

Issue No.

25

Early 2002



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A QUARTERLY FOR THOSE WHO LOVE BICYCLES & CYCLING

## Life Before Leaf Blowers

**I** have been called a luddite many times, so finally I read a book about them. The Luddites were named for a fictitious hero-leader, Ned Lud. They just made him up. They were just normal English people desperate to protect their way of life in a certain region of England, between about 1811 and 1812.

For generations up to then, textiles in England were produced by people who worked out of their homes. That's where "cottage industry" came from. Then machinery came along which could do the work of 200 or more people. The distribution of money shifted dramatically. The newly formed industrial centers were cauldrons of pollution, and the relatively few jobs left for people were dangerous and low paying. The Luddites set out to try to stop it, which of course they didn't. They did smash machines, but they weren't bad or evil, just desperate.

Business means lots of different things, but to a lot of people, the word "business" has a whiff of nastiness to it. "It's not personal, it's just business" is what you say when you fire somebody for the sake of the business. "Piercing the corporate veil" refers to finding a way around (or through) the protection provided by a company's legal status as a corporation, and bringing it to its knees for an inhumane act.

Our goal here is employment. People have to work, and I want Rivendell to be a good place to do that. We can't provide job security, because we're still living month to month. Getting inventory is a constant battle. Many of our suppliers are small, too, and have the same challenges. It is quite apparent why cork grips, wool clothing, and cotton duck saddlebags are so rare.

On another note, having strong convictions wins us our share of detractors. When opinions clash, sometimes people feel as though they have to defend



theirs. Sometimes they're cyclers who think our liking lugs and steel threatens their carbon fiber. And, sometimes the most innocent stuff will inspire people to write to scold me and swear off Rivendell. Last month a fellow wrote, mad because he thought I was poking fun at the job losses in Silicon Valley. I don't know what it was that I wrote, but I think maybe he connected lugs with Luddites, and Luddites to hatred of modern things, and that to being happy about people who make their living with modern things losing their jobs. I don't even recall a reference to high tech job losses, and I'd no sooner laugh at that than vandalize a museum. He also thought the Crash of the Month, showing a Steelman frame that had been run over by a car and busted to bits (the welds held!) was "negative selling," and a knock on Steelmans. It had nothing to do with that. When I got that frame, the first thing I did was call Brent (Steelman), whom I've know for some time, and asked him if he could ID the frame, or the owner. I told him my idea, to show it in the Reader, because it is such an outrageous destruction. Far from revealing anything bad about the frame, if anything, it's a testimony to Brent's craftsmanship—after all, it didn't fail at the welds. We've shown collision-damaged Rivendells in these pages, and will again.

About a month ago a fellow had just taken delivery on his new Rivendell, and was driving it out to the country for its first ride, when a deer jumped over the car, smacking the bike. If we get a photo of that, I'll put it in here—but for heaven's sake, don't read joy, or animal-hating, or roof-rack bashing, or anything else into it. Other times there's jealousy among those who think we're on the top of a heap they want to be sitting on. If they can't have it, they want us to fail. Some people are like that. They dress normally and look and speak

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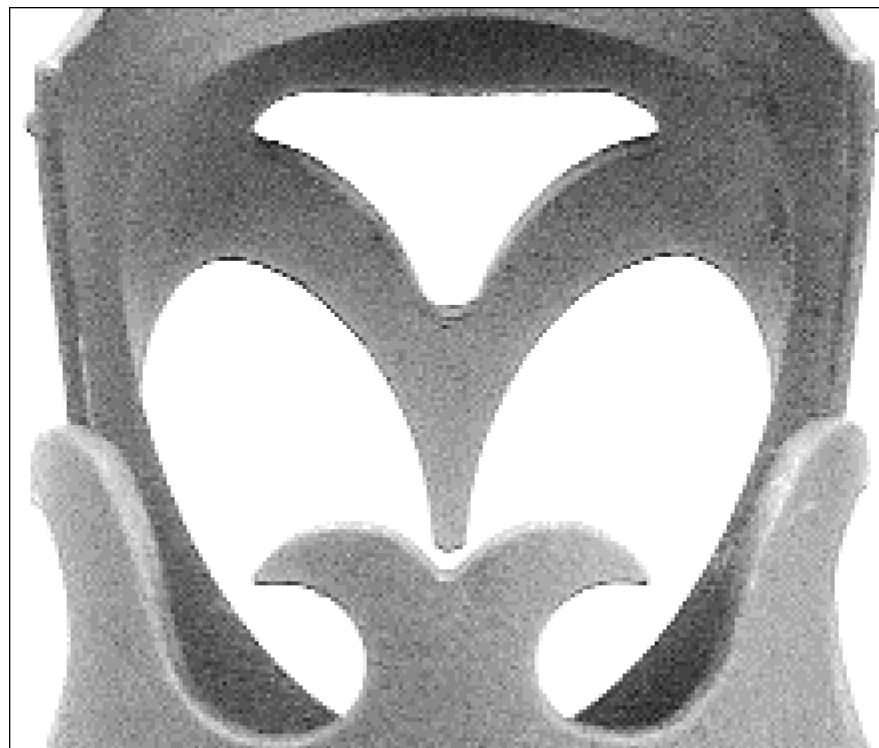
Grant had a whack at it this time



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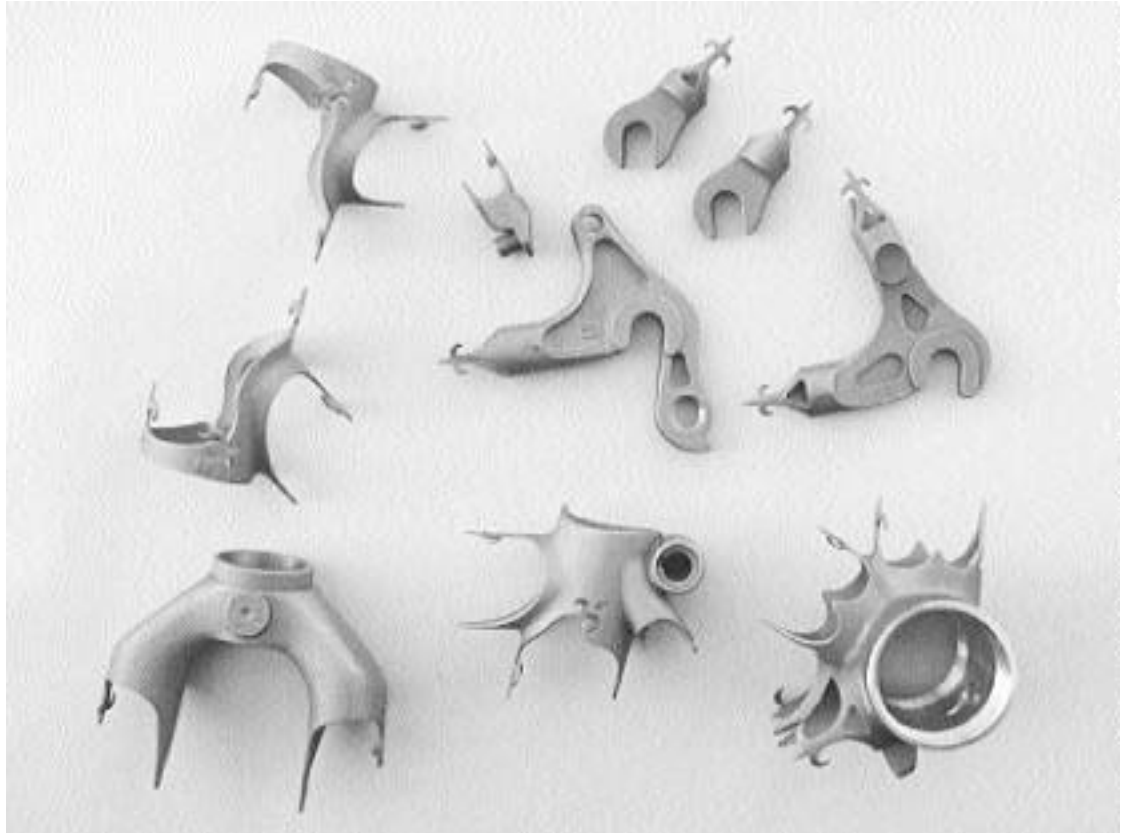


# A Look At Lugs, Round 10

## The Long Shen 302s

I first saw these about 7 years ago, in VeloNews, back when lugs were still newsworthy. They had just been introduced a big trade show, and after a decade or more of simple but fine "Italian cut" lugs, with their short waists and simple shoreline to make brazing machines happy, these were quite a sight. These seemed to flaunt their fanciness, and made you rear back. Up until then, investment cast lugs were simpler, because the casters couldn't reliably cast delicate detail. When you cast a lug, you make a mold and pour hot metal into one end of it, which drains into the mold cavity. 'Twas said that if you had a narrow or skinny peninsula way off in the nether regions of the mold, that the metal would usually harden up before it got there; and that if you had a skinny part of the lug leading to a big part, the molten metal would back up and harden before it got to the wide part. Basically, it was like pouring quick-setting molasses into an intricate mold; it wouldn't make it into all the nooks and crannies. So, that's why these lugs were the shockers they were. They were shapes too intricate to cast, but cast they were.

