, or Trice? How do you like it? How about a short story about it? Remember, pictures are a must.

UPCOMING IN RCM#11: The long-awaited...
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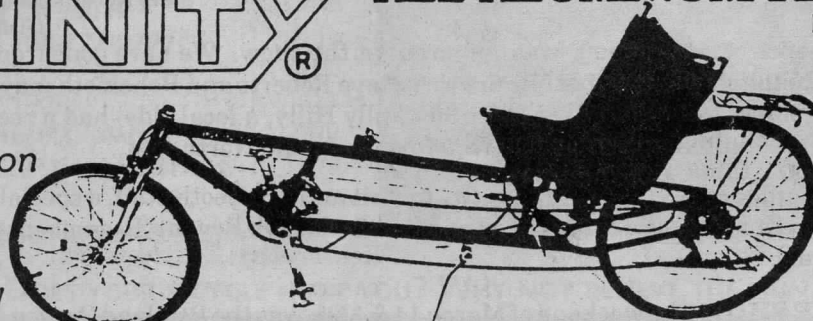
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EDITORIAL LICENSE:

Welcome recumbent cyclists. Thanks again for all of the encouraging mail and comments. Our Question of the month over whether you'd pay an extra \$5 per year for first class mail service was an overwhelming yes! But until we get less than 200 bulk subscribers, there will still be a choice. For now we have devised a schedule of how to upgrade your subscription to FIRST CLASS. Here is how it works. Your mailing label lists your renewal date, below we have a schedule of what renewal dates have how much of an upgrade to get first class mail service.

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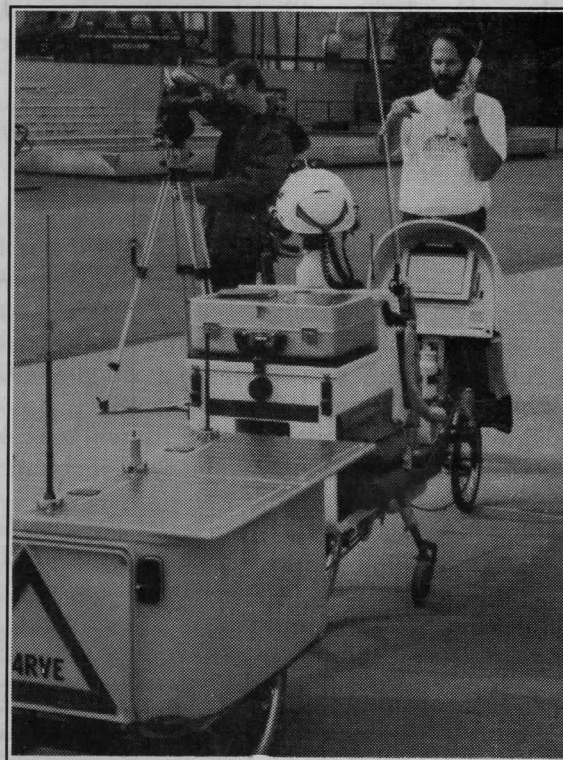
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THE SEATTLE BIKE EXPO This years show went off as planned and was better than ever. We had a larger booth than last year which included Steve Roberts and the "Behemoth." Steve arrived Friday morning at 11am for a press conference. Seattle area TV crews and newsmen were all over the place. Steve gave the media the grand tour of his hi-tech rolling electronic masterpiece. During the show, Steve gave seminars that were free of charge for attendees.

The RBCA/ Recumbent Cyclist had on display a '92 Tour Easy, the 1992 Ryan show bike complete with a Zzipper fairing, Mountain Cycle Disc brake and the new performance wheel option. The bike also had a trick two-stage metallic grey powdercoat. Ryan offers what may be the nicest powdercoat paint jobs available. Joel Smith was there to show the new ATP R-20 SWB recumbent. The bike received rave reviews from many "Recumbent Cyclist/ RBCA members. Michael and Peter Perkins were down from B.C. with three Thebis Trikes. We were told that they gave nearly 400 test rides. The trike was definitely the most popular recumbent test ride. Angle Lake Cyclery had the '92 Presto's on display, they also had one on a wind trainer for people to try out. They also reported a show attendee waiting at the shop's door Monday morning to order a new Presto. We also were able to distribute 400 sample Recumbent Cyclists issues and over 500 flyers.

Many members brought their bikes down to the bike parking area outside the show doors. We had our Linear demo, Eric Seemann's Ryan, Eric & Susan (Gresia) soon to be Mrs. Seemann ****CONGRATULATIONS**** Pearl White and pink LB'90, Dick Ryan's Ryan trike, LB-'90 and Mike Burkey's custom LB-E were all parked outside for the folks to see. Some members were even offering test rides on their personal bikes. On Saturday afternoon, member Bill Yerkes brought down his new Trice trike with a Powerreads Sachs gas motor conversion. Many of us were able to ride this very interesting hybrid. More than one person mentioned purchasing one for themselves. Hill climbing is a breeze with this little motor. Bill drove across the floating bridge from Bellevue to the Seattle Center. When we gazed into the gas tank to see how much fuel was burned, it appeared that only a cup or so of gas was missing.



Steve Roberts computing across America
 (Staff photo)

The overwhelming presence of *recumbency* was apparent at the show. We have gone from the back room in a last minute booth last year, to the show's number one draw. <Steve Roberts and Behemoth may have had a bit to do with this.> Even the official show T-shirt (also the shirt for Chilly Hilly, a local ride) had a recumbent on it. It was an amazing weekend, and a definite major boost for *recumbency* in the Northwest.

Special thanks to all Recumbent Cyclists who came by to visit and our booth staff, a special thank you to: Dick Ryan (Ryan), Joel Smith (ATP), Kurt Jensen (Second Nature), Bob & Marilyn Bryant (Recumbent Cyclist/ Millennium) and Hanz Sholtz (Green Gear).

PORTLAND BICYCLE SHOW The weekend of March 14 & 15th was the Portland Oregon Bicycle Show in beautiful Portland Oregon. Our display's in Portland are always better than the Seattle show due to show promoter Bill Bradley's love of recumbents.....

(cont)



Two unidentified enthusiasts checking out the '92 Easy Racer.
Does anybody know these guys?

(staff photo)

Bryant Special" and a Linear LWB a DH1000 also courtesy of Second Nature & Kurt Jensen of Eugene (OR) and the "Tricemen" Ken Trueba and company with two show-stopping Trice', one with the PowerTreads gas motor conversion. What is so nice about the Portland show is the promoters offer us of a test track. We were inside the Assembly Hall and next door was a twin empty hall which Mr. Bradley secured for our test track. Rumors have it that a grudgerace & slalom between ken "Triceman" Trueba and Michael "steer-the-rear" Perkins took first place.

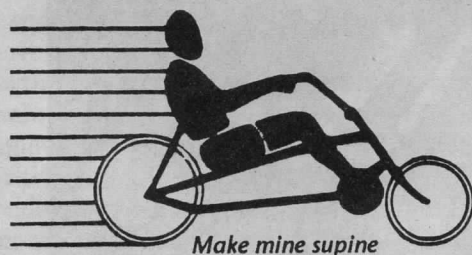
Viva Recumbency,
Robert J. Bryant

On this weekend, the Recumbent Cyclist had a 300 square foot display that included: three Ryan's including Dick's Ryan trike and grey show bike along with the famed Angle Lake Cyclery demo "Blue Tire Special," Second Nature's new ATP R-20 demo, Millennium Cycle's Easy Racer "Bob



(L to R) Dave Schull, Bill Yerkes and
Joel Smith checking out Bill's Trice.
(staff photo)

Ken "Triceman" Trueba and Michael "steer-the-rear" Perkins took first place.



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(group listings will only appear in every other issue unless we receive news from a group).

