



the Practical Pedal - Summer 2007

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Chapter 1

Editor's Column: Plywood by Bike

Hauling Plywood by Bike

by Wiley Davis

I know how difficult it is to exist without a car. My education in this regard began early and culminated on a hot August day in El Cajon, California. I'd needed to buy a sheet of plywood from Home Depot. For those with cars, buying sheets of plywood is a minor matter of logistics. For those with trucks the trouble is not even worth considering. But I was fifteen that hot August day and I had neither cars, trucks, nor the proper credentials with which to operate them. My parents, legal operators and owners of automobiles, were not available and none of my friends had yet to get their driver's licenses.

Fortunately, I was a very stubborn fifteen year-old, a useful trait for the car-free. The Home Depot was eight miles away but the trolley cut the walk down to three miles. So I set off with an ill-advised plan made possible only by the healthy amount of stubbornness my parent's refusal to drive had inspired. Getting to Home Depot was the easy part. Once there, I had an orange-aproned fellow cut the 4' x 8' sheet into two 4' x 4' squares. I was a scrawny kid, just barely five-feet tall and about ninety pounds and it took me two hours to walk the one mile between the hardware store and the trolley station while carrying those pieces of plywood. The entire time, a terrible thought lurked in the back of my mind. I'd not bothered to ask if plywood was allowed on the trolley.

I stopped every ten minutes, my hands aching, sweat dripping into my eyes. I'd rest the plywood on the ground, wipe away the sweat, and then re-hoist the load to walk another ten minutes. It seemed an endless cycle and I was so relieved to reach the trolley station that I felt no fear of reprimand as I dragged the wood through the trolley doors. Only after the train got going did I notice that nearly everyone on board was staring at me, a sweat-drenched kid dragging two sheets of wood almost as tall as

he was. But the beautiful chill of the trolley's air-conditioners is more clear to my memory than those stares. I got off three stations later and repeated the ten-minute cycle for two more miles. I finally got home, six hours after setting off. Bozeman Community Food Co-Op

Things would have been different if I'd owned a bicycle trailer. Like most fifteen-year-old kids, I had a bicycle. But I'd never been exposed to the idea that bikes could be practical, even utilitarian, tools for transportation. Sure I rode my bike to friend's houses, but as soon as something heavy needed to be hauled, I'd call in the big automotive guns... or resort to the desperate measures of the plywood debacle. It took me twenty years to figure out that bicycles are useful, even to someone with a car and a driver's license. But I am heartened to see that bicycles are emerging from their recreational prisons. Bicycle shops are beginning to carry bikes with both the gearing and strength to carry loads. Small manufacturers such as Xtracycle, Cleverchimp, and Carry Freedom are making the kind of gear people need to put bicycles to work as viable forms of transportation. And the large manufacturers are beginning to see that practical bikes can help them reach a huge, untapped market.

The advantages of cycling over driving are many, but I see cycling as being advantageous in three distinct areas: environment, health, and community. With one activity we can actually do something to help reduce pollution and carbon emissions, keep ourselves fit and healthy, and ease congestion while promoting greater community interaction. And the best part is, we can do all this while getting our work done. On a bike, the run to Costco becomes more than just one more errand in a busy day, it becomes your exercise, your time to just think, and maybe even your time to chat with your neighbors, who are also cycling to the store. As much sense as cycling makes, however, the challenge will be in overcoming the attitudes we've adopted at an early age. I look back at that six-hour struggle with plywood, and am amazed I didn't consider my bicycle a possible solution. It didn't occur to me at all. It is my hope that the category of useful transportation is expanding to include bicycles. I only wish it had done so a little earlier.

Chapter 2

Impractical Pedal: Twisted Frame

Impractical Pedal

by Max Chen

I found this Univega frame on the street. Someone had stripped off its paint and left it to rust so I took it home and made it the third in a series of five shrunken bikes (a series designed to appease an inferiority I felt for being too short to ride large bicycles.)

All five bikes began as very large steel frames, which I modified to suit my stature using a mixture of traditional blacksmithing and modern welding.

To retain the Univega's frame geometry during modification, I welded the bottom bracket and fork to a steel table before cutting out the tubes a few inches from the lugs. I made the twisted replacements from two mild steel 1" OD (.125" wall thickness) tubes heated together in a propane forge. The ends were tapered and slid into the original tubing, then welded and ground flush. Because the new tubing is thick, the final bike is still very stiff.

I then forged matching bar ends. Only the middle section of the handlebar is hollow, the rest is solid and heavy. Many people see this bike on the Internet and think its maker must be a hipster. I'm not. I'm just a short, former blacksmith's apprentice, who wears reflective vests and reflective stickers on my helmet. I'm also a mechanical engineer, but certainly no hipster. If you are interested in my other various projects, please visit my website: www.oilycog.com

Chapter 3

Odds & Ends: Bike Without Stinking

Bike to Work Without Stinking

by Random Tip Girl

Does a fear of body odor keep you from riding to work?

Do you fire up the old fuel-sucking money-burner just to drive a few miles into the office, all because your place of respectable employ has no shower? Well you'll have to rethink your excuse because the post-ride stink is one of the easiest things to beat.

Many people find a post-exercise sheen of glistening sweat to be a real turn-on. So if your worries are somewhat sub-professional, then just get out and ride without worry. But if you need to attend clients, sit in on vital meetings, and conduct your daily business without looking like a Nike commercial reject, then read on. The following tips will keep you clean and smelling your official best, all without any dependence on one of those fancy shower contraptions.