Around about that time, tig-welding took off, mountain bikes pummeled road bikes back to the bush leagues, and no bike makers interested in volume and profitability really cared about fancy new lugs that were more difficult to braze well. The first ones I saw in real life were at Giant's booth at the Taipei trade show a few years ago. They were on a champagne colored frame were gold-plated; or maybe it was a gold-plated frame, and they were chrome-plated. Either way, it just screamed *one of a kind, of course it's not available, we just want to get your attention, now come on in and look at our real bikes, which are about as far from this as we can get* (not that there's anything wrong with that). Every now and then another builder will get ahold of a set and braze them into a frame,



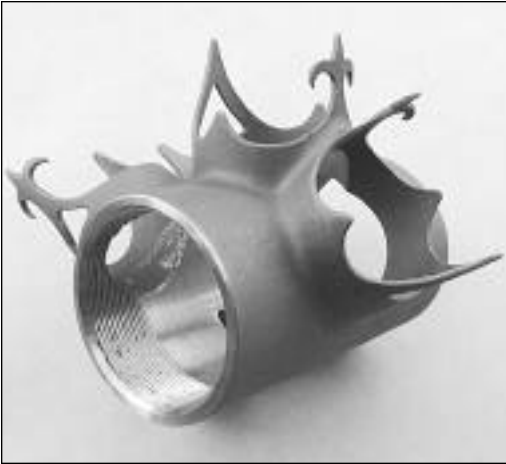
The entire set of LS 302 series, including and limited to a seat lug, top and down head lugs, fork crown, bottom bracket, and front and rear dropouts. The blob under the bb shell is a cable guide.

but it's unlikely you'll see them on the road. I recently saw a modern Gillot frame with these; it was in Las Vegas at a trade show. Gillot was a well-known British frame from the '50s and '60s. The same fellow who now makes Hetchins frames makes Gillots as well.

Back in the late '70s the Italians were still casting lugs, doing a decent job; and a Taiwan company, Everest, was getting 98 percent of the non-Italian business. These lugs brought Long Shen's skills to the world's attention. Since then, the Italians have stopped investment casting altogether. The few lugged Italian frames use Long Shen lugs. Long Shen makes our lugs. The Long Shen catalogue lists a couple of dozen standard lug sets that anybody can buy, and we bought one of each, just to ensure a continuing supply of A Look At Lugs material. Long Shen also makes custom lugs for us, Colnago, and a few others; and the soon-to-be released Pacenti fork crown.

This issue's A Look At Lugs is longer than past Looks At Luges. It includes an interview with Long Shen, and a reprint from the 1993 Bstone catalogue, which shows some of the processes in investment casting.

# RR 25 A Look At Lugs



**BOTTOM BRACKET SHELL.** With sockets dimensioned for normal road frames. Challenging to braze, but a testimony to Long Shen's incredible skill. Casting delicacy adjacent to solid, thick areas is hard.



**Fork Crown.** Full-sloping style for internal fork blades. Oddly, it is cast with an offset, for straight-bladed forks. You'd expect a flat crown designed for raked blades, wooncha?



A cast dropout designed to mate with the offset crown. When the blades are straight, you have to angle the slot differently, so it still ends up more or less vertical.



**Bottom head lug,** showing the anchors, and the crisp bore intersection—a characteristic of cast lugs, which aids brazing. There's no "gap to fill."



**Top head lug.** You can see a similarity between the window above the anchor on this one, and the window-above the whale-tail on the Atlantis lugs. Surprise?



**Seat lug.** With all the details of the others, plus a binder bolt, and sockets for seat stays. The socket angle is fixed, but the dropouts adjust to accommodate seat stays on small, medium, or big frames.

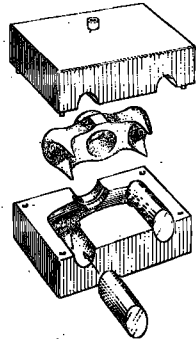


Here dem rear dropouts. The upper socket accepts a seat stay inside it (chopped off straight, no less), and swivels on the main body to accommodate any seat stay angle. Then it all gets brazed. Note also relieved areas to reduce weight.

## "Hey—nice lugwork!"

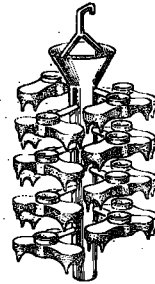
—a common reaction when people see nice and generally fancy lugs. When they're speaking to us and referring to a Rivendell, we take it as a compliment, and leave it at that. But when the speaker is referring to the fanciness, and the fanciness is cast into the lugs, the "lugwork" is the mold maker's, not the builder's. That's just a fact, and doesn't take away anything from a builder's skill, or the quality of the frame. One can slave on lugs all day with a coping saw and jeweler's files, prettying up old crummy lugs. It's an admirable skill, but doesn't affect the quality of the frame. Design, suitability, fit, clearances, alignment, and brazing quality are what counts. Once those are in place, then it's time to talk about lugs. Anybody on the street can make a bad frame from pretty lugs.

Reprinted from the 1993 Bridgestone catalogue. Illustrated by Rivendell member George Retseck.



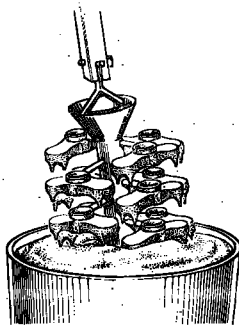
STEP NO. 1

Make a metal mold, then pour wax into it to make replicas



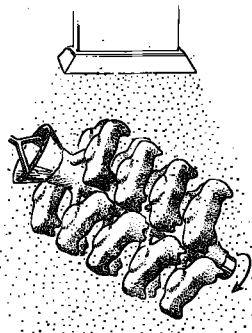
STEP NO. 2

Hang the wax fakes onto a "tree", so you can...



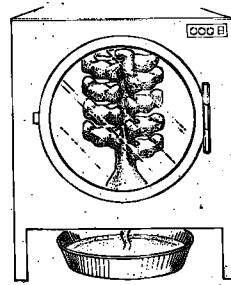
STEP NO. 3

...dip them all into a ceramic batter until...



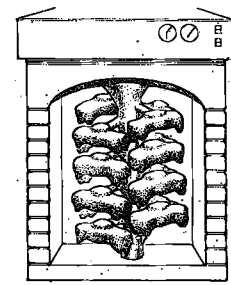
STEP NO. 4

...a porous, heat-resistant crust forms.



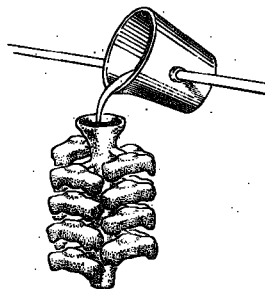
STEP NO. 5

Then heat the wax and let it drain out a hole.



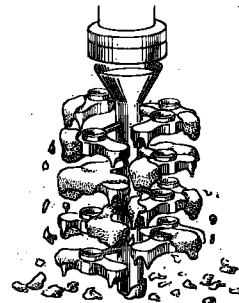
STEP NO. 6

Turn the molds upside-down (rightside up?)...