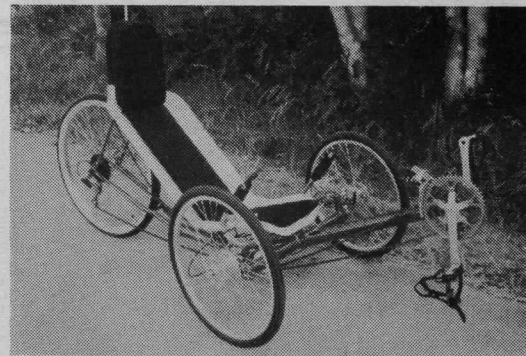
NORTHWEST RECUMBENT CYCLISTS: Yes, we are still looking for a leader, but many of us are riding on the Green River Trail that runs from Southcenter (south of Seattle) down the valley through Kent, Auburn, and beyond. The ride is flat, relaxed and lots of fun. This is where we do RCM recumbent road tests. Call me if you have some ideas, Robert (206)630-7200.**BUILD A PRELUDE RECUMBENT BIKE**

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THE TURNER LAID-BACK "E"

The Laid-Back model-E, for "Economy" is the newest model from recumbent designer Milton Turner of Los Angeles. Turner, who was involved with the Hypercycle Recumbent in the early 1980's has continued to update the design since the Hypercycle ceased production. The new "E" model looks much like its predecessors but has been completely redesigned. The current "E" model is only available in "kit" form from Turner Enterprises.



1991 Laid-Back E (18 speed)
(staff photo)

FRAME

The new USA-built "E" frame is welded square mild steel with one main tube, unlike the round three tube design of the LB-90/4130. This most recent offering from Turner is a total redesign of the old LB-Jr. from years past. The changes and upgrades include a front derailleur post and a move away from the BMX size headtube and bottom bracket. On the old "Jr." the frame was rather congested where the chain stays met the seat tube. This clutter has been removed on the new model making for a more efficient looking design. The seat stays are still pressed flat and welded to the dropouts which is something that could be improved on future models. The fork is mild steel; however, not as nice as last year's "air-foil design" fork that came with the LB-90, but it is adequate for this application. The new frame seems strong, stiff and durable; however, we did want to mention that the "E" has BMX style reverse dropouts. For this reason it is recommended that a bolt-on rear wheel be used. We also would like to see rear dropouts and derailleur hanger of thicker steel than are on the current "E". Turner currently supplies a bolt for the inside of the derailleur's hang-bolt threads.

WHEELS

As an entry level bike, any 16" front wheel will work. The steel (kids BMX) 16" x 1.75" wheel is the most affordable. This is also available with an alloy rim for slightly more. The next step is the alloy 16" X 1-3/8" and the final performance step for LB-E front wheels is the 17" Moulton. Your best bet for front wheel info is your local bike dealer for steel wheels or call CycloPedia.

NEW TALL SEAT

The new tall seat is Turner's finest. An even taller version than that of the LB-90 bent upward near the top for a head rest. The base "lip" at the forward edge of the seat base has been removed to provide even more comfort. The seat has a fiberglass shell with a cover that slides on over the top and onto the base. A removable foam pad that acts as a lumbar support comes with every Laid Back.

1992 CHANGES

The 1992 seat design is the best ever, an improved pad, a more breathable Cordura mesh upper along with a vinyl base and back. To quiet down the chain at the idler, Turner has added nylon discs to replace the aluminum ones found on previous LB's. The new '92 LB'90 (chro-moly, tri-tube design) should be available soon, Turner is now doing final testing on #001. The frame weighs just 6 pounds, which is two pounds lighter than the "E" model. It will have a clear "gold" kevlar seat shell, be significantly more expensive than the "E" model. The LB2000 will also have a new US built chrome-plated chro-moly fork. Turner may also supply a parts kit with top of the line Bullseye components. The LB2000 frameset price was not available at press time.



1991 Laid-Back E (18 speed)
(staff photo)

LAID-BACK DESIGN

The LB-E is a simple and fun entry-level recumbent. The best news is that the "E" costs about half the price of its nearest competition. The "E" has a wheelbase between 35-37", depending on whether yours is a small, medium or large frame. Unlike other SWB bikes, the Laid-Backs have a

sliding seat rather than an adjusting

crank/boom. This system works relatively well, but keep in mind that every time you change the seat position you change the weight distribution. This can lead to a heavily loaded front wheel. For this reason Turner offers three frame sizes. The new "E" is easy to ride, although some fork-flop was detected. This means that the fork high centers in the middle, and wants to turn to the right or left

side. Like many SWB recumbents the LB-E can have some crank-heel interference. This only becomes an issue with the shorter frames where shorter crank arms can be used. We built a LB-90 small size and used 160mm crank arms. The complete Laid Back "E" bike weighs 35 pounds, the frame alone weighs 8 pounds.



Mike Burkey on his 24" LB-E
(staff photo)

One aspect that contributes to the user friendliness and comfort of this SWB design is that you pedal "downhill"; i.e. the bottom bracket is lower than the seat. This has long been a Turner trademark and makes the bike easier to adjust to than other SWB recumbents. By using a 16" front wheel, the bike seat is also kept much lower than other SWB recumbents. Some riders of high bottom bracket recumbents may disagree or note that the slight downhill pedaling angle is less efficient, but the LB-E is not designed to be a racing machine. It is an entry level recumbent designed for comfort and recreation.

TARGET MARKET

The majority of Turner's business is the "ten speed" or recreational bike market. Turner has little interest in competing with the other SWB production recumbents in the high-end market. Are the LB's a bargain? The answer is up to you. When compared to other \$1700 SWB recumbents, Laid Backs are a good deal; however, when compared to \$300 mountain/city bikes, no entry level recumbent can compete price wise. One thing is for certain, Milt Turner and Laid Back Bicycles are committed to marketing entry-level recumbents, which can only help get more enthusiasts on the road. Milt Turner's designs continue to evolve with every new model better than the last.

WHERE TO BUY

LB-E frame-kits are available through recumbent dealers and directly from Turner Enterprises. The "E" model comes in three sizes and fits riders with heights of 5'2"-6'2" (depending on inseam). Turner Enterprises, PO Box 36158, Los Angeles, CA 90036. Phone #(213)383-0030. S.A.S.E. for information and a color photo.

WHAT OUR READERS THINK

ON TURNER LB-90 HANDLING: Nick Mattoni stated: "I haven't had any trouble. It's the greatest vehicle I've ever imagined; if anything too fast. The handling is superb and at speed the bike is almost self steering. No other recumbent that I've ridden has this quality. The bike climbs very well and negotiates hairpin turns beautifully. On club rides in Japan I stay with the pack on the hills and leave them in the dust on the decent. Mark Williams said, "The ride is harsher than I would have thought it would be. My solution is to add a KEI Hydros shock on the back of the seat." Jim Ellenbacher remarked, "The feeling of security knowing your bike will go the distance is amazing. I was recently able to finish a 52 mile trip in heavy rain."

FRAME QUALITY, FIT AND FINISH: "Frame quality seems fine but the paint is peeling and chipping around the bottom bracket and rear drop out. Improvements: better paint, spring tensioned <upgraded> idler system, fairing mounts and better contour handlebars," Nick Mattoni. "The front derailleur post seems to be at too steep an angle; I tried to use a 56T. chainring and it would not work. Improvements: a fairing mount, more breathable seat, a shock or dampener for the seat, braze-ons and an improved chain-idler," Mark McWilliams. "I have yet to install a bottom bracket <on the LB90 frame> without chasing or retapping the threads which is simple job if you have the tools," Jim Ellenbacher.