Start With A Shower

It seems counterintuitive, but showering before your ride will keep you from smelling like a European subway station. Sweat by itself doesn't smell bad. If you start out clean, there's less opportunity for bacteria to grow and fewer particles for sweat to make skin-sludge from. So shower up first.

Never Wear Cotton

Don't listen to the siren-song of cotton. Yes it keeps you cool in hot weather, but that's because it absorbs and traps sweat (enhancing the evaporative cooling effect.) Cotton dries slowly, meaning that the sweat it traps stays against your skin, keeping you wet and allowing stinky bacteria to grow. Instead, wear a wicking fabric. Any outdoor gear store employee will be able to point you toward racks upon racks of wicking clothes. You don't need cycling-specific clothes, anything that wicks will do. Just don't put anything over it or under it. You want airflow to carry

your wicked sweat away. You'll still sweat, of course, but most of it will have evaporated by the time you reach your destination.

Pack A Change of Clothes

Unless your ride is 3 miles or less, it's best to ride in a set of wicking duds and change at work. If you have an office, you can keep clothes there. If not, just put your crisp power suit in a garment bag and roll the whole thing up like a big jelly roll. This will prevent wrinkles (even in linen) and makes things easy to carry.

Shower-on-a-Stick

After a quick wipe-down with a damp towel, just apply some fresh deodorant and call yourself good. Some people swear by an additional application of a body spray, but it's really not necessary. With the right clothes, a small towel, and regular deodorant, you'll look and smell as professional as if you'd just stepped out of the shower.

Media Scare Tactics Make You Limp

Once a rash of panicky news articles gets unleashed, it's tough to put them back in the bag. Take the case of cycling and erectile dysfunction.

When Dr. Irwin Goldstein said, "There are only two kinds of male cyclists—those who are impotent and those who will be impotent," he set off a wave of paranoia, causing countless mothers to warn their sons away from cycling. But as usual, the threat was overstated.

If you're not feeling any numbness in the nether-regions, then you're probably fine. Numbness is a sign that your sit-bones aren't properly positioned over the wide part of the saddle. This can be a problem for lycra-clad roadies who gage their manhood by the slimness of their saddles and the sheen of their freshly-shaved legs, but for practical cyclists who ride bikes with higher handlebars and reasonably wide seats, the risk is small. But don't take the comfort thing too far, gel-padded saddles can actually increase pressure on the perineum as the gel squishes into crevices, leading to numbness.

Making babies and cycling are not mutually exclusive activities. Just ask the Chinese, who have the world's highest concentration of practical cyclists and, judging by the census data, few troubles of a reproductive nature. Just make sure your bike fits. Bikes can and should be comfortable.

Chapter 4

Gear: Powergrips Pedals

Powergrips Pedals, Dashing, Fast, Convenient

by Michael Downes

The problem with our modern industrial/consumer society, a problem that as an industrial designer I have shamelessly contributed to, is the tyranny of the new. In our collective headlong sprint to the future, perfectly good solutions and ideas are regularly jettisoned in favor of the latest fad or fashion. We talk a lot, in the industry, about "tradition," but sneer at those who aren't sporting the latest material or components. Tradition, in the lexicon of bicycle marketing, has less to do with good ideas and a whole lot to do with legitimizing our respective brands and the products that we are trying to sell you. I don't mean to suggest that all new products are bad. Far from it. The modern bicycle is a marvel of materials and engineering. But in our adulation of the latest, we often forget about the great products of yesterday, many of which are still relevant and still work now just as well as they did then.

Case in point: Powergrips, those deceptively simple foot straps that emerged out of the mountain bike explosion of the eighties. It would be easy to dismiss them as an anachronism to be heaped on the junk pile of history alongside all those Slingshots, Girvin Flexstems, and those stretchy Day-Glo helmet covers we all thought looked really cool. I would argue, however, that Powergrips are so brilliant, so sublime in their simplicity and economy of material, so superior in function and practicality, that it is a crime they are not standard equipment on all new mid and entry level mountain bikes, hybrids and city bikes. Simply put, they rock!

For those poor saps who've either never heard of them or who have dismissed them, let me explain. Powergrips consist of a pair of one-inch wide straps that mount diagonally across your pedals. They are constructed of some kind of nylon-ish, vaguely canvassy material (the actual

recipe is a closely guarded secret) that is flexible but stretches very little. The rider inserts their foot into the Powergrip at an angle, heel out as they would unclipping from a clipless pedal. As the rider rotates their foot parallel with the plane of the bike the strap tightens across the riders foot and voila! Unlike those sad toe clips & strap combos we used to endure, there is no adjustment necessary. The rider's foot is securely held. Disengaging from the pedal is as quick as a clipless pedal and much safer than toe clips with their tendency to snag on shoe laces and such.