STEP NO. 7

...and pour in the molten metal -- CrMo, in the case of this fork crown. Once it has set...



STEP NO. 8

...break off the crust, and inspect your castings for voids, where the metal may not have flowed.

Separate the castings, and heat treat them to restore ductility. Machine the new parts as necessary, and you're done!

## Shawn Nagel, Rivendell's correspondent-at-large, interviews Long Shen's Alan and Shirley Kerr

photos by Christine Wu

**Were you the founder of this factory? And, was it founded to produce lugs in the first place?**

AK: Yes. I founded this factory in 1987 to produce lugs right at the beginning.

**How big is the factory? How many employees do you have? Who has been working here the longest other than yourself?**

AK: It's 672 ping (a ping is 1.8 meters sq). We have 15 employees including casters, quality control, and final inspectors). Most of them have been working here as long as I have, over a decade.

**How did you learn about steel and casting, and why did you start this factory?**

AK: I once worked for a US company manufacturing tools here in Taiwan. I had learned all the skills of lost wax casting at this company, which was later moved to China. I then joined Giant and worked there for eight years. When Giant started producing bicycles, they purchased a lot of items from Japan made with the lost wax casting technique. As such, Giant wanted to find out more about lost wax casting and designated some engi-



Shirley and Alan Kerr double-teaming Shawn.

neers to learn this technique. I found out that I had known this technique already. Later on, there was a growing demand lost wax parts, and since I already knew about bikes, I decided to start this company.

**Has the casting process changed any way? Have you come with anything new in the process?**



Shawn, investigative reporter at large, gets right down to the real nitty-gritty. Shawn lives in Taipei, speaks Chinese, and has helped us with many projects. His next mission, should he decide to accept it, will be to our head badge maker, where he will get the answer to something we've wondered about for years.



Okay...this woman is using a small heating iron to melt the wax "tree" so she can then attach the wax mold of the lug to it. That way, when they dip it into the ceramic batter, it goes in as one piece. It's delicate work, not easy.



Top: Rivendell All-Rounder (or Atlantis) fork crown encased in ceramic batter and about to hatch. The point you see is metal.

Bottom: Too bad it broke. This is a broken up piece of the wax mold of the above fork crown. It looks and feel like...brown wax. It gets dipped in ceramic batter, then melted out, leaving a cavity for molten steel to be poured into. Sorry it's all broken up.

AK: Yes. The traditional lost wax casting could never produce what we are producing right now. It has been always our goal to meet whatever requirements customers may have. So whenever there was a new requirement from the customer, we would always take that challenge and try incessantly to make it happen. In other words, customers have been helping us to grow and become better. Shirley: We have never failed to make the part the customer asked for.

**Are you the chief engineer responsible for the product development?**

AK: Yes.

**Who are your customers?**

AK: We have so many, but mostly they are from Europe, including Italy, Germany, Switzerland, and the UK. We supply over 90% of the lost wax casting bike parts in Europe, but we have customers in Japan and USA, too.

**How do you get new customers?**

AK: We attended in the varied bike shows for 10 years. Earlier years, we attended Taipei Show, Cologne Show, and the Tokyo Show. For the Interbike Show (USA), we primarily went there to visit. In recent years, we would send out our catalogues and also get referrals from customers. We were getting more and more customers from words of mouth advertisement. For instance, Keith Bontrager introduced us to Joe Breeze, and then Joe Breeze introduced us to Tom Ritchey...

**You had mentioned that Hitachi closed and more Japanese are coming to Taiwan for production. Do your Japanese customers have their own design for lugs like Rivendell or ...?**

AK: Over the years, I've found that people from different countries have varied preferences. In early years, Japanese would buy our existing products and make changes afterwards. Now, they ask us to develop custom molds and produce their own designs. "Japanese-style" lugs are sharp and thin. Italians, though, like round-shaped lugs, and English and Americans like flat lugs. The Rivendell lugs have their own style, and are difficult to make. I think, it takes more experience to make them, and it is hard to be consistent, because of the detail. *(Personal note here. I watched the QC department check the Riv lugs last trip and the reject pile was quite large—SN)*

The cooperation between Rivendell and LS right now is that we can provide suggestions to Riv from the perspective of manufacture to avoid confusion, or to offer suggestions, in casting. I think that should be an advantage for Rivendell.



These brave new men are...pouring molten metal into casting trees (chap at left), and carrying the filled trees from the big pot of liquid steel on the left there, to a cart, where they cool—not too fast, not too slow. The silver jackets weigh about 30 pounds, but are worth it.

SK: A lot of Japanese companies would buy our products and cut/modify our lugs based on their preference. Sometimes, we are not even able to identify our products right at first sight.

#### **Who developed the 302 series—and when, and why?**

AK: I did, around 1993 or 1994. The purpose of developing 302 series is to demonstrate to our worldwide customers that Long Shen is the leader in applying the lost wax casting technique in the bike industry. They are difficult to make, and most lost wax casters cannot do it. It was a good challenge for us, and then we could show the world our skill.

#### **What inspired the details?**

AK: I like the classic graphic. The design is just like the silhouette of an anchor with some French flair. Back then, we used to run ads in all 16 yearly issues of Japanese Cycle Press. I had contact with Zunow first. Since we were able to meet all their design requirements, they commented that we are the world class. Then, we broadened our contacts and stretched to Europe.

#### **Has any company or framemakers in Europe ever used the 302 series and had frames mass produced?**

AK: There was no mass production for this series. In early days, some European companies would buy small amounts. Three years ago, Koga Miyata ordered 120 sets and made memorial bikes. But the design is not suitable for mass produced bicycles.

**How many lugs can be produced in one day (maximum capacity)? I understand it's hard to say since a bottom bracket shell can be different from a dropout. But just give us an estimate.**

AK: OK. Just to give a ballpark for this kind of lug (Riv's new RC-03 fork crown), around 1500 pcs a day.

#### **When the lugs are removed from the oven and still in the batter-covered trees, why are they covered up?**

AK: We need to keep the temperature inside consistent and have the trees cool down at a constant and slower speed. This makes the texture of the steel denser yet more malleable. Should the temperature drop too fast, the steel will be more brittle. Another reason for covering up the trees is to separate them from the air. The trees inside the cover will continue to burn and use up the oxygen. This smooths the trees as well. However, if the trees are not covered up, the carbon element will rise to the surface and the trees will have to be retreated. In average, the trees need to be covered up for 5 hours, but the time required varies from season to season.

#### **I saw one of the heavy casting carts out there with sand on it. What is the purpose of the sand? To aid in heat transfer or...?**

AK: No, that is for keeping the cart from tipping when we are loading the trees.

#### **After the wax is melted out (at a temperature of 1100 degrees C.), the trees are pulled out from the oven and molten steel (1650 deg. C) is poured into the casting voids. I watched another employee pouring something else on the very top of the filled mold. What is that for?**

AK: That gets rid of oxygen and seals the trees to prevent contamination from contact with air.

#### **Is everything manufactured here?**

AK: Yes, all except mold making.



**What material do you use for the steel castings, and how does this compare with CrMo?**

SK: This steel alloy is more malleable and so better suited for cast bicycle parts. For certain customer we will use another alloy which has more carbon (0.3%) than SCM21 which has 0.1% carbon. But this doesn't offer any advantage and we very rarely do it. (SCM21 also has a slightly more chromium)

**Has your material changed over the years?**

AK: The material hasn't changed but the way we design the lugs have changed. Before computer programs to help us thin the material in the lugs, we had extra weight that wasn't necessary. Now we can reduce weight while strengthening the casting.

**What material did Hitachi use (Japanese caster), and Microfusione (Italy)? And, do you know the shrink rate? When metal cools, it shrinks, doesn't it? So you have to account for that when you make the molds.**

SK: We cannot say for sure about Microfusione but Hitachi also used SCM21 also. It's general practice in this industry. It has a shrink rate of 0.5-1.0% only.