DRIVETRAINS: "The bike has 14 speeds; a 39 X 52 front and 12-28 rear. Front tire is a Moulton 17" that usually lasts only 1 year," Nick Mattoni. "The bike now is a 12 speed 42 X 52 front and 14-28 rear. The front tire is now a 16" X 1.75 Kenda with max. pressure 45 psi; I over-inflate them to 60 psi. The front tire lasts for 1000 miles (1-2 months in commuting use) if I don't stop for aluminum cans." Mark McWilliams. Note: Mark converted to a 16" X 1-3/8" tire for some time, but has now reinstalled the 1.75" tire, he had tire durability problems.

LAID BACK FAIRINGS

"I made a rear tail fairing from 1/4" foam core board reinforced with styrene, acetate etc. It was a mock up but it's held up well under a lot of miles. It not only gave me a fair speed increase but has also made lots of storage space for tools, cloths and spare tires. When it finally falls apart, I'll make another of fiberglass or maybe even a full fairing....." Nick Mattoni, Japan.

Mark McWilliam's LB-90 nose fairing is made from a stock "Breeze Cheater" nose fairing with a 4' X 2' (3/32" thick) polycarbonate sheet. Copper tubing was used inside for additional strength. The fairing is mounted to the bike with hose clamps at the derailleur post and under the frame. Mark also has cardboard shelf inside that holds a stereo and speakers.



Mark McWilliams on his LB'90
(photo courtesy of Mark McWilliams)

upgrade his front wheel to a 16" X 1-3/8" from CycloPedia. Mark's most recent upgrade is a pair of mountain bike bar-end handles(Onza or similar type). These do not add any more speed and they make it more difficult to get on the bike, but they make for a more comfortable riding position. You do not have to reach as far for the handlebars. <We have also done this on an earlier LB test bike with excellent results, RCM9; ATP R-20 test.> Jim Ellenbacher rides a LB-90 21 speed model with top quality components. The bike has a 27" rear wheel and a Moulton front. Jim also owns a LB-Jr with 24"/16" wheels. We would like to thank these riders for taking the time to write about their machines.

Nick Mattoni • Kyoshu Otani Jr. College • 495-1 Kurakazu • Chikugo-Shi, Fukuoka-Ken, Japan

James Ellenbacher • 529 Westfield Ave. #B • Roselle Park, NJ 07204

Mark McWilliams • 8340 W. Hidden Lakes Dr. • Roseville, CA 95661

ABOUT THE TEST RIDERS: Nick Mattoni rides a Turner LB-90, a LB-Jr (Mtn. Recumbent) and also has a Tour Easy. I have been told that Nick is very, very fast on his LB-90. Nick is from Los Angeles, California, but currently lives in Japan. Mark McWilliams owns a LB-90 and rides it as his sole transportation, currently riding 400-1000 miles per month. Mark's bike has a custom front fairing with lights and a stereo system. He is planning to

BUILDING THE LB-E

Turner Laid-Back Recumbents are relatively affordable on the price scale of recumbent bicycles, although Turner sells frame-kits only. "Kit" is the key word here. You receive a

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painted frame, seat mounting hardware, chain-idler plates, (you must supply idler wheel) seat & cushion, fork and handlebars. You must supply cables, housing, bottom bracket, headset and all running gear. We have compiled a list of helpful hints and ideas for an easier "build" and to help you understand what it is like to spec and assemble your own bike.

1)Parts: your best bet is to consult CycloPedia, Performance and Nashbar. Other ideas include digging in your local bike shop's junk box and/ or scavenging from an old road or mountain bike. We also recommend checking availability on mail order parts as sometimes they can be out of stock.

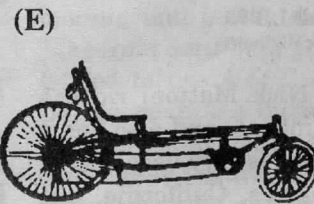
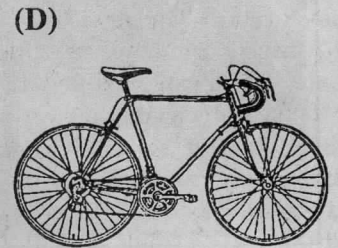
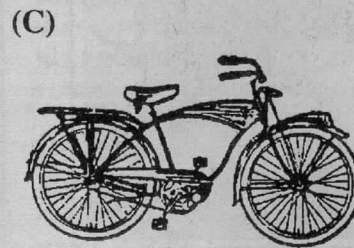
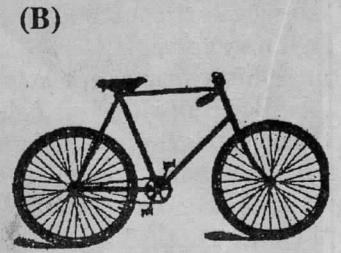
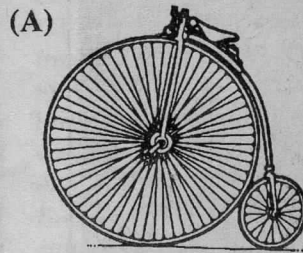
2)Headset: You will need to have your bike shop install this or buy or make the tool to do it yourself. You'll need a special size headset for this bike. It is a 27.0 crown race headset. On the cheap end, YST makes a steel one sold through Pyramid and stock on department store bikes. YST also makes an upgraded version that is alloy. CycloPedia can also set you up with the correct size component.

3)Bottom-bracket: Some of our test bike B.B. shell threads need to be cleaned Turner is working to alleviate this problem. The job takes special tools and is done by shops offering frame repair. The problem on some LB-90's was the threads were not clean and B.B.'s went in hard. Our first testbike threads were near perfect, but the second needed to be faced and traced. When done at a shop, this can cost \$20-\$30. We used a Shimano Exage B.B. on one and a Deore XT on the other. Last year we used Kajita (Performance-mailorder) Cartridge Sealed units on our LB-90's. These have two adjust-

able cups for easy installation. Chainline adjustments are possible and can aid if you have thread problems. These sell for \$25.

4)Braze-Ons: One thing missing on the LB is the front derailleur cable stop. On request, Turner supplies (on

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request) a bolt-on mount, that clamps to the derailleur post. We like to use a Suntour XCM/ XCE front derailleur that comes with an optional cable stop. A barrel adjuster can also be modified to mount on these derailleurs. The cable-stops do not hold index-housing very well. We generally run constant housing installed with zip-ties, and we have built several indexing LB's. If you want to use the braze-ons, zip-ties can help to guide your housing into the braze-ons. We have successfully mounted small Blackburn racks to LB's using the small Blackburn plastic-coated "C" clamps bolted to the seat stays. We then modified the stock adapters by severely bending them and running them nearly straight downward to bolt on to the seat mounting hardware. If you are creative, a waterbottle cage can be mounted here also.

5)Drivetrain: We have successfully used Suntour or Shimano drivetrains. Bar-End shifters work the best but are expensive. Thumbshifters adjust easier and are less expensive. A quality chain is recommended (we like the Sachs Sedis-Sport). Double cranksets work better than triples due to the severe chain angle (from the idler) that can occur with a triple, however, our two LB-E's were set up as triples. Do not use an inside chainring any smaller than 28T and for best results, try to stay under 50T on your large chainring. We have also found that 6-speed freewheels of 13-28 or 13-30 work well. REMEMBER: The spacing of the rear



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dropouts is not wide enough to accept a 135mm modern mountain bike rear hub/ freehub assembly.

6)Rear wheels: Depending on which version of the "E" you have, it may accept a 24", 26" or either. We prefer the 26" because it is a mountain bike wheel. We recommend a 26" X 1.5" alloy rim/ alloy hub bolt on wheel. Another reason for the bolt on is that when using a 26" wheel, the axle does not go flush against the inside end of the dropout, it bolts about at the center. **YOU MUST SPECIFY WHETHER YOU PLAN TO USE A 24" OR 26" REAR WHEEL.**

7)Front fork: The steel BMX fork is spaced at 90mm. The 16" wheel's front hub is 100mm, so the fork needs to be spread. You can do this with an axle with four nuts or a vice. If you do not do this, you will fight with the front wheel every time you take it off or put it on, this sort of defeats the term "quick release."