I can guess what your saying: "That's all good but how are they better than my Spuds?" Well, I will tell you. Firstly, just like your SPDs, Powergrips have float. But unlike your clipless pedals, Powergrips let you adjust your foot fore and aft on the fly. How many of us have bought new SPD-compatible shoes and spent the first week dicking around with the cleat to fine tune the position (having first dug out all the gunk that has accumulated in the allen-head bolts?) Or after repositioning the cleat, failed to adequately tighten them, resulting in an ignominious go-down when we pull up at the next stop sign? Secondly, how many of us have experienced total SPD pedal shutdown in extreme mud? You know the feeling: the mud caked cleat sliding across the mud packed pedal. Not a problem with Powergrips, they keep on functioning whatever the conditions. Thirdly and finally is the issue of shoe aesthetics. Let us imagine you want to whiz down to your local coffee shop for a low fat, decaf macchiato (if you are man enough to request such a thing) and all of your bikes have clipless pedals. Your choice is either a) pull out the Lycra ensemble to go with your snazzy racing shoes, which seems a bit silly as the coffee shop is three blocks away, or b) just wear your cycling shoes and then feel like a complete tool standing in line while everyone considers how well your garishly colored shoes go with your tan chinos. Or finally c) just endure the discomfort of riding clipless pedals while wearing brogues. Neither of these options is entirely satisfactory. But if you had Powergrips you could wear your Sperry Topsiders and still out sprint that Lycra weenie with the spangley Colnago on the way to the coffee shop. The beauty of Powergrips is that they allow you to have your cake and eat it too; you can look like a normal human being and pedal efficiently.

Powergrips were invented by Darek (pronounced like Derek) Barefoot, a cyclist and inventor back in the eighties. They are currently manufactured and marketed by Mountain Racing Products in Grand Junction, Colorado. In business, as in many things, timing is everything. Powergrips were launched the year before Shimano launched their first SPD

and the marketing challenge has always been the same: do you pitch Powergrips as an upgrade from toe clips & straps, as a poor mans SPD, or as something else entirely? Despite being overshadowed by the economic success of clipless pedals, sales of Powergrips have remained steady and, indeed, have even improved in recent years. With the growth of urban riding and the retro grouch appeal of single speeds and fixies, a new generation of riders is discovering the advantages of Powergrips.

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Chapter 5

Traffic: Curse of the Cul-de-Sac

Traffic: Curse of the Cul-de-Sac

by Tom Kerenson

The other day I set off from my house on a walk. I was headed toward downtown, about two miles away, to get some lunch, and I decided to walk through the park on my way. At the park, I ran into a friend who was sitting on a bench, reading a novel. She too was on her way downtown (by bicycle) for work and had stopped to read for a bit before her shift started. We chatted briefly and then I went on my way.

Walking through the park was by no means an obligation. The area in which I live is an old neighborhood, laid out during the 1800s in a grid pattern, and so my route choices are numerous. But the park is a pleasant place to pass through and, apparently, my friends think so as well. For this reason, chance meetings are frequent and enjoyable parts of my daily walk. But I haven't always lived in such a community-oriented neighborhood. For a long time I lived in Southern California where, ironically, the epitome of safe, tranquil communities has long been defined by cul-de-sac development.

If you set out for a destination in a grid-connected neighborhood, you have many route options to choose from. You can get to a neighbor's house or to the grocery store with equal ease. Neither destination requires that you drive, walk, or bicycle along dangerous and unpleasant traffic-heavy streets. Setting off for a walk in a cul-de-sac neighborhood is a different matter altogether. Unless your destination is another tract home, you have no choice but to walk or ride next to cars blasting by at high speed. All roads lead to bigger roads. Bigger roads lead to bigger parking lots. Perhaps you'll see someone you know on your way to the store and wave to them through your windshield or honk your horn in acknowledgment. But generally, spontaneous encounters are not encouraged by cul-de-sac layouts. If you live in a cul-de-sac neighborhood, your choice is clear: stay in your neighborhood bubble or get in your car.

The freedom from pesky traffic comes at the price of reduced mobility and increased isolation. Because of the shapes of our neighborhoods, we've become bonded in servitude to our automobiles.

It wasn't until after World War II that the cul-de-sac gained in popularity. It was designed to reduce traffic flow through neighborhoods, something it is exceedingly good at. Advertisements for development projects often feature photographs of children playing and riding bicycles in the middle of culs-de-sac, and the lots surrounding them often sell at 20% premiums. But a backlash against culs-de-sac is growing. Communities in Portland, OR, Charlotte, NC, and Austin, TX, have begun banning cul-de-sac development.

There are a number of problems with culs-de-sac. Perhaps foremost is the irony of their relationship with traffic. The very design of cul-de-sac neighborhoods demands the use of large, multi-lane arterial streets to access and exit them. Entry points to neighborhoods are limited by such designs and traveling anywhere requires the use of traffic-heavy streets. The irony, then, is that the mechanism designed to protect us from traffic forces us to become traffic and deprives us of the freedom to choose our mode of transport.

A Better Way

There is certainly a market demand for low-traffic neighborhoods. But demand for housing that allows efficient access to shopping, community, and entertainment facilities is also high. One proposed solution to this planning conundrum is that of the fused-grid model. The fused grid, "represents the synthesis of two traditional North American approaches to residential neighborhood planning: the traditional, nineteenth-century grid, and the curvilinear pattern of looped streets and cul-de-sacs of modern suburbia. The goal of the fused grid is to provide a balance between vehicular and pedestrian movement, and to create safe, sociable streets and easy connectivity to community facilities. These attributes are achieved while retaining the land use and infrastructure advantages of conventional suburban plans, compared to the traditional grid." (www.fusedgrid.ca/)

The fused-grid model, developed by urban planners at the Canada Mortgage and Housing Corporation, takes the benefits of both grid and cul-de-sac design and fuses them. The result is that neighborhoods retain the efficient use of space allowed by cul-de-sac development, while retaining the efficiency of travel allowed by classic grid designs. They do this by connecting the dead-ends with shared green space incorporating

pedestrian and cycling paths. It then becomes possible to walk or bike across neighborhoods rather than around them.