**We noticed in our last trip that you have many orchids here at the factory. That certainly isn't the standard Taiwan factories that I have been around. Don't orchids require tremendous amount of care and patience? Also, you keep gigantic fish here. They are the size of small adults! Please tell us about this.**

AK: The orchids are a hobby, and I am building a new greenhouse, about 700 square meters, so I can plant more of them! All of my friends and even visitors from abroad like to see my fish whenever they come here. I have been keeping my fish over 10 years now. And we have built up a very close relationship with the fish now. I've had them since they were just small fry, about the size of your palm. Now every fish exceeds 150cm. (The biggest looks to be well over 6')

**Can you tell us if all these types of fish can be easily**



A Long Shen-built Rivendell bottom head lug. If Long Shen hadn't released its 302 series, we would have thought this design was uncastable, and never would have submitted it.

**raised to that enormous size?**

AK: Well.... Maybe not everyone can raise fish to this size. I once gave two big fish to my neighbor, but the longer he kept the fish, the smaller they became.

SK: Those fish are as important to Alan as his children are! He comes to this factory even on holidays to feed the fish and take care of the orchids, too. Even when he is out of the country, he'll call home to check if we are taking good care of his fish. We are feeding the fish five meals a day regardless of the cost!

**How many children do you have?**

AK: We have two, aged 5 and 3. Our daughter is learning English right. She likes to talk to her mom in English.

**Maybe Rivendell can send you some children's books in English. I'll see what I can do about that.—Shawn Nagel**

**For New Readers, and a Reminder for Old Ones: Why Lugs Are Good**

They serve as external butts and reinforce frame joints where the stresses are greatest. They allow brazing, a lower temperature building process which helps the tube maintain more of its original strength. They add an interesting and even artistic element to what is otherwise a plain tool. They make any frame easier to repair—a damaged tube on a brazed and lugged frame can be removed and replaced, and the repaired frame can be as good as new.

For years, leading up to about the mid-eighties, most frames were lugged, because lugs were accepted as the best way to join tubes. Tig-welding has taken over. It is a good way, too, but lacks most of the advantages of lugs (specified above), and has led to a general genericizing of frames. Without the decal, who can tell them apart?

Sheldon has a bigger online presence than any other single bikie; and the shop he works at, Harris Cyclery, has the shop-honors, thanks to Sheldon and owner Aaron Harris. If you're a bike person and spend any time at all on-line looking for stuff & answers, chances are you know of Sheldon Brown and Harris Cyclery.

The thing is, you can think you know somebody by the words they write on-line, but in Sheldon's case, it's not true. On line, answers and communication in general tend to be, and probably ought to be, concise and declarative and accurate to the bone—then on to the next thing. Sheldon, for all his wordiness, is fairly like that, and as a result, he seems more of an opinionated, folded-armed curmudgeon than he is in real life. In real life, he is friendly, humble, and self-effacing. He's even jolly. You'd never know you were talking to Sheldon Brown, unless you started asking questions about really arcane stuff that you don't really expect to get answers to, and the answers start flowing...and flowing...and flowing. I'm not saying he's unfriendly on line, it's just that in real life, he's a super friendly, *really* nice guy.

And of course, he is the fountain of knowledge that you'd expect him to be. If there is somebody with more all-around bicycle knowledge—and by that I mean knowledge and first hand experience with anything from Sturmey-Archer to The Weirdest of the Modern Weird—let him come forth. I say there is none. This is a long, whopper-of-an interview. I hope it doesn't seem too long. I asked a lot of questions, and well, Sheldon's answers were thorough. I could have chopped it down a lot, but I didn't want somebody else to come around and do a more thorough interview.



## A Talk With Sheldon Brown

RR: How old are you and when did you start liking bikes?

Sheldon: I'm 57, and have liked bikes as long as I can remember. I learned to ride a two-wheeler when I was six, like most people, on a 20" wheel fixed gear with solid rubber tires. Later, I got my sister's Rollfast 24 inch wheel balloon. It was too big, so I had to mount "cowboy style" on the fly for several years. That was my bike 'til I was in junior high school. I used to ride it in the woods, as well as on the street. I had stripped off all of the non-essential parts, fenders, chainguard, kickstand and so forth and painted it red.

This bike allowed me to explore other neighborhoods and towns, as far as 6-8 miles from home. My father crashed his plane when I was 9, and we moved to Marblehead, Mass., a funky little seacoast town where I didn't know anybody. With my father dead, I had to learn to maintain my bike myself. I was a shop rat at Marblehead Cycle, a small one-man shop run by Jim Loftus on a part-time basis. He befriended me, and taught me the rudiments of bike repair. He was not a very respectable person, and was reputed to have a drinking problem, but he was always very nice to me, and I treasure his memory.

Were you a normal bike kid, or, let's say, a young Sheldon Brown?

I was a solitary, bookish, friendless kid, small for my age, and picked on. I liked to hang out at the Town Dump, and noticed bike parts were plentiful. I found an Austrian J.C.Higgins (Sears) 3-speed that was all complete except for a front wheel—and remembered seeing a nice looking front wheel on the other side of the dump. I put them together and had my first multispeed, lightweight bike. After this I started actively assembling bike from parts to sell for spending money.

**So...a young Sheldon Brown. How did you become so smart-about-bikes? Lots of people have been into bikes as long as, but few have learned as much about them.**

Well, I didn't just ride them, I worked on them and put together strange bikes from disparate parts. I built my first tandem when I was in high school, from a couple of Raleigh 3 speeds. I rigged it with drop bars in front, and a 6-speed gear system (Sturmey-Archer 3-speed hub with 2 sprockets and a Benelux Mark VII derailier.) Marblehead was an early nexus of interest in better bicycles, and I had a couple of fellow outcast friends who I would sometimes

ride with.

When I was in high school I learned about butted spokes, and rode 20 miles to Cambridge to get some. I took apart my perfectly good rear wheel and re-built it with butted spokes, and I did it without any instruction. It came out fine, and I rode it for several years. I was the only person in my senior class who rode a bike to school. My high-school yearbook mentioned my "43 speed racing bike" but it was really only 12 on the old Elswick.

**Who were your influences, and who are your influences? And name some books, some bike books.**

In the '50s and '60s, I was desperate for written material about bikes, but there wasn't much out there. The American Youth Hostels handbook had a fairly extensive section, and there was Gene Portuesi's "Cyclopedia" catalog which also had a lot of useful text. Ed Townshend, the parts manager at the Bicycle Exchange was very helpful to me. He was the one who supplied me with Benelux conversion kits and other exotica. Also, Fred DeLong was like a god to me in those days.

**Well, he was like that to everybody. I think riding a bike now and not knowing who Fred DeLong is, is like being a black pro baseball player and never having heard of Josh Gibson or Jackie Robinson or Satchel Paige. How did you get into bikes professionally, and what did you do before?**

After a year at Berkshire Community College in Pittsfield, Mass, I had squandered the nest egg my grandmother left me, so I moved to Cambridge, and sold hi-fi equipment for a couple of years. Then later I sold shoes, oil paintings, and stationery. I broke my ankle in a car accident in 1967 and was laid up and out of work for a while, then Timothy Leary told me I should turn on, tune in and drop out, so I did that for a while, keeping body and soul together by driving a cab. That's about when I kicked my 3-pack a day cigarette addiction, on June 14, 1967.

I had a bit of awe of the trade of bicycle mechanic. In the early bike boom, probably 1973 or so, I got a job at the Bicycle Revival in Cambridge. It turned out I knew more than anybody there except the head mechanic, and he left a couple of months after I started, so I found myself head mechanic of a fast-growing shop that rapidly ballooned into a chain of 15 shops. Among the mechanics who worked under me were a 14 year old high-school kid named Peter Mooney, now a noted framebuilder, and Pete DeFazio, now representing Oregon in the U.S. Congress.

I left the Bicycle Revival with 4 of my colleagues (including Stan Kaplan, inventor of the Kryptonite lock) and started the Bicycle Repair Collective. People could come in and use the tools and equipment for a small hourly rate, plus consult mechanics for assistance at a separate hourly rate.