8)Brakes: The cheapest way to go is side pulls. For a nice set, go for Dia Compe 500/730 GX alloy quick release side pulls with some Aztec or Kool Stop pads. For a bargain, Turner and CycloPedia sell a Weinmann alloy brakeset that includes tourist style levers. Specify which wheels you are using to get the proper size (long or short reach) brake. The front brake needs to have the "pull" on the left/non-chainring side of the bike. Drum brakes would be a natural

for the LB's, contact CycloPedia.

9)Seat: The new tall seat now comes standard on the "E" models. Getting the seat adjusted right can take some time. Be patient! We have had the best luck bolting the lower base mounts first, then the long seat bolt and then the seat back bolts. For certain positions you may need to drill some new holes in the fiberglass. Also be careful installing the seat pad. Attach it on the seat back first and then carefully pull it to one seat base corner and then the other. Do not pull on it or it will rip. If you are interested in Turner's new tall seat for your homebuilt, they are approx. \$200. More for the Kevlar version.

10)The rear dropouts are on the thin side, as is the rear derailleur hanger. Turner supplies a bolt for the inside of the rear derailleur mount threading to hold it secure. The previous LB-Jr. did not even have a rear der. hanger and the old style axle-bolt on hangers work just fine. We recommend a bolt-on rear wheel.

11)The LB-E headtube takes a special size stem if you want to make your own bar/stem combo. The best way to go about this is to use the old stem and have a local welder fabricate some custom bars. (Idea courtesy of Mike Burkey of Woodinville, WA.)

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Weinman side-pull brake set w/ Tourist handles. (CycloPedia or Turner)	\$ 29
CycloPedia 16 X 1-3/8" wheel, tire, and tube (shipping incl.) under	\$ 50
CycloPedia Stronglight Headset (27.0 only!) crown race	\$ 35
(Pyramid (YST STEEL)10 spd. headset or YST 27.0 headset also work)	
Shimano Exage double or triple (add \$5) crankset(NASHBAR)	\$ 35
Shimano Exage front and rear derailleur (NASHBAR)	\$ 29
Shimano Tourney Thumbshifters (6 spd.) (local bike shop) est.	\$ 19
Sachs Aris 6 spd. freewheel (NASHBAR)	\$ 25
(try a local bike shop or a Shimano "Z" or CycloPedia)	
Shimano Exage Pedals (NASHBAR)	\$ 8
Shimano Deore Bottom Bracket (NASHBAR)	\$ 10
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I.R.C. Metro Semi-Slick 26" X 1.5 Rear tire and tube (NASHBAR)	\$ 15
Cables and housing	\$ 20
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"Future Plan: replace the ten speed—let the world know that bicycling can be fun and painless,"
Milt Turner, February 1990.

LAID-BACK HISTORY

Whatever your thoughts are on Milt Turner's familiar recumbent design, it is a popular one. Similar SWB recumbent designs date back to 1936 with the Ravat Cycloratio. Then in the 1970's, Fred Willkie's Green Planet Special came on the scene. Later the updated

Wilson-Willkie SWB recumbent (David Gordon Wilson/Fred Willkie) received a great deal of publicity in a Mobil Oil TV ad. Sometime later, came the Hypercycle with its patented frame design and affordable price. Milt Turner, Michael "Smitty" Smith and John Lee were partners in Hypercycle. The first prototype Hypercycle was built in 1978, with full overseas production starting in 1981. Due to overseas production problems, the company ceased production of the Hypercycles in 1983, but not before several thousand Hypercycles were built and sold, leaving their mark on recumbent history.

Milt Turner still had the recumbent bug. He moved production to the USA and came up with possibly the rarest production Hypercycle, a USA built chrome-plated bike of which 50-60 were built. This bike marked the end of the Hypercycle name. In 1984, Milt Turner started working on "The Laid-Back Bicycle," with the first ones being produced in 1985. LB's have been built in California ever since and sold as framekits only, unless you buy through a dealer who will set them up as ready-to-ride bicycles.

Many rare Hypercycle/ Laid Back models were built. Milt Turner has a great collection that is worthy of a recumbent historical museum, if there was such a thing.



John Dusenberry with his original and 1984 chrome Hypercycles.
Both have inverted seat posts used as front der. posts.
(photo by Jon Schwartz)

The black Hypercycle prototype pictured had a seat made from an ironingboard. It was built in 1978. This bike was later stripped for parts. A pair of special blue Hypercycles were built for the former company president, John Lee. They were steel framed bikes with the small tubes being polished stainless steel and the rest of the bike was powdercoated light blue. One was sold to an unknown customer and another still is owned by Mr. Lee. Another special bike was constructed with hand made crank arms. This was one-off USA built Hypercycle that was the forerunner to the '84 chrome-plated bike and the later Laid-Back models. This bike was shipped to Japan; current whereabouts are unknown. Finally, a rare "small" pearl-white LB'90 was built up by us as a show bike in 1990. The bike has all sealed bearing hubs, bottom bracket, UNI discs front & rear and pink Grip Shift Shifters. (This bike is currently being offered for sale by its second owner-see this issue classified ads.)

For many loyal fans, the Hypercycles were the beginning of a love affair with recumbent bicycles and they are still riding their bikes daily. Others do not have such fond memories of this bike and only mention the Hypercycle

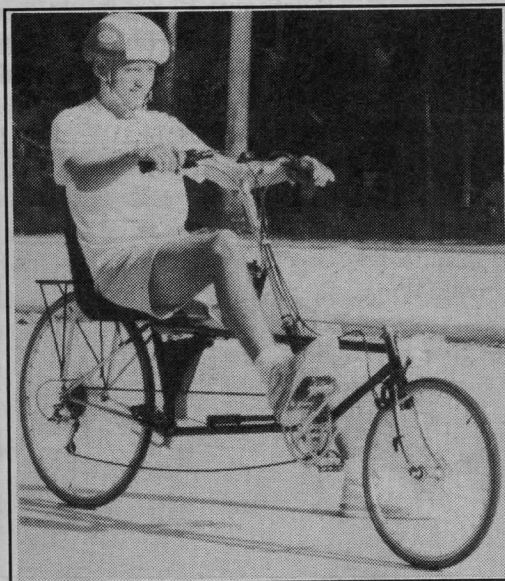


Susan Gresia (left) and Marilyn Bryant (right) display the LB '90 (staff photo)

when speaking of common recumbent media myths and unpredictable finish quality. Personally, I have a fascination with the Hypercycle and Laid Back recumbents. I have owned and built several, even though I prefer custom built quality. I still love these bikes. I think the attraction is simplicity and low cost, along with the aura of mystery surrounding the Hypercycle's past.

by Robert J. Bryant

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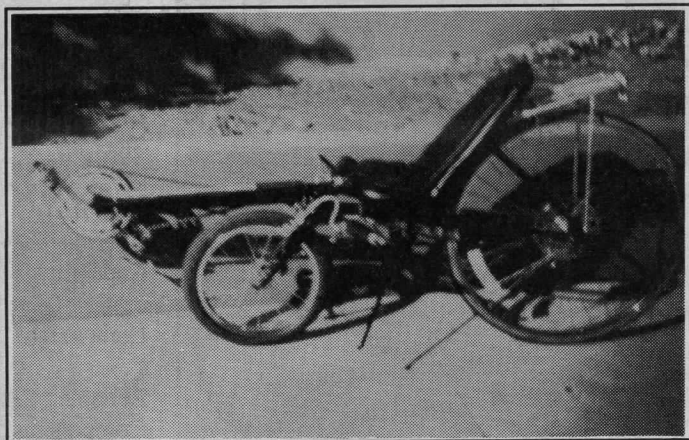
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Recumbents allow riders to sit in an "armchair." Bicycle Sport (October, 1984)

HYPERCYCLE

The Hypercycle isn't exotic by any stretch of the imagination, and somehow that alone makes it intriguing. The bar-bones two-wheeler promises nothing more than simple entertainment at a bargain price.