The benefits of such an arrangement are obvious. Freedom of choice, in both route and mode of transport, is reintroduced. The chances for spontaneous encounters with neighbors are increased. And no longer would we have to drive to leave the neighborhood. With the fused-grid, we can have tranquil neighborhoods with through-ways that lead to more than just dead ends. And once again, driving could become a choice, rather than an obligation.

Chapter 6

Gaston Dilmoore: I've Lost My Jeep

Gaston Dilmoore's *Outdoor Situation*

by Gaston Dilmoore

Day fourteen.

Things have gone spare as far as the expedition goes. Indeed, all backers and well-wishers involved have been gunning for our successful completion. The goal of this undertaking is to drive the longitude of the Kamchatka Peninsula in a 1967 Land Rover, powered exclusively by bio-fuel which we will distill ourselves while in the field. Nunzig, my dear Sherpa and fellow adventurer, runs the distilleries—harvesting switch-grass for ethanol and pulverizing all manner of plant to extract oil which he mixes with lye to use as biodiesel. The Rover has two power plants, each running on a different fuel. Rather, the Rover had two power plants; it seems neither is of any use without a transfer case. Ours was turned to ribbon early on when we ran across an unexploded Soviet artillery piece, left over from the Stalin years.

Egad.

Now, with no means of auto mobility to convey our expedition, and with the backers demanding we complete the trek (they've employed lawyers. Lawyers no less, to declare that our goal is sustainable transport, and that to this end we should employ our bicycles.)

Bicycles? I say, our bicycles, of which the expedition carries sixteen, are meant purely for sport, and the occasional barter. In fact, Nunzig managed to relieve the expedition of four bicycles in exchange for a transfer case, which he found in a nearby sheepling village.

I had a dream about sheepling. It went like this:

In a field of rocks, one tin soldier stood erect and asked me repeatedly if the sheepling had been properly installed in the transfer case. I said I did not know how to install sheepling. Moving on. The sheepers traded to Nunzig a transfer case from a 1954 Sikorsky L119 transport helicopter.

Bloody huge thing it was as well, but Nunzig managed to port it, only to shake his head when we failed to fit it to the Rover.

The backers were having none of it.

"Ride your damned bikes, you filthy sponsorship leeches!" they shouted over the commo gear. So, arduously, here we are, pedaling our way through vast countryside. I am not at all proud of this development, and feel anyone attempting transport on a machine such as a bicycle in lieu of an auto is surely a sad git. And when I try to mention this to Nunzig during riding breaks, he grins while eating his rice and leek stew, saying "biofuel, hmmm!"

I love him so, but I have no level clue what he is trying to tell me. And damn these dreadful bikes. Nonetheless, the expedition must continue.

Bike Trailers 101

All About Bike Trailers

by Wiley Davis

For many of us, Summer is a season of work. We have yards to landscape, houses to paint, Christmas lights to finally take down. Even our recreation requires work. Camping gear must be packed and hauled, picnics transported, and kayaks moved. But Summer is also an ideal time to ride your bike and there's no better way to combine your love of Summer projects with your love of bicycling, than to hitch up a cargo trailer and get to work.

The magnificent thing about bike trailers is that they completely circumvent the original design intent of your bicycle. This is a good thing because for years, bicycles have been designed as recreational toys rather than practical tools. But the bicycle trailer changes all that and, in fact, can give you the best of both worlds—performance and practicality. Whether you ride a mountain bike or a lightweight road rocket, a bike trailer will let you move your gear with equal aplomb. With a trailer, there's no need for bombproof wheels, stout frames, or Rube-Goldberg load-lashing schemes.

Demystifying the Bike Trailer

No one looks twice anymore at the sight of a child trailer cruising down the block. But drag a few potted plants or bags of topsoil down the road on a flatbed cargo trailer and people look at you as if you were a circus performer. That's because we've been trained to think of bikes as recreation. The advent of the jogging stroller got us used to the idea of the child trailer. Both look sporty and recreational. But a bicycle hauling cargo looks as odd as a logging truck with a "Free Tibet" bumper sticker—it's just not an expected combination. It's time to demystify the act of hauling cargo by bike.

How Much Work Is It, Really?

If you live in a relatively flat place, not much. Towing a bike trailer on

flat ground is nearly the same as riding without one. You'll notice the extra weight when accelerating or decelerating, but the bike will handle pretty much the same as it always does.

Hills are another matter. Even though the bike will handle the same as it would without the trailer, you can't escape the fact that dragging more weight uphill is harder than dragging less weight uphill. The answer to this is gearing. Bike Trailer Shop

With enough time and the right gearing, even a small child could tow an elephant up a tall mountain. But even with reasonable amounts of time and standard gearing, most sub-200-pound loads can be easily moved about town. Most mountain bikes come equipped with gears low enough (20 gear-inches) for an average person to haul about 100 pounds up a moderate 6-degree incline with a moderate level of exertion. You'll only be going about 5mph, but it's still faster than walking and a whole lot more fun and healthy than driving. If the grades aren't too steep, you can easily haul as much as 300 pounds around without having to be Lance Armstrong. In fact, after a few trips with a loaded trailer, try going for a ride without the weight... you'll feel like you're Lance when you hit the first big hill. If you must think of bikes in recreational terms, just think of cargo-hauling as a "training opportunity."