Around this time I started teaching a class called "Fix Your Own Bike" at the Boston Center for Adult Education, which ran for quite a few years. It was never a roaring success, but has managed to hang in and is still going, under the name "Broadway Bicycle School."

I first got interested in photography in 1969 when my girlfriend bought a broken camera cheap. I took it apart and fixed it, and started taking pictures. Soon I had a little dark-room in the bathroom and was carrying a camera everywhere. I started looking for more broken cameras that I

could fix up, and this led to a job as an informal apprentice. I went into camera repair full time, with S.K.Grimes Camera Repair in Boston. This was initially just a two person shop, Steve Grimes and me, but gradually grew to become one of the top repair facilities around. I became Service Manager, and that's where I got my first exposure to computers, setting up a system to track repairs on an Apple II+. As a camera repairman, my specialties were mainly German: Retina folders, Contax rangefinders, Rolleiflexes and Zeiss stuff in general. In the mid '80s, S.K.Grimes Camera Repair was bought by a larger company, and I got laid off. I went back into bikes, first at Belmont Wheelworks, later at Frank's Spoke 'n' Wheel in Waltham. I started at Harris Cyclery in 1994.

**I imagine you shoot digital mostly these days...it's more practical for the web and all. Anyway, say some of your thoughts on cameras....**

I love fine cameras as I love fine bicycles. I'm particularly fond of some older German cameras. I used to carry a folding Retina IIIc everywhere I went in a home-made belt pouch. I'm also particularly fond of Rolleiflex twin-lens reflexes and Contax rangerinders. When I was a camera repairman, these were my particular specialties. I also own a bunch of Graphic press cameras, 2 1/4 x 3 1/4, a customized 3 1/4 x 4 1/4 and a couple of 4 x 5s, plus a snazzy Arca Swiss monorail 4 x 5 view camera. I really enjoy working with 4 x 5, and will explain the Scheimpflug principle at the drop of a cable release. In the late '70s, I got serious about photographing bicycle racing, and did a lot of racing photography in my part of the country. I was good, but I could never make it pay.

Mostly I use Nikon, and I've got Nikons going back to the early '60s and can use my latest lenses on them. Nobody else does that, except Leica. I own probably half-a-dozen Nikon bodies, ranging from a couple of original Fs, an FG and a couple of 2020s.

I'm afraid, though that, just as SPD pedals caused me to retire my extensive collection of Lyotard 23 platform pedals, my Nikon 990 digital camera has caused my collection of silver based equipment to gather dust. This is an amazing



Aaron Harris, better known as Sonny Harris, of Harris Cyclery. Sheldon's boss, and apparently a great one.

and wonderful tool.

## **Who is Harris? How does he or she react to your website and the contribution you make to the shop?**

Aaron Harris is an absolute prince of a guy and the best employer I've ever had. He's the first person in the bike biz to let me spread my wings. He isn't a tech guy, but he's a great "people person," and a good judge of character. He gives me a free rein.

I first got on the Internet, via AOL, in 1994. I soon got heavily involved in email lists, particularly the BOB, HPV, and Tandem@hobbes lists, as well as a couple of local ones. I enjoyed answering people's tech questions, but noticed that many of them were repeat questions. I started accumulating a few "boilerplate" responses that I could paste into an email when a familiar question was raised.

By late 1994, it occurred to me that this could be a good way to disseminate tech information, and it might also help promote the shop. I spoke to Aaron and proposed a Website. He agreed, and we were one of the first half-dozen bike shops to have a Website, it went up December 4, 1995.

It started out with a few re-cycled magazine articles, including my universal Cyclecomputer Calibration Chart (still one of my most popular pages!) I had been writing for bicycle magazines since the early '80s, first for *Bike World*, then *Bicycling*, later *American Bicyclist*.

## **What sort of freedoms do you have at Harris? What are your main jobs, and what is a typical day like?**

I'm generally at the shop about 7 hours a day, but also spend a LOT of time doing shop business at home. Everything lives in my Mac iBook, which commutes with me every day on a shoulder bag. I do the first batch of email in the morning at home, then ride to the shop.

My work area at the shop is cluttered. I'm not tidy. I've got a mechanical work area with a big rollaway tool chest, a big workbench with 2 vises and a bench grinder, a separate wheelbuilding area, and a computer desk for the iBook.

It's all in the cellar of the shop, so I don't see the light of day, but I don't mind. I've got a decent sound system with a 25 disc CD changer. The CD changer generally has a mix of classical, celtic, folk-rock, French and Québécois folk music, sometimes a bit of jazz and Broadway stuff.

## **What's all that stuff, how long have you liked it, what normal groups or popular music do or did you like, and where do you get Quebécois folk music?**

My favorite group is called Oysterband, a Celtic-flavored British group—the best band since the Beatles. They're a bit like the Pogues, without alcoholism and not so gloomy.

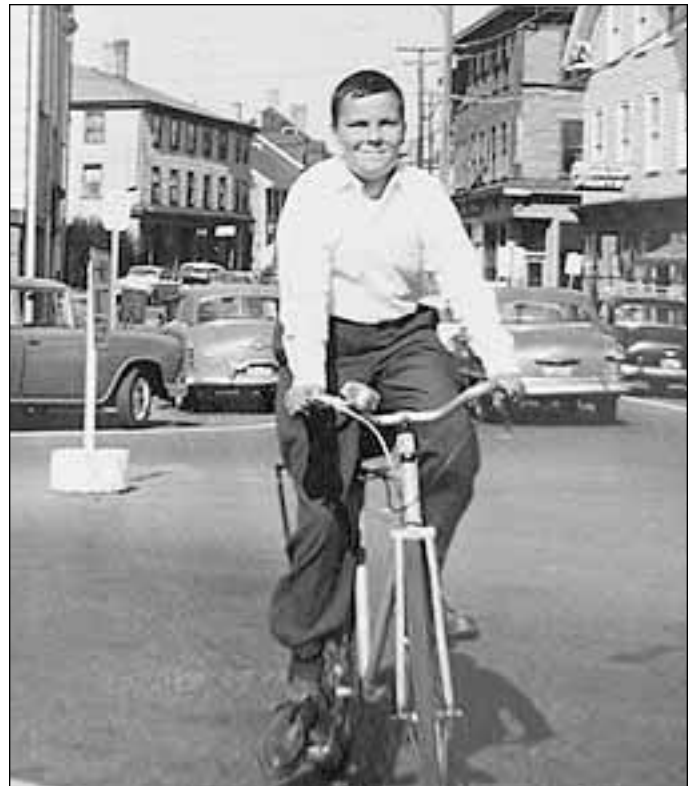
Québécois folk is a blend of Breton-French sources with Irish tunes and instrumentation. Lately I've also been listening to a lot of Russian opera; I'm a major Shostakovich fan,

and Mussorgsky really floats my boat! I'm also very big on Gustav Mahler, Benjamin Britten, Leos Janacek and most of the mainstream "classical" composers...except, for some reason, I've never been a fan of Mozart. This probably is the result of some sort of character flaw.

Current pop stuff I like includes They Might Be Giants, Moxxy Fruvous (my kids introduced me to those two groups), The Austin Lounge Lizards, the aforementioned Oysterband, The Men They Couldn't Hang, The Bobs... I never listen to commercial radio, so I don't really keep abreast of pop trends.

I'm spending less and less time with a wrench, more and more on the phone and the computer. I get an awful lot of phone calls and email questions from customers and others. Sometimes these calls and emails generate orders, but more often than not I'm just helping somebody out. I'm fortunate to have Jay Jackson and Shari Heier to help me out with this, and to pack and ship the orders.

I also spend an awful lot of time purchasing. I purchase repair parts and parts for resale, also some accessories and specialty bicycles. There must be 20 vendors I deal with, some of whom only sell us one or two key items. Our mail order market niche is mainly hard-to-find parts. We specialize in fixed gear/singlespeed stuff, English 3-speeds and parts for older French bikes. We also sell a lot of parts for updating/upgrading older road bikes...triple cranks, wide range freewheels, tall stems, etc. When I do pick up a



Sheldon at 16, in 1960. The bike is his first multi-speed, built from an Austrian Sears J.C. Higgins frame and parts from the town dump.

wrench it's mostly something fairly non-mainstream. I do a lot of conversions of older road bikes to fixed gear, and also convert a lot of others to have more gears, STI shifting and so forth.