1978 Hypercycle Prototype
(Photo courtesy of Turner Enterprises)

Distributed by Ava Industries of Los Angeles, the Hypercycle has enjoyed a surprising amount of success because of its low cost and fairly wide availability. It has gained a legion of fans—mostly bike dealers and cyclists—who enjoy the Hypercycles quick handling and its stripped down lightweight design. According to company spokesman, John Lee, has been in business for five years and has sold about 6000 recumbents. Originally built overseas and shipped to the United States, the cycles are now being built by a factory in California to ensure better quality control and to ease shipping costs. Hypercycles are available through bike dealers in frame-kits, which include the frame, fiberglass seat and seat cover, for under \$300. Customers can specify the components they want on the bikes. Expect a complete Hypercycle to cost between \$400 and \$600. At this time, the cycle is only being produced in the medium-sized frame, which fits people 5'5" to 5'11." Lee says that small and large frames will be available once full production is under way.

The Hypercycle we tested was the first of the new chromemoly frame production models that will replace the ones made of mild-steel. A few additional changes have been made: a slightly bent handlebar and improved aesthetics (cleaner but far from perfect welds and chrome finish on the tubing) and a longer wheelbase (36 inches). The weight is 28 pounds, 11 ounces—very light for a recumbent.

The Hypercycle may look unbalanced, but it isn't. On this new model, more weight has been shifted to the rear, and lengthening the wheelbase by 3 inches has certainly helped. Still, the unusual location of the bikes controls (namely under the legs position of the handlebars, the 16" front tire and the long oversized main tube that extends 27 inches from the seat to the crankset) strikes fear in the hearts of

traditional cyclists when they first sit on the bike. After the terror subsides and the tendency to oversteer diminishes, most people find the Hypercycle is a lot of fun to ride.

The cycle shifts remarkably well, considering the long chain. The chain flops around a good deal as the Hypercycle is being ridden, making an annoying, clanking noise during pedaling. Perhaps what is most impressive about the Hypercycle is its maneuverability. The Hypercycle dives into corners and holds a tight line throughout turns.

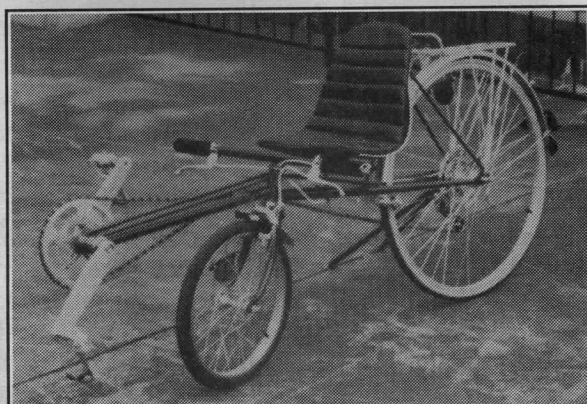
The Hypercycle is pleasantly simple in an arena of overcomplicated and overbuilt two and three wheeled recumbents. We think that further improvements in weight distribution will help its surefootedness on the road, and we'd appreciate more emphasis on quality workmanship. But even without any major modifications, the Hypercycle is lightweight, responsive, eye-catching, adventurous and most important of all, fun. At less than \$500 for a complete recumbent, the Hypercycle may be the recumbent breakthrough cyclists have been looking for.

CONCLUSION

Recumbent manufacturers paint a rosy picture of the future of their cycles. Some optimists anticipate that recumbents will command up to 50% of the cycling market in the next ten years; the more guarded (or more realistic) see a more steady, grassroots growth leading into the next century. And with reports of major bike manufacturers investigating entry into the marketplace, anything might happen.

For now, recumbents will continue to be one of cycling's best kept secrets. If you have any doubts, go down to your local bicycle dealer and take one for a test ride. Your 10 speed mentality might be in for a big surprise.

*Reprinted from
Bicycle Sport Magazine, October 1984 issue.
(Bicycle Sport is no longer being published.)*



1982 Hypercycle
(Photo courtesy of Turner Enterprises)

LETS TALK RECUMBENTS

by Joe Cormier

Wouldn't it be nice if they made a bicycle accessory that served more than one purpose for a change? After all, there's barely enough room on most bicycles to hold basic necessities. And, the problem is even more acute for owners of recumbents.

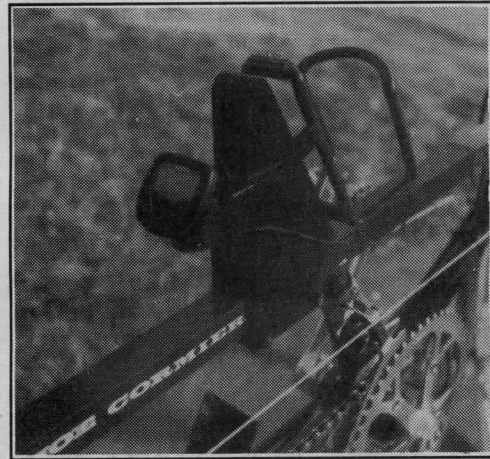


Photo by Joe Cormier

If you ride an above-the-leg-steering recumbent, you have only the handlebar and top tube to mount accessories on. Riders of under-seat steering bikes have only the top-tube; and this area is limited by what-ever fits in be-

tween a pair of moving legs. This lack of available space has caused some recumbent manufacturers to fix attachments onto the seat- not the most favorable access area.

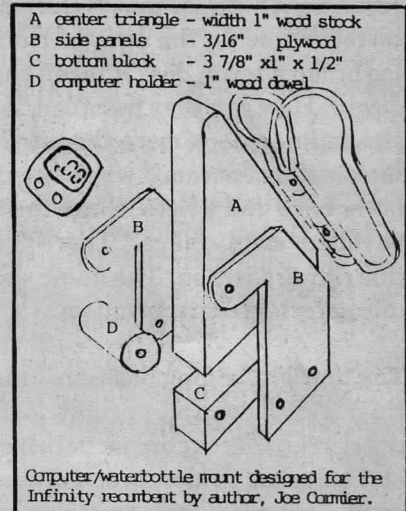
Therefore, when my new recumbent arrived, provisions for the installation of a waterbottle and a computer were not provided. An accessory to mount a computer, however was available, but I was dissatisfied with the design.

After giving the matter much thought, I came up with the idea of fabricating my own design which solved both problems. A mount to hold both water-bottle and the computer was the obvious solution.

Fortunately, I'm a woodworking enthusiast and using wood construction material was my first consideration. It is also the most practical for many do-it-yourselfers. Your nearest lumberyard, hardware store or homebuilding center can furnish all the required items, if you don't already have them in your own garage workshop.

The tools I used to build my waterbottle/ computer mount were: a bandsaw, drill press, screwdriver and workbench vice. Hand-held power tools such as a saber-saw and drill will suffice, but for safety sake, a bench vice should always be used when working on small parts.

My waterbottle/ computer mount measures 5-1/2 inches high and one inch in width. The side panels which form the extensions to hold the computer are constructed of 3/16" plywood and adds 3/8 of an inch to the final width. One inch dowel cut to an inch in width like the bottom block are held together by side panels when assembled.