Bicycle trailers are misunderstood beasts of burden. There are many choices and choosing the right one can be difficult amidst all the marketing hype. Do you want a one-wheeled trailer or a two-wheeled trailer? A seatpost hitch or an axle hitch? Are larger wheels better than smaller wheels? Or the most common and, unfortunately, too vague to answer, question: which trailer should I get? The best way to answer these questions is to learn about what effect different designs will have on trailer performance, and let you decide which specific product is best for your situation.

One Wheel or Two?

When it comes to cargo trailers you have your choice of single-wheel or two-wheeled trailers. Each has its own advantages and disadvantages and the appropriate choice depends on what you'll be using the trailer for.

If you'll be negotiating narrow trails and generally hauling gear off-road, then a single-wheel trailer is the way to go. Single-wheel trailers attach to the axle of the bike using a special skewer. Because they have only a single centered wheel, they don't hold themselves up and depend on the bike to maintain their angle of roll.

On one hand this is good because it means that the load will lean into corners with the bike, making it very stable through the turn. The disadvantage is that you'll feel that extra weight when you lean the bike at slow speeds. And while single-wheel trailers are very stable through turns, they can become unstable when subjected to transitions between turns. If you have to veer suddenly around a pothole, for instance, the bike and trailer are subjected to a sudden left then right turn. In effect, the extra weight of the rotationally-connected trailer has an inertia to it that resists that transition from left to right. This can be especially pronounced on a bike with long chainstays (like many touring bikes) because the rotational load is transferred to the trailer through the chainstays. Because longer chainstays are more flexible, you end up with a bike/trailer combination that oscillates in scary ways when subjected to rapid side to side motion (like hard, out-of-the-saddle climbing.) Most mountain bikes, however, have short chainstays and stiffer wheels, reducing the problem of oscillation considerably.

Most single-wheel trailers have a maximum capacity of about 50 pounds, much less than that of a two-wheeled trailer. But again, if you ride off-road, especially on single-track trails, the disadvantages of a single-wheel trailer are heavily outweighed by its advantages, most notably in narrowness and maneuverability. Many tourers also like single-wheel trailers because they can be ridden along narrow road shoulders and in between highway rumble strips—things that plague two-wheeled trailers.

Two-wheeled trailers on the other hand are the undisputed kings of the heavy load and models are readily available that are rated for up to 200 pounds. They have higher capacities than single-wheel trailers for a couple of reasons. One, the wheels of a two-wheeled trailer each carry only half the weight. Second, because the load is usually centered between the trailer's axles, and because the trailer is rotationally-decoupled, the bicycle itself carries almost none of weight of a loaded trailer. Compared to most single-wheel designs which transfer almost half the weight to the bicycle itself (the ExtraWheel trailer being a notable exception to this,) two-wheeled trailers rely less on the bicycle itself for stability.

Two-wheeled trailers are rotationally-decoupled from the bike, meaning that as you lean the bike from side to side, the trailer stays parallel to the ground. Because the load doesn't lean into the turn, it's possible for the trailer to flip over during hard cornering. However, by packing the trailer so that the weight is as low as possible, the likelihood of a rollover

is greatly reduced. In fact, on trailers with large wheels and low floors, the center of gravity can be such that it lies below the axle, allowing the trailer to handle high-speed cornering better than even a single-wheel trailer (it will most likely skid before it rolls.)

Two-wheeled trailers also handle sudden transitions better. When properly loaded, a two-wheeled trailer is a finely-balanced thing, requiring very little force at the hitch to affect changes in direction. When you veer suddenly around a pothole, the load of that transition is borne almost entirely by the wheels of the trailer, not your bike.

A properly-loaded trailer will be neutral along the pitch axis (tipping forward or backward.) You should be able to tilt an unhitched trailer front to back with just your pinky finger. Some two-wheeled trailers have wheels which are not positioned at the centerline of the load bed and these are more difficult to balance and won't handle as well as trailers which can be balanced about the axle centerline.

Get Hitched to the Right Hitch

The hitch makes a big difference in the way a bike trailer handles. This isn't surprising given that all the forces between bike and trailer pass through the hitch.

There are a number of ways a trailer can be attached, but they all share the similar goal of granting or restricting degrees of freedom. For single-wheel trailers, the hitch grants freedom of movement in both pitch (front and back) and yaw (left and right,) but restricts roll (side to side.) All of the single-wheel trailers use a hitch that attaches to each side of the bicycle's rear axle.

There's more variety in the hitches available for two-wheeled trailers. These hitches vary both in the location of their connection to the bicycle, and in the mechanisms used to control degrees of freedom.

Most hitches attach either to the left side of the rear axle, or to the seatpost. In terms of stability, especially for heavy loads or high speeds, the axle-mounted hitch is far superior to the seatpost-mounted hitch. This makes sense if you think about how the forces flow through the bike. Ultimately, every force acting on the bike is expressed at the points of contact between the tires and the road. The farther the trailer hitch is from those points, the greater its effect on the handling of the bike. A seatpost-hitched trailer will have more leverage to push the bike over during a corner compared to an axle-mounted hitch.

The ideal hitch would connect to the bicycle exactly at the point where the tire meets the road. Such a hitch would be impossible to build, however, so the axle-mounted hitch is the next best thing.

The hitch not only transfers loads between bike and trailer, it also controls the movement between each as well. Hitches for two-wheeled trailers allow freedom of movement for all rotational axes (roll, pitch, and yaw,) but restrict planar movement between bike and trailer (up/down, left/right, forward/backward.)

They do this by using some form of universal joint. Some trailers use pinned joints, others ball-joints, and others a flexible rubber or spring connection. This last method has the advantage of being simple and cheap, but at the cost of being a little sloppy.