#### Describe your riding: Commuter, tourist...what?

My background is mainly touring. I did a fair amount when I was younger, and even when our kids were young. When we lived in France in 1988-89, and my kids were in the French equivalent of kindergarten/second grade we toured around on two kidback tandems. As the kids got older, they had less time/interest for cycling, unfortunately. With our recently emptied nest, Harriet and I hope to get back into some touring again. These days, most of my riding is commuting. I always commute by bike, except when I have to transport something big or heavy.

#### How many bikes do you own, what are they, and which is the one you ride most of the time?

This is not an easy question for me to answer. I'm still a dump picker at heart, and am always accumulating recycled parts, which I delight in assembling in unorthodox juxtapositions. There's a bit of a gray area where the actual bikes trail off and the parts pile begins. There are also various bikes rescued from different sources piled under my front porch, most of which probably shouldn't count. I'd have to say that the number of actual usable bikes that I might ride is 30 or more, including 3-5 tandems, and at least 10 fixed gears. One of the things about having so many bikes is that every month or two I'll dig one out that hasn't been used for a few months, pump up the tires, hop on and...Wow! I'd forgotten how much I liked that bike!

I guess, if I have to pick a favorite, it would be my new Hetchins Magnum Opus. I've lusted for a Hetchins for many years, and was fortunate to snag this frameset on eBay. The seller said it probably dated from the early '80s, and the original owner had returned it to Hetchins to have some extra braze-ons applied and a repaint. For one reason or another, it never got built up, so it looks brand new. It's the only Hetchins I've ever seen with cantilever studs...I'm guessing it was originally made for 27 inch wheels, and the canti studs were a nice solution to making it work with 700c wheels.

I'm afraid some of your readers may want to burn me for a heretic for how I've set it up, but it was just a frameset when I bought it, and I have very little affection for old parts that don't work as well as new ones, and certainly wouldn't pay a premium for derailleurs that don't work as well as a \$20 Shimano...

Well, nothing works *better* than a \$20 Shimano, but I think every cyclist should have the experience of shifting with the first rear derailleur, the cambio corsa or whatever it was called...the one that goes on the seat stays--before complaining about derailleurs. They're all a luxury, they all do fine. A \$20 or \$40 Shimano shifter is...well, it's almost a shame that they're the starting point these



Family photo (Mom wielding camera?) From the left: Sheldon on 20-inch Rollfast with solid tires; sister Arlen on her Rollfast; brother Richard on his Rollfast; father Brown, no Rollfast.

days. It's fine and all, but it's like growing up in a mansion with servants, if you ask me.

Well, if you're concerned by the decline of moral fiber due to the way technology has made life easier, it seems to me that better targets would be weatherproof houses, central heating, motorized transport, mass communications and public health, but I don't buy the "noble savage" myth. I'll share with you one of my stock of quotes:

**In recent times, modern science has developed to give mankind for the first time in the history of the human race, a way of securing a more abundant life which does not simply consist in taking away from someone else.**

—Karl Taylor Compton, 1938

That may have been true in 1938, but not now. Anyway, it's not an issue of moral fiber, it's more like diving into photography for the first time and potty-mouthing a K1000 or Nikon FM or a Leica M because it doesn't have the features of a modern digital. I'm sure there's an oversight in that bad comparison, but some of it makes sense. Anyway, more about your Hetchins...

I put on some cool old GB handlebars with nifty filigree engraving. They're the narrow 37 mm size I prefer, and I find them quite comfy. I've got a 70mm Technomic stem (the top tube is a bit longer than I'd prefer). The handlebars are equipped with (gasp!) Shimano 105 STIs and (aaack!) a Flight Deck computer. Black Cinelli cork tape.

Thirty sevens? I wouldn't sell those to a girl scout! But it reinforces my creeping hunch that not everybody likes the same stuff. Shimano ought to make gummy hoods, at least brown, so when you use black tape, it's not so dark up there. It looks like the bars and brake levers are one mold. I've thought about buying a mold and having some-

body in Taiwan make gummy Shimano and Campy compatible brake lever hoods, but figured that our introduction would probably coincide with their doing it, too.

That would be nice, I like gum too, but at least they're not white. I hate having white stuff on a bike. The thing I like least about my Hetchins (aside from the front derailer braze-on) is the white head tube. I very much like having a contrasting color head tube on a lugged frame, but just not white. It even forced me to install white cable housing when I built it up so the head tube wouldn't be lonely.

**I don't like white head tubes, either, which is why ours are ecru; and we keep it company with a matching seat tube decal. Now, back to your bike. Gears?**

In back, I've got a custom 12-28 9-speed cassette, shifted by a recent Dura-Ace rear derailer I got used. In front, I'm running a TA Cyclotouriste double, 50-28, shifted by a Shimano 105 braze-on front derailer. I hate that the frame has a front derailer braze on, but whaddaya gonnado? I'm running a Shimano UN71 BB I had kicking around, and have the chainline set up so the 50 tooth ring is centered with the cassette. I can use all 9 rear sprockets with the 50, and most rides, the 50 is all I use. The 28 chainring is a "bail out" gear for the killer hills, and/or if I'm tuckered out. The 28 works OK with the 3 or 4 largest rear sprockets, which is all I ask of it. Since I'm running a short cage rear derailer, the chain droops if I use the smaller sprockets with it, but I don't so it's not a problem.

I like this setup because for most normal riding I never need to shift the front at all. The pedals are some Specialized SPD clones, nothing special. The saddle is a Brooks Swift that a customer returned, mounted on an SR Laprade seatpost.

**We get asked about the Swift a lot. It's only 152m wide. I know lots of people like it, but it's way too skinny for my bones, that's for sure. And when they cut away the sides, it loses structure, which Brooks seems to try to compensate for by over tensioning the leather, which puts a dolphin-like hump in the saddle. Anyway, my bottom doesn't get along with it. How about your wheels?**

They're nothing special, some old wheels that came off of a Trek, 105 hubs, Matrix ISO rims. I plan to build some interesting wheels for this bike, but haven't gotten round to it. I'll probably go with Mavic Open Pro rims and some silly oddball spoke pattern. Tires are folding Roll-y Pol-ys, I like 'em a lot. But you asked what bike I ride most often...that would be my early '70s Raleigh International. This is the lightest bike I own. The only original parts are the headset and the Weinmann centerpull in front (with Kool Stop salmon brake shoes and a home-made brake booster).

This, like most of my favorite bikes, is a fixed gear. It's got old Campagnolo high flange hubs. The rear is an actual track hub, 28 hole. The front is a road model, 36 holes—but I'm only using 24 of them. The rims are Sun M14, 24 front, 28 rear (it's really HARD to find light 24 spoke clincher rims, and these are no longer available. The front is



**Okay now: The bars are rotated too much and the saddle should be level, but nice fenders, good fork rake, and he's just a kid, for heaven's sake! An Elswick Tour Anglais 4-speed, brand new.**

spoked radial. I was using 23 mm Conti Grand Prixes until just recently, when I was schwagged a pair of pretty red Vredsteins, same size. These are light wheels, and I weigh over 250 pounds, so I have to be careful hopping curbs.

**Was using 24 spokes in a 36 hub a technical challenge, or penny-pinching?**

It's not difficult with radial spoking, which is how I do my personal front wheels. I had a large-flange Record front hub, a good match for the 28 hole rear Record track, but 36 front and 28 rear wouldn't have made much sense. I've also done 18 spoke wheels using 36 hole hubs & rims, with mixed success. I did one with a Mavic GP4 tubular rim, that worked out OK and is still in use on the front of my '61 Paramount. I tried the same thing with a G40 (predecessor of the MA40) clincher rim, but that wheel came out with 18 high spots. You really need a tall, vertically stiff rim for so few spokes, and there goes the weight savings.