Computer/waterbottle mount designed for the Infinity recumbent by author, Joe Cormier.

Brass hardware, such as screws for the side panels and bottle cage, nuts, bolts and washers to lock the mount onto the top tube, are used. Waterproof glue and nails can be substituted for brass screws.

The angle at which the bottle cage rests is unimportant.

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Whichever is the most comfortable for the rider, is the correct angle. I can easily reach my waterbottle while pedalling my recumbent. That beats those horizontal mounts some manufacturers put on their machines. And, who hasn't had a waterbottle leak once in a while?

Finally, I completed this combo mount by sealing the wood

and painting it with an enamel finish. If you use an exotic hardwood and prefer to show off the grain, you may consider using a polyurethane as a sealer.

In either case, you'll end up with your own custom-made mount tailored the way you want it. Good luck and have a good ride.

NEW NAME FOR AN OLD BIKE

by Joseph Kochanowski
Seattle, WA.

What is the correct name for those bikes with the skinny saddles and uncomfortable handlebars? We call our bikes recumbent because that is the riding position. What is the correct name for the upright riding position? "Upright" is too broad a term, does it mean that it is not ridden upside-down? How can they be called "racing bikes" if recumbent streamliners look more the part? Most people do not find the position "normal" when they end up with a sore neck, lower back and wrists. Since they are not safe, they cannot be called "safety bikes." There should be a correct name for this riding position. The name should describe a dangerous uncomfortable anachronism.

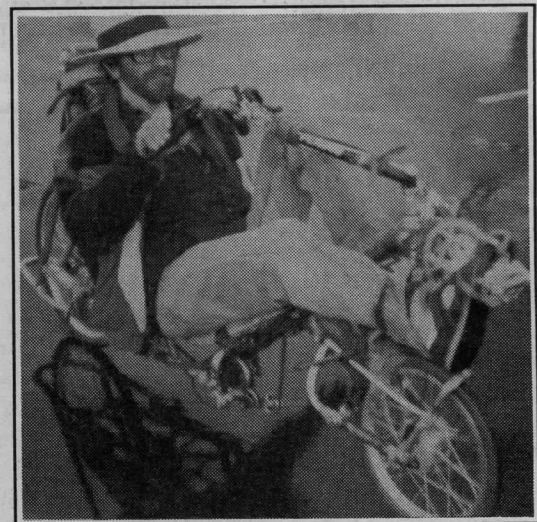
The "upright" riding position is most similar to a horseback rider. A rider can sit upright, lean forward and stand up in the stirrups or toe clips on both beast and bicycle. Both bike and horseback rider, proud of the way each can jump over small obstacles such as rocks, curbs, branches and logs. Many events such as cyclo-cross and jumping are similar. Motorcycles also fall into the same category. A motorcycle rides astride the motor much the same way as a horseback rider sits on top of his horse. There are a few recumbent motorcycle designs, but are difficult to design because the engine is in the way. Maybe the engine is not needed?

Conventional bikes seem to be normal only because the position is similar to the horseback rider. The fondness for this position is similar to the respect that a rider has for his horse. The basic design has not changed for a long time, it is hard to improve upon nature. Upright bike owners feel that same about their vehicles. They mistakenly feel there is no better way to ride a bicycle, just as horseback riders said, "they will never replace the horse..." Upright riders feel the same smugness. Even after cars had taken over the American landscape, many horseback riders did not give up their beasts. The same fate will happen to those who do not give up their "horseback style bicycles." Even though recumbent style bikes may become the most popular, many riders will never give up these horseback style bikes. Since upright bikes are similar to horses, they have a quaint old fashioned traditional character. Most people who do not like bicycles consider them to be old fashioned, (100 year

old technology) just like horses. These same people usually appreciate recumbent vehicles.

Riding an animal like a horse does have its disadvantages. Leopards and Jaguars can run as fast as 70 m.p.h., but they do not carry passengers. Accidents occur from riding on top of a vehicle (like a horse) instead of inside a car. Riders are usually thrown off their mounts. Fast braking and cornering are difficult from such a high center of gravity (c.g.). Motorcycles reduce this problem by having a heavy engine which lowers the c.g. Motorcycle riders have no fear of slamming on their front brakes and flipping their vehicle since it does not usually occur. Recumbent and motorcycles are the same since both riders rely on their front brakes for stopping.

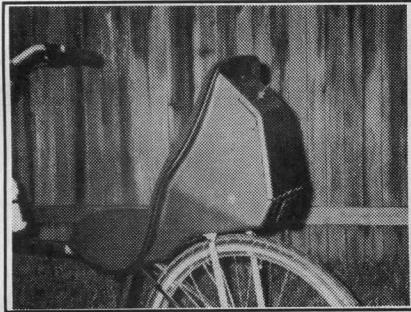
Joseph Kochanowski commutes daily on one of his many homebuilt suspended recumbent bicycles. He also owns an Infinity, Rotator Super-7 (with body) and a Tour Easy.



Joe Kochanowski
(staff photo)

*****RECUMBENT NEWS*****

HPV'S ON FILM! Famous Cycling Video's is offering a new video version of the BBC series: "Bicycle, Celebration of the Invention." This two hour video includes segments with David Gordon Wilson, Richard Ballentine and film footage shot at IHPSC in Portland Oregon. The special introductory price of this excellent video is \$29.95 Charge it to your credit card at 1-800-359-3107. Tell them you read about it in RCM! **TRIKE HAPPENINGS:** Ken Trueba's Eco Cycle, builders of the Trice Recumbent trike are hard at work on their new body which consists of a fiberglass nose cone and a soft body. Ken is also a dealer for PowerTreads, the Sachs 2-stroke gas motor that adapts to mountain bikes and some recumbents. These are really neat. I had the opportunity to ride recumbent cyclist Bill Yerkes's PowerTreads equipped Trice at the Seattle Bike Expo. Eco Cycle (503)753-5178. **TRI COM TRIKES:** Are you from the Seattle area? Do you remember those neat three wheeled chopper-like trikes that they used to rent out at Green Lake or Alki, O.K. how about at Venice Beach in Southern Cal. Well **Angle Lake Cyclery** is now carrying the Tri-Com trikes in one-speed, five-speed and hand-crank versions. The prices will be in the \$600-\$700 range. Call Angle Lake for more info. (206)878-7457 **EASYPACERS INC.** announced in early April an end to their dealer sales program. The bikes will now be available only through Easy Racers, Inc. at (408)722-9797. **DH RECUMBENTS** have come up with an ingenious new aerodynamic lockable trunk system that is actually part of the seat. For more info, call DH at (713)666-4452.



DH Recumbent Trunk
(photo courtesy of DH Recumbents, Inc.)

RYAN HAPPENINGS Dick Ryan announced April 6th a price increase for the Vanguard model. The '92 bikes will feature a new fork with brake mounts for both 20" X 1-1/8" and 1.5" wheels also the new bikes will accept 700c and 26" rear wheels. Cartridge sealed bearing hubs and other components upgrades will be announced soon. Custom paint jobs will also be available this year: Black-Purple, Teal, Blue, Yellow, Raspberry, Metallic Grey and many more custom 1 and 2-stage powdercoats will be available options. Red is still the standard color. Ryan offers the finest powdercoat paint jobs in the USA. Prices for the 1992 Vanguard start at \$1295. For more information call Ryan Recumbents at (503)485-6674. **LAI D BACK NEWS:** In a late breaking story, Milt Turner announced the unveiling of the new "LB-2000" a full chro-molly frame, fork and new handlebars along with a Kevlar seat shell. Prices for the 2000 will be \$899 for the frameset and \$1500+ for ready to ride bikes (through dealers only).