Sloppy connections are most apparent while accelerating. The surge from pedaling causes the trailer to surge forward and backward as well, and flexible hitch connections pronounce this effect. Keep it Handy

Once you've picked out your trailer, you've got to use it. The best way to do that is to make sure it's readily accessible. Leave the hitch mount on your bike and keep the trailer nearby. Or just leave the trailer permanently hitched. You're much more likely to hitch up the trailer for a quick run to the grocery store if you don't have to dig it out from under stairs first.

And think optimistically. People have hauled cargo around long before they had Ford pickups. Just because you've never seen anyone move a crystal chandelier by bike, doesn't mean it's a bad idea. It may take you longer but hey, it's Summer, if you've got to work, you might as well be riding too.

My Daughter Made Me Ride

My Daughter Made Me ride

by Barbara Hutchins

In 1967 I was ten-years old. That year my mother got her first microwave and my father got his first car with an automatic transmission. These purchases came several months apart, but each was an occasion for social gathering and optimistic speculation. The microwave came first and my parents invited our neighbors over to watch it turn mugs of water into mugs of steam. My mother made tea for the adults, and the neighbors sniffed at their mugs, smiled strained smiles, and asked only half in jest if the tea was safe to drink. Later that evening, after the neighbors had gone home (presumably in sound health,) I found my mother alone in the kitchen, staring at her new Radar Range. She looked up at me as I came in and I remember thinking she was going to cry. She gathered me into her arms and said, "By the time you have children, you won't have to do any cooking at all." She said it as if to imply how wonderful such an outcome would be?her tone implied a great hope. But in thinking back, I wonder if her optimism hid a deeper regret over something soon to be lost, the tears I thought she was about to cry being the tears of worry rather than those of joy.

My father, on the other hand, displayed no such complexity in his regard for our family's new Buick. We had had new cars before, but the new Buick shifted automatically. In 1967 we were behind the curve in adopting this technology and my father was supremely happy to be back running with the Joneses. Once again the neighbors were called upon to provide an audience and my father stuffed seven of us, four adults and three children, into the Buick for a trip to the lake. He didn't need to wait for a quiet moment alone to make predictions about where automatic technology was taking us. "By the time you're old enough to drive Barbi, you won't even have to do the steering... robots will do it for you," he

said. His enthusiasm was pure and his belief in an intertwining of prosperity and technology was rock-solid.

1967 was also the year I got my first bicycle. But unlike the microwave and the Buick, my bicycle was not considered a link in the great chain of progress. My father, in his ever-present concern for his family's safety, refused to let me ride the bike around our neighborhood. "It's not safe," he said. "Too many cars and none of them watch where they're going." To ride the bike, we made special trips to the park on weekends. We'd load it into the Buick's ample trunk and my mother would pack a lunch. My parents sat on a blanket and sipped wine while I rode laps around them on the grass. I loved these excursions. And back then I never thought it strange that my bicycle was given such an unnecessary status in the ranking of technological objects. Bikes were toys, pieces of athletic equipment at best, but certainly there was no mistaking them for useful, practical tools.

For thirty-eight years I continued in this tradition of assuming that happiness and progress came from newer and more complicated things. For thirty-eight years I thought bicycles were antiquated toys that became impediments to public safety when used upon roadways meant for automobiles. Then my daughter, Sarah, came along.

Don't get me wrong. My husband and I raised our daughter up right. We got her a driver's license and gave her our old Suburban when she turned sixteen. We thought the Suburban was perfect because it was big (my husband insisted on "safe" vehicles) and it was an automatic (I didn't think Sarah would want to learn to shift the car herself.) Sarah drove and seemed to love it as much as any teenager but when she went away to college, the university wouldn't allow freshmen to have cars. My husband wanted to file protests and find loopholes. He took to ranting about "Sarah's safety" and how the school's policy was endangering his family. But in the end, we just bought her a bike and a helmet and told her we'd pay for a taxi if she ever needed to go very far.

Sarah passed her freshman year without ever taking us up on our offer of taxi fare. She came home that summer and we assumed she'd take the old Suburban back with her since only freshmen were disallowed cars. But the day she got home and saw her car in the driveway she just said, "Why do you still have that old thing?" When she graduated three years later, she still didn't own a car. We offered to buy her a new one as a graduation present but again she refused. "How will you get to work," my husband wanted to know. "I'll ride my bike," my daughter responded.

Sarah's decision became a preeminent concern for my husband. "She'll come around once she finds out what real work is like," he said. At first I thought the same thing. But then I remembered 1967 and the sad look in my mother's eyes the day microwave technology inched her one step closer to the prosperous future, and I began secretly hoping that Sarah would hold out. For the first time in my life, I thought that maybe I'd left behind something valuable by chasing after a life of convenience.

So began the fork in my world view. At first it shamed me. How could I shun convenience when the world was filled with people who would give anything for a taste of the luxuries I enjoyed? Wouldn't choosing to forgo the automobile be as pathetic as the trustafarians (as my daughter called those college students with trust funds and painfully romantic notions of the real world) who liked to get high and wax poetic about the virtues of hard manual labor and the merits of poverty? There is much value in technology and the freedoms it grants us and I couldn't accept the idea that giving it up would somehow make my life better. Yet the desire to ride persisted and it took a conversation with Sarah to set me straight.