This bike has older Shimano 105 cranks, 165 mm, with a 42 Biopace chainring driving a 14 Dura-Ace track cog in back. This is a bit higher than my usual 42/15 fixed gear, so I generally avoid major hills when riding this bike. It's got Scott AT-3 LF handlebars, which I adore—I wish I could get more of them. Some nondescript stem, low end SPD pedals.

Until recently it had a Brooks Swift, but I moved that to the Hetchins and stuck on an old Brooks B-17 narrow I had kicking around. It's a serious mistake to ask me about my bikes, 'cause it's hard to shut me up once I get started.

I recently bought a 2001 Raleigh M8000. This is a hideous black and orange full-boinger mountain bike with a 5" travel Rock Shox Psylo XC fork and Magura hydraulic disk brakes. It's different from anything else I've owned, but it

was on close out, and I thought it would be a learning experience. I don't want to be known just as a guy who knows about old bikes. I probably don't have more than 100 miles on it yet. It is pretty amazing off road, a horrible slug on pavement. I haven't decided how much I like it yet.

Another favorite is my Mead Ranger, made in 1916, as the "sporty" fenderless model. I paid \$25 for it at a bicycle flea market a couple of years ago. It was just a frame with handlebars and crankset and, most importantly, the original old 1" pitch chain and 26 tooth chainwheel (equivalent to a 52). The fork was a bent. I had some nice 27 inch wheels hanging around and put them on.

This is a real sleeper. The paint looks the way you'd expect an 85 year old bike with the original paint to look. At first glance you might think it was some sort of welded gas pipe bike from the '50s, seeing the small diameter tubing, one piece crank and so forth...but it isn't. It's internally lugged, "crucible brazed" by dipping. The one piece crank is unusually slender and light, and the bottom bracket is the most beautifully made one of its type I've seen.

More remarkable is that the geometry is perfect for me. They really had it figured out all that long ago. It's comfortable, handles nicely, a joy to ride. It's a bit heavier than a newer bike would be, but not all that much. With the modern wheels and tires it really moves out!

**Name a handful of innovations developed in the past 20 years that you like...and some that you don't.**

The greatest bicycle invention of my lifetime has to be the L.E.D. taillight. Before the VistaLite came out in the 1990s, there were no reliable tail lights. The second, to my mind is SPD sandals. I go for months on end wearing no other footwear in the summertime, they're so much more comfortable than any other cycling footwear I've ever owned.

**Your comments in that one issue of *Adventure Cycling* got me riding in Teva sandals, with no clips. I tell myself it's just a phase, but it's working frighteningly well. I think I wish I hated it, and I sure wish I didn't like it as much as I do. What other things are on your good list?**

Cyclecomputers, indexed shifting, light action brakes, 7-speed hubs, cork tape, Japanese tires, helmets, walkmans, spd pedals, Hyperglide.

**You like walkmans for riding. You aren't supposed to...**

I use a helmet-mounted mirror, so I do know what's happening behind me. I always listen to music in my car, and I don't see why a bicycle should be any different. I don't like plastic saddles, "anatomic" handlebars, riser bars, long cranks, frames with poor clearance, excessively stiff forks, fade paint jobs, dual-groove handlebars on bikes that don't have Ergo shifters, bikes with drop handlebars and cantilever brakes without adjusting barrels for the brakes.

I also dislike is jokey bike names and graphics. Sometimes I

think the people who name bikes aren't thinking of the user as much as they should. Yes, a funny name is cute, but what we may think of as just another bike is often a major financial and emotional investment for the user. The joke that was funny the first time gets old after you've owned the bike for a few weeks...or years!

**Names are hard to come up with. I don't like names that sound as though they were thought up by five or more guys at a beer and pizza party. The best name for a bike is Mariposa, but Mike Barry in Canada has it. The second best name is Libertas, and it's up for grabs, but was used about 25+ years ago. The Rambouillet was almost Libertas, but I was afraid people would yell at me for...something having to do with it being used before. What are some names you like? And, if you could name a bike brand, what would it be?**

I've always been fascinated by the Atlantis legend, and think it's a great name for a bike. Rambouillet is about 15 km from where I used to live in France, and I used to ride there a lot. There's a huge forested area there that used to be a royal hunting preserve...there are still a few wild boars to be seen if you're lucky. I used to go mountain biking there on my strange old Gnome Rhône bike. There are single- and double-track trails all through it, laid out in the 1600s, when classical aesthetics were in vogue. These trails are as straight as if drawn with a ruler, aligned with the points of the compass. You'll come to an intersection where 8 trails converge, each at a perfect 45 degree angle from the next, with a little circle in the middle. Some of these trails are remnants of Roman roads. There's also a perfectly rectangular lake...but these are woods, as wild looking as you'll see anywhere.

My favorite bicycle name was taken by Campagnolo, for an old mountain bike group. I've never understood why there isn't a major bicycle brand called "Centaur." The bicycle turns any human into the closest equivalent to this mythological creature.

**If you could snap your fingers and make one bike part or accessory that doesn't now exist, what would it be, and why that?**

That's a tough one. Maybe on-the-fly variable-length cranks.

**But you say you don't like long cranks. So, what would be the range? 160 to 170?**

Whatever people want! Actually, lately I've been doing a crank length experiment...I acquired a plastic Trek in a barter deal and have set it up with the 150 mm TA cranks that used to be on my kids' Cinelli BMX bike. I'm running a 45/17, which gives about the same gain ratio as my usual 42/15. It's surprising how unobjectionable this is. The only thing I don't like is that I have to set my saddle higher, which makes this frame not fit me as well as it should.

It won't be a permanent switch, but I've heard so much bellyaching from people who have convinced themselves that they "need" 180s—or whatever—cranks that I was curi-

ous to do a sort of reductio-ad-absurdum of the "problem" of too short cranks.

**That's interesting. At the bike show in last Vegas, I was talking to Wes Williams (the guy who's pioneering the 29-inch mountain bike tire) and he's convinced that shorter cranks are more efficient, especially on climbs, and he recommends 165s for riders under about 5-10, and 170s for taller riders. And there's that VeloNews study, with lots of riders of varying heights, and almost all of them turned in their best scores with stubby little cranks. In the recent old days all cranks came in 165s, but now the lower limit seems to be 170—for 95 percent of the cranks. Anything else?**

Better lights; lighter, brighter, cheaper.

**It's going to happen. They now use LEDs for underwater diving, and caving, and I bet within a year or so the hot-bulbs will be clearly disappearing. I know you like Sturmey Archer hubs...**

The Sturmey-Archer AW 3-speed hub is the most reliable, lowest-maintenance bicycle gear shift mechanism ever. Completely weatherproof, it can be shifted even while the bike is stopped. The Sturmey-Archer ASC 3-speed close-ratio fixed-gear hub is beyond cool. It's not just the hubs, it's the Raleigh 3-speed bikes up through the 60s. Every part was made in Raleigh's enormous Nottingham factory—every spoke, every cotter pin, lugs, tubes, bearing cups, hubs, pedals, except for the Brooks saddles and the Dunlop tires, and those companies had a very close relationship with Raleigh. The workers who built these bikes got to and from work on the same bikes they were building. The bikes freed the British proletariat to escape the smoky environs of their "dark satanic mills" and allowed them to explore "England's green and pleasant land," as William Blake put it.

**How do you feel about SunRace, a big Taiwan company, buying SA? Do you think it'll lead to a collector's market for the British-made parts? Have you seen the new ones, and if you have, what do you think?**

Sturmey-Archer was always made in a small island nation that overcame a lack of natural resources by dint of industrialization and trading...this will not change. There seems to be a natural progression of industrial development. You and I are old enough to remember when "made in Japan" meant a cheap & cheesy imitation of the real thing. Through hard work and good management, Japan turned that around, and was so successful that now nobody can afford Japanese stuff. Through most of the 1980s, Taiwanese bicycles and parts were basically junk, but they kept working and improving, and now most of the good quality bikes in the world come from there. The parts have lagged behind the bikes, but they're catching up fast.