LINEAR MANUFACTURING, INC. Company President Steve Hansel announced that with the sales success of their folding aluminum line of recumbents they have added on to their factory by 25%. Also they will be adding five full-time employees by this summer. Linear has also announced a **limited edition ANODIZED BLACK LINEAR RECUMBENT**. Only 25 frames will be available. For more information call your Linear dealer or Linear Manufacturing to find the dealer nearest you, at (319)252-1637.

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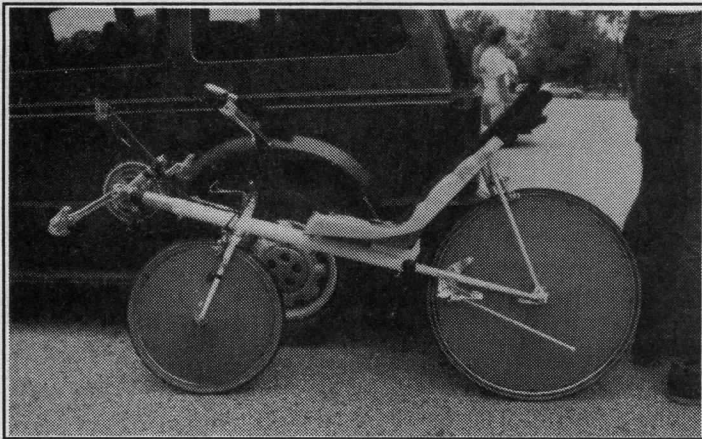
1992 Linear
(photo courtesy of Linear Mfr., Inc.)

Bicycles in Eugene, Oregon's largest recumbent dealer, saw this new bike in BBJ (Bicycle Business Journal), a bicycle trade magazine and brought it to our attention. It is called the "ReBike" for ReDiscover Bicycling. The list price is only \$389, brand new! The riding position is semi-recumbent, it has a large seat, padded back rest, chrome handlebars, Shimano SIS shifting, a 20" rear wheel and a 16" front, cantilever brakes and self-centering steering. **ReBikes** are available in pink, royal blue, black and aqua. This could be the mass-market break through bike! Preliminary reports after a test ride on the west coasts first **ReBike** are that this is one FUN new bike. For more info, call Kathie at **ReBike**: (407)750-1304. Second Nature is a dealer for **ReBike** at (503)343-5362. **ReBike's** can also be purchased through Millennium Recumbent Bicycles, Catalog, Recumbent Hotline (206)630-7200.

EUROPEAN RECUMBENT SCENE

SWB-EUROPEAN STYLE: M5: I believe this bike to be the predecessor to most SWB models here in Europe is more of a name of a complete series of SWB recumbents than the name of just one bike. They come in steel, fiberglass and carbon composite. All models share pretty much the same layout. The most popular is the steel version. The bike comes with a 28" (700c) rear wheel and front wheels that range in size from 20"-28". There is also one model with rear suspension. Steering is comes in many configurations also. The frame has a bit to much tubing, but it doesn't seem to matter as the M5's have been very successful on the racetrack. The seat is of moulded fiberglass and is very comfortable. The seat reclines a bit to much to suite my taste and is not ventilated. It seems to be set up toward racing rather than long touring. I had the opportunity to ride one in 1986, but found it difficult to ride, to nervous due to the nearly straight fork. The owner however said that it's just a matter of practice. There is also a different fork available for touring, although the weight carrying capacity is limited as is typical with a SWB.

ROSS: This it's a SWB bike that has developed over the years. Your "Buyer's Guide" picture is the first version. The latest update has normal size chainstays rather than the 1.5" as shown on page 13 of RCM#8. The bike has a 28" (700c) rear wheel and a 20" front. Steering is directly connected to the front fork via stem extension and handlebars. The seat is moulded fiberglass and is the same seat that comes on the Trice without the headrest. It also seems more suited toward racing and sport riding as there is no ventilation in the seat. Peter Ross reports that a sling-style seat is on it's way. Overall a good looking bike with a reasonable price compared with it's competitors.



The Ross Recumbent
(photo by John Riley)

KINGCYCLE: Finally the "king", if you look at the number of prizes it took at IHPSC. It is a very fast bike but much of the credit belongs to rider Pat Kinch. Wheels are 24" rear and a 18" front. Steering is similar to Lightning/Ross as is the seat type. The stem extension allows you to adjust handlebar height and recline. It is certainly the one of the best looking bikes you can find with two parallel ovalized chro-molly dual main-tubes going from the crankset passing the headset and ending at the right and left

dropouts. The seat is of parallel steel tubes with a cloth strip wired between them. The seat is a bit narrow for my tastes. I was able to test ride a Kingcycle, but I was taller than the owner and my knees hit the handlebars. For some



The Kingcycle
(photo by John Riley)

reason this bike seemed easier to ride than the Ross or M5. Several options are available including front and rear fairing. The components are also top of the line, including Magura Hydrostop brakes. With the full fairing package it is a beautiful bike. The ventilated mesh seat makes it suitable for racing, commuting and light touring. The only disadvantage can be it's price. It is rather steep considering the simple frame design.

WHY IS THE SWB/ MWB SO COMMON IN EUROPE? I believe it's due to several factors, mainly that we Europeans use our recumbents to a greater degree for everyday use/commuting in traffic and as a car replacement. Whereas the LWB is long and not so manueverable. SWB has also dominated the racetrack in such a way that many believe it is the best solution. Although, the LWB can be just as fast, they tend to weigh more. The LWB still is very common in Europe in the Radius (Peer Gynt & Dino), Pichlerad, Fateba, etc. and they completely dominate the touring scene. There are probably more LWB than SWB as in the USA. You may get the wrong impression by looking at pictures from HPV races where the SWB is predominate.

MATS NILSSON is the Recumbent Cyclist Magazine's European Correspondent. Mats is 28 years old, male and single (single recumbent interested female correspondence encouraged). He lives in Umea in the North of Sweden and works as an Electronics Repairman. He is a member of the RBCA, IHPVA, and HPV organizations in Denmark, England, Germany, Netherlands and Switzerland. He hopes to organize a Swedish HPV group in '92. Mats has been instrumental in keeping us posted with the European recumbent happenings. He currently owns a Lightning P-38, Roulandt, Infinity, Trice and Flevo Bike (Flevo and Trice are currently for sale). Mats uses them daily and is proud not to own an automobile.

Mats Nilsson
Hermelinsv. 151
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All new **Cycle America Regional Directory for the Central Coast of California** featuring 8 pages of color fold out bike road maps and places to eat, sleep, shop and recreate from San Jose to Santa Barbara. Special section on recumbents! Help build a TransAmerica Bicycle Greenbelt. Pocket size. Excellent Christmas stocking stuffer. Only \$7.95 to Cycle America, 147-River Street South, Suite 222, Santa Cruz, CA 95060. (408)426-7702.

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FOR SALE: Rans Stratus-"B", excellent condition \$599. DeFelice Custom, Fillet Brazed, Size #2. One of the finest examples of LWB design. No longer in production. \$999. VINTAGE METAL! Hypercycle frames (one left) low-tech/low price, \$50 each., no forks. 1-We also carry recumbent mixed fender sets and 17" wheels and tires; 17" front wheel with 20 hole M17 rim, Bullseye hub with reverse flanges, \$174.99 Dealers for Ryan, Linear and Counterpoint Recumbents. Angle Lake Cyclery, 20840-Pacific Hwy. So., Seattle, WA. Ph#(206)878-7457.