Sarah and I have a habit of telephoning each other early in the morning. We're both early risers by nature and this habit, which began as morning conversations over breakfast, turned easily into morning phone calls when she moved to Portland. I'd been wanting to tell her about my concern. I worried it might be some kind of mid-life crisis. I wanted to tell her about my mother and her microwave but the idea that a microwave could be the cause of some kind of foreboding sense of sadness seemed ridiculous and dramatic when I put it into words. Instead, I asked Sarah what made her dislike automobiles so much. "What do you mean, Mom?" she said. "I like cars."

"Why do you ride a bike everywhere?" I said.

"Because I don't need a car. I live in a city. Everything I need is within twenty miles. If I had a place to park it I'd probably buy a car just to have for trips, but I'd still ride my bike around town. Does dad still think I need a car? Is that what this is about?"

"So you don't hate cars?" I said.

"No. Why would you think that?"

After our conversation I felt rather stupid. I'd spent months feeling guilty because I'd framed my dilemma as requiring a choice between convenience and some sort of romantic notion of necessity. I felt stupid because I'd framed the problem all wrong. As Sarah saw it, the choice to ride a bike wasn't a rebellion or an Amish-like resistance to the evils of

technology. Riding a bike wasn't a denial of progress. In fact, from her perspective, riding a bike was the epitome of the idea that technology is progress. The bicycle is technology perfectly applied to the problem of urban transportation. The bicycle eases congestion, keeps us healthy, consumes fewer resources, and is cheaper.

Again I thought of my mother's microwave. Her worry, I thought, stemmed from a similar framing problem. There is nothing evil in a microwave (nothing re-heats mashed potatoes better in my opinion) but there is something troubling in the idea that from the microwave we must progress to automated cooking, or from the automatic transmission we must move to automatic steering, and on and on. If that is our idea of progress, then my mother was right to be worried. But Sarah, perhaps by having been raised in a different era, made no such connection. For her, I believe, technology is much more a tool than a savior, something that works best with thoughtful application rather than blind faith.

With my dilemma solved, I bought a bike the next day. It's a Trek touring bike, like my daughter's. The salesman explained how everything worked and I put it in the back of our car and drove to the park, the perfect place to learn how to ride a bike, in my opinion. I won't say it was easy in the beginning. I hadn't ridden anything with two wheels since I was in my twenties and certainly nothing with gears to choose from or brakes operated by hands instead of feet. I bought a book about cycling and worked to apply its principles, sage bits of advice that flowed easily off the page but were won only with much difficulty on the bike. But after two weeks, I could select gears with confidence, stop relatively quickly, ride in a straight and narrow line, and look over my shoulder without swerving too much in any direction. The seat, which had been a source of initial worry, ceased making me sore. With every hour at the park, the bike and I became more suited to one another until, finally, I felt ready for my first ride through town. In fact, the confidence came on while I was tooling about the park and not wanting to lose it, I set off for home, three miles away. I rode in traffic, amidst large automobiles. I survived. That evening after dinner, I told my husband about my adventures. I hadn't planned on telling him so soon, but he asked me where my car was... I'd forgotten I left it at the park.

My husband's reaction was not unexpected. He played his safety card, naturally, but his objections, for all their volume, had little weight for they were comprised of conclusions reached by anecdotes and jumps rather than experience and logic. Like piles of leaves, they blew away in the face of a determined wind. The ability to ride a bicycle confidently is

a skill, something to be proud of, and in the end, I think, it was the very hard-won nature of such ability that brought him around. The worry and skepticism in his voice was replaced by pride. Or perhaps he just knew what cycling would do for my legs. Either way, he came around and we bicycle together. After a few weeks at the park, he now rides to work three days a week.

We've become a cycling family. Our cars, when we drive them, still shift automatically but I've signed up for a cooking class. I think my father and my mother would both have approved.

Chapter 9

Got A Brood To Haul? Get A Bakfiets

Got a Brood to Haul?

by Neil Zawicki

He appeared like a bee returning to a hive: one lone rider on a stretch-bicycle sporting a wooden cart forward of the handlebars. I followed him in, knowing full well he would lead me to my destination: a meeting with the owners of Clever Cycles, the newest purveyors of practical cycling in Portland.

Their flagship product is the Bakfiets, a Dutch-built cart bike designed to transport anyone or anything that doesn't weigh more than 200 pounds, not counting the rider. The Dutch swear by them. When the bikes made their debut in 2001, around 200 of them populated the streets of Amsterdam. Today, there are close to 15,000 Bakfietsen in that city alone.

"It's the minivan of Amsterdam," said Clever Cycles co-founder Todd Fahrner.

Fahrner—who has never owned a car, except, he admits, one small truck he bought in 1992 for a cross-country move, but sold as soon as its purpose was fulfilled—is best known for his Stokemonkey: a pedal-cranked electric motor that lends a powerful assist to the long-wheelbase Xtracycle bikes. He still makes the motors, but has now ventured into the business of selling these curious Dutch designs. He and his partner, Dean Mullin, have opened what may be the first Bakfiets dealership on the West Coast. In just four months, the pair have sold what they describe as "a container full" of bikes, which retail for \$2,500 each. Not a huge price tag, if you embrace the philosophy that these vehicles can and do replace the automobile.

"I've hauled trees in them," said Mullin, a recovering commodities broker who one day logged off and hopped on his bike to spend six months just riding. After that, he and his wife looked for an alternative

to the car for transporting their two young children. He says their Bakfietsen have replaced their cars and most of their other bikes.

"We had tried a lot of other options," he said. "We tried four-person bikes and they were just way too heavy." With (Bakfietsen), you don't have to think about it."