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***NEW! NEW! NEW!** The "ReBike", 6 speed, cantilever brakes. \$389 + shipping (send SASE for 2 pg. ReBike info-pack or included in catalog. ***1991 Linear Recumbent** priced from \$699! ***1992 Ryan Vanguard**, Special prices on all orders taken in Apr-May. CALL. ***Laid-Back "E"** RCM test bike. This is the most affordable SWB in the world! Availalbe in any stage of completion. ***1992 Rans Stratus-BRCM** test bike available soon, Set up with Deore XT Der. & shifters. Closed Cell foam seat, upgraded stiffer bars, fairing, blue and perfect! \$979. ***ATP "R-20"** SWB recumbent, full SunTour XC-LTD group two 20" wheels **\$CALL NOW! DH Recumbents** from \$999. **1992 Tour Easy**, red medium triple crank available immediately, \$1750. Order our new 1992 18+ page Recumbent Catalog, our best one EVER! \$2 + \$1 postage and handling (\$3 total). We have added a new 1992 4 page parts list that includes components and stock of home builder and Tour Easy parts. Send SASE for price list only. Millennium Recumbent Bicycles, 17650-B6-140th Ave. Suite 341, SE, Renton WA 98058, (8am-5:30 pm daily)."The New Recumbent Hotline (206)630-7200"

USED RECUMBENTS

FOR SALE: TOUR EASY-owner built. All chromoly, factory seat and handlebars, Sugino triple crank, Suntour derailleurs and bar-end shifters, Cantilever rear and centerpull front brakes, MTB levers. Computer mount, pump peg. Uses 16" front and a 27" rear wheel, 61.5" wheelbase, should fit riders with 31" to 33" inseam. \$500, PH#(207)583-4183. , Tom Briggs, PO Box 130, Waterford, ME 04088. (Maine)

FOR SALE: Tour Easy-1986, large size, 18 speed (26/46/52), Phil Wood rear hub with 40 spoke wheel, Super Zzipper fairing-detachable windscreen, Esge fenders, generator light, bar bar. Little used and in nice condition, \$1100-or best offer. Send SASE to PO Box 298, Cupertino, CA 95015

FOR SALE: Gold Rush Aluminum prototype (preproduction) by "Steve Delaire." Frame, headset, forks, handlebars and factory seat. Less than 60 miles-rider size up to 5'9"-to small for me. \$750.00 Randy, call (510)351-8342 (CA)

FOR SALE: Linear Recumbent 18 spd. w/ index shifting, rack bottle cage and Vetta Computer. Underseat steering & also have the tiller handle bars with shift levers and all cables to convert. New in Nov. '91. Gold in color. All for \$700. You pay the shipping. Write or call nights and weekends: Richard Elsea, 2100 West 100th Ave. #430, Denver, CO 80221. Ph#303-466-0833.

FOR SALE: Brike Model 2000, brand new-assembled-but never used. Adult three wheel recumbent trike. Fits riders 5'2"-6'5." Cost \$250+shipping, Sell \$175. + shipping charge. Write: Brian Chase, RR#1, Box 2080, NewFane, VT, 05345 or phone#(802)365-7929.

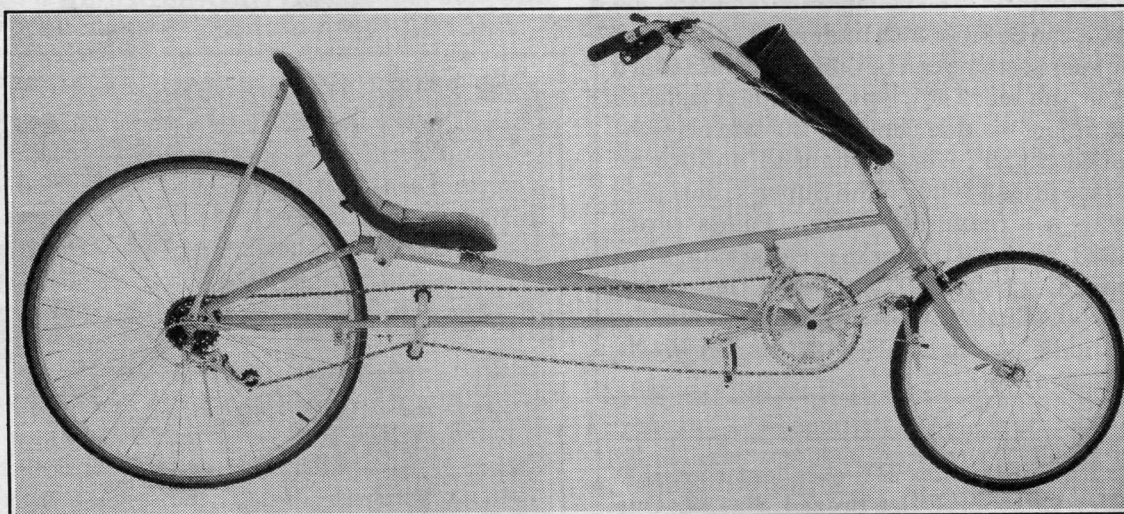
FOR SALE: Infinity Recumbent. This bike has been set up for long distance touring. 21 speeds with Shimano Deore II index shifting, rack, bottle cages, Esge fenders, Stronglight "Delta" headset, Magura "Hydrostop" brakeset, T.A. Crankset, Am. Classic hubs and Am. Classic boom bracket. Price \$750. Al Christian (815)338-1270. (ILL)

FOR SALE: 1990 Laid-Back "LB'90. Pearl white with pink accents, XCD components, 12 speed (easily adaptable to 18 speeds), 700c rear wheel, 16" X 1-3/8" front-hand built wheels, Grip Shifts, Dia Compe side pull brakes with X-1 levers, Aztec pads and UNI discs front and rear. Former RCM show bike. \$750 + shipping. Call Eric (206)943-5945 (WA)

RECUMBENT PERSONALS

MATS NILSSON, Recumbent Cyclist Magazine's European Correspondent. Mats is 28 years old, male and single. (Mats also has his Flevo bike for sale). Write: Mats Nilsson, Hermelinsv. 151, S-906 42 Umea, Sweden

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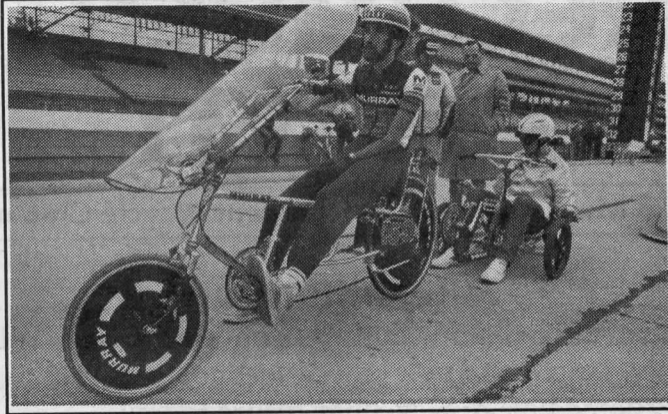
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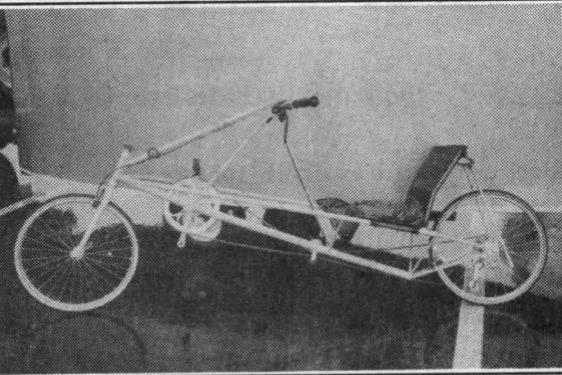
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Murray LWB Prototype
(Photo by John Riley)



1992 Rotator Super-7 by Steve Delaire



Ryan Trike Prototype

(Photo courtesy of Ryan Recumbents)

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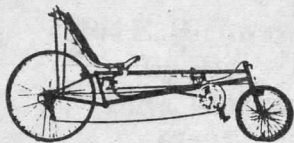
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