Mullin is talking about the very simple design of the Dutch bikes. For starters, the hub gearing system is nearly maintenance-free while being easy to use. And the chain is totally enclosed so it can't stain your trousers or chew on the hem of your skirt. Further, the roller brakes are impervious to weather.

"The things you expect to be there are always there," he said.

Beyond the mechanics, the bikes offer generous accommodations in the forward cart, which comes with a detachable, arch-top rain cover.

The Bakfietsen that find their way to The States are slightly different from their European counterparts. The Yankee models sport eight speeds, compared to the three and in many cases only one over there. "Their bikes don't have to be designed for hill-climbing," Fahrner said. "I think over there a hill equals a stiff breeze."

Fahrner and his family took their Bakfietsen on an extended ride near Hood River, in north central Oregon, a moderately hilly region. He said the bikes were able to pull it off just fine. "They're built a little heavier than most bikes," he said. "But they handle well and actually become easier to operate with added cargo."

Fahrner said he finds it funny when prospective customers ask for a spec sheet on the bikes. "It's funny, because it is what it is," he said. "It's very straight-forward. It's a practical bike meant for practical use."

Mullin's economic mind makes a good argument for the practicality of buying a Bakfiets. He compares the retail price to the cost of ten fill-ups of a standard-size SUV.

Hopes for sales are high and their plan is to spread the gospel of practical cycling. They believe cities in the United States could embrace the bike just as Amsterdam has.

"Of course, we're drinking from the Kool-Aid," added Fahrner. "But we're doing something that really nobody has done in the U.S. and we think Portland's the place to do it."

Fahrner said there are rumors of other Bakfiets shops opening in Seattle and San Francisco—two other pedal-friendly towns—but the real goal is to get cargo bikes into the hearts of the populations of the cities that aren't already drinking the Kool-Aid. And judging from how much

fun Gwen had not only on the bike but in tinkering with it as well, that goal may be attainable.

Fahrner agrees. "We don't sell the bikes," he said. "The kids sell the bikes."

The Minivan of Amsterdam

by Eric Weber

Dutch bikes have hit American shores in a big way. But it's the Bakfiets (barge-bike) with its gigantic cargo capacity that seem best suited to American tastes. The long-wheelbase Bakfiets can haul kids, groceries, lumber, or even pets.

Developed in Holland and imported to the U.S. by the Dutch Bicycle Company (and sold through dealers such as Clever Cycles,) the Bakfiets is the bicycle equivalent of a minivan. But this Dutch invasion is just the first wave. Several U.S. manufacturers make, or plan to make, Bakfietsen of their own.

In fact, even the Dutch Bakfietsen that make their way to the U.S. have an American connection. Henry Cutler, the owner of Henry Work Cycles and the overseas source for Bakfietsen, originally hails from Silicon Valley, California. He moved to Holland as a product designer for Phillips and fell in love with the bicycle culture he found there—Nor more specifically, the lack of it.

"People here won't call themselves cyclists," Cutler says. "We sell our bikes to regular people, doctors, lawyers, housewives. They don't ride because they're idealistic, they ride because it's the most attractive option."

But the lack of idealism doesn't mean the Dutch don't enjoy their bicycles; it just means they don't fetishize them. For the Dutch, bicycles are practical tools, fun ones, but still tools and their bikes reflect that attitude.

"People here want bikes they don't have to think about," Cutler says. "If they have to put on a trouser strap to keep the chain from eating their pants, they won't ride." It's for this reason that the Bakfietsen come equipped with full chain-cases, fenders, skirt guards, and roller brakes—all designed to keep the bikes as low-maintenance and user friendly as possible.

Contrast the Dutch attitude with what has been the standard American approach to cycling for the past twenty-five years: recreation. In the U.S., bicycles have long been relegated to the sporting goods category. But this attitude is changing. The Wall Street Journal recently published

a story touting the merits of Holland's bicycling infrastructure. And New York's mayor, Michael Bloomberg, has proposed charging motorists a "congestion charge." In 2006, the city of Austin, Texas dedicated two-million dollars to improve cycling infrastructure. It's one thing when cities like Davis, California or Portland, Oregon chip away at automotive hegemony, but when the Wall Street Journal, Republican mayors, and Texas start doing it, it might be safe to say a real change in the way people see automobiles has taken place.

The Dutch cycling infrastructure and the Dutch bikes are popular right now, but Holland has something that much of the U.S. doesn't: flat cities. If you want to haul cargo around the streets of Seattle, San Francisco, Portland, and countless other U.S. cities, you're going to deal with hills. That's why the imported Bakfietsen come with a Shimano 8-speed gear hub rather than the three-speed or single-speed hubs popular in Holland. But even 8-speeds aren't always enough, especially on a cargo-laden bike. For now, however, the Dutch Bakfiets don't come with derailleur-gear transmissions (or disk brakes.)

That leaves a hole in the market. Companies such as Human Powered Machines in Eugene, Oregon have been making utilitarian bicycles for sixteen years. They too offer a long-wheelbase cargo bike, the Long Haul, which is similar in layout to the Dutch Bakfiets. The Long Haul can be ordered with derailleur-gears and disk brakes, but you'll have to wait about three months to get one as they are all made-to-order.

And then there are the rumors about a pair of bicycle builders tooling up to make Bakfietsen in Portland. Whether their bike remains vaporware or becomes reality, we can only wait and see. But the Bakfietsen are here, and fortunately, more will certainly follow.



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