**There's a huge forested area there that used to be a royal hunting preserve...there are still a few wild boars to be seen if you're lucky.**

Sturmey-Archer quality has been in steady decline since the 1960s, and Taiwan is on the rise, so I'd look for the quality of the Sun Race stuff to probably be at least as good, if not better than later British Sturmey-Archer stuff. Nevertheless, I have no doubt that there will be a certain cachet to the British stuff. Part of this is just the "good old days" syndrome, but I firmly believe that a small percentage of the nostalgia for older European stuff can be traced to racism. At the Las Vegas bike show, I had a long chat with a 33 year veteran Sturmey-Archer executive, now employed by SunRace. He was positive about the future, though the destruction of the original Nottingham Sturmey-Archer was sad, especially for the more than 300 workers thrown out as a result of the malicious money manipulators. One senior engineer is now selling sandwiches in Nottingham!

**I doubt we'll ever hear the whole truth. But anyway, which, if any, dying or dead technologies from the past would you like to see resurrected?**

Fully enclosing chaincases, because your chain will last forever, with virtually no maintenance.

**I've heard you don't pedal off the saddle, that you sit down always. Is it true?**

It is when I'm riding a multi-speed bike. It seems to me that standing up to pedal defeats the purpose of multi-speed gears. I don't do it unless I run out of low gear on a climb, but this rarely happens to me. I think

a lot of standing is the result of having the saddle too low, or the gear too high, or just to give the butt a break from one of those ubiquitous plastic saddles.

**Here you go, Sheldon: Gain Ratio. Explain it away and make a case for doing away with the gear-inch system in favor of "gain ratio."**

The handwriting is on the wall for inch based systems—they'll never catch on in metric countries. Meters development is OK (that's when the gear is listed as the distance traveled in one revolution of the crank—ed.), but, like gear inches, it fails to take crank length. It's useful only where everybody uses the same wheel size and crank length.

Gain ratio, is a measurement of mechanical advantage. It is a pure ratio, so it doesn't matter whether you're measuring in millimeters, inches or light-nanoseconds. For a gain ratio of 6, the bicycle will move 6 times as far along the road as your foot moves around its pedaling circle. The drive force applied by the rear wheel will be 1/6 of the force you apply to the pedal.

The failure to consider crank length in calculating gears leads people into errors, such as the common superstition that long cranks are better for off-road bikes because they provide "more leverage." In fact, "leverage" is another synonym for gain ratio, and it is a function of 4 things: crank



length, chainring size, rear sprocket size and the size of the driving wheel. Gain ratio is explained thoroughly, with examples, at <http://sheldonbrown.com/gain.html>

**You have a column in Adventure Cycling, and in a recent issue you talked about your hypothesis on how it came to be "proper" to pedal with the ball of the foot directly over the axle. It was one of the most provocative bike things I've read in a long time. Review your remarks for our readers.**

Well, when we were kids, we pedaled on our arches, stepping on the pedals just as we'd stand on the rungs of a ladder. Later, we were taught the correct way is to pedal on the ball of the foot. Why? Here's my theory: Back in the days of high-wheelers, the only way to vary the gear was to change the size of the front wheel. If you were to choose your wheel size the way you choose the gear for a modern single-speed bike, however, you'd wind up with a wheel that was so large that your leg wouldn't be able to reach past the hub. As a result, all high wheelers were really undergeared, but the longer your legs were, the larger a wheel you could pedal, so the faster you could go.



Just before the family tour of Cape Cod, 1990. Left: Harriet with George; Right, Sheldon with Tova. Bikes: Tandems assembled from old Raleigh 3-speed frames.

One way to make your leg "longer" is to pedal on the ball of your foot, and point your toes. This would let you straddle a larger wheel, so you'd go faster. But we don't ride high wheelers anymore!

Another reason to pedal on the ball of the foot, is that the ball is a normal load-bearing part of the foot. The arch isn't. But if you're riding in rigid soled shoes, that objection goes out the window. I run my cleats back as far as they'll go, and I'd move them farther back if I could. I've found no ill effects, and it greatly reduces the strain on my Achilles tendon and calf.

**Teva sandals are stiff enough for me, easily. I can put the pedal right under my arch and pedal up a steep hill, no problem. And, on long climbs (the only kind we have here), I find myself shifting my foot around, depending on how steep it is, or how my legs feel at that point in the climb. Anyway, another Sheldon Brown quirk is "dérailleur." You eschew the French spelling. Explain that.**

"Dérailleur" is not the French spelling. The proper French is "dérailleur" with the accent aigu over the first "e." Nobody spells it this way writing English, and nobody pronounces it in the French manner (duh RYE euh) speaking English. Instead, most folks say "de RAIL yure" which has no reasonable connection to any spelling of the word. Many cyclists

and non cyclists are intimidated by this word, and are confused as to how to pronounce it in English. I'm leading a movement to adopt the spelling "derailer" which is an exact translation of the French word, which comes from the railroad industry, and refers to that which causes a derailment. In French it's also a railroad switch.

**Are you married, with a wife, children?**

Yes. My wife is a brilliant mathematician and computer scientist, a professor at Northeastern University. We met on a Charles River Wheelmen ride in the late '70s. My first words to her were "That's a nice Holdsworth" (even though it was a hideous orange at the time). Her first words to me "Oh,

you're riding fixed-gear!" We went out a couple of times, then misplaced one another. She went off to France to teach, later came back and we met on another ride. That time it took, and we've been happily married since. She was the second American woman ever to finish Paris-Brest-Paris (would have been the first if somebody hadn't bungled her wake-up-call at a rest stop).

We have two children, a daughter, Tova, a writer, artist, singer and actor currently on leave from Cornell University, and a son George, a mathematician who just started at Brandeis. Tashais our dog, a mutt with pit bull heritage, and

the mellowest member of the family.

**I've heard you're an actor.**

Singer/actor, actually. I haven't done any straight plays (though I'm not ruling it out.) I mostly do Gilbert and Sullivan comic operas. I'm a bass-baritone, and have performed a bunch of times with the M.I.T. Gilbert & Sullivan Players, including one starring role as King Paramount in Utopia Limited. I got a late start in this, never sang in public 'til I was about 50. I'm also very active in the Revels organization, a musical/theatrical institution that's hard to describe in a few words.

**Then let's not get into it! Thanks for all your time, Sheldon. This will go into RR25, and be mailed in January. We'll list some websites at the end of it.**

Harris Cyclery, West Newton, Massachusetts

Phone 617-244-9772 FAX 617-244-1041

<http://harriscyclery.com>

<http://captainbike.com>

<http://sheldonbrown.com>

Ed &amp; Fred tell you...

# How To Ride Warm When It's Cold

by Ed Pavelka and Fred Matheny

Ed has ridden through 30 winters in Vermont and Pennsylvania. Fred has done the same in Colorado. We, on the other hand, live in Sunny California, where winter lows tend to be about freezing, and that disqualifies us to write about cold weather riding. They're experienced, smart, fast, strong, middle-aged guys who know a lot and can write about it. I've ridden with them a little and like them both a lot, and they're going to be regulars here from now on. Their current work is RoadBikeRider.com. an online (and free) newsletter for road riders. It has more of a speed emphasis than you'll get here, but there's lots of good information in it, and it's free, so...[www.RoadBikeRider.com](http://www.RoadBikeRider.com). Both Ed and Fred are former editors of *Bicycling* and *VeloNews*, and recent authors; Fred's "Off-Season Training for Roadies" and Ed's "The Complete Book of Long-Distance Cycling" ought to be available in good bookstores and bike shops, but you can for sure get them from website. That's the end of the plugs. Here's the story...



Rule No. 1: It's colder when you're riding. Moving air removes body heat faster than still air, so block the wind. Tightly woven shells do it best.

Rule No. 2: When your extremities get cold, your core is next. When your core gets cold, your body fights to keep vital organs warm by reducing blood flow to your extremities. So, keep your feet and hands toasty first, then go after your torso and head..

## FEET

Shoe covers (booties) come in two main types: neoprene rubber or fabric with a fleece lining.

Compared to fabric, neoprene is heavier, bulkier, stiffer, and cheaper. It blocks wind, holds in body heat, but causes condensation that dampens your shoes and socks. Dampness and cold are not a good combination.

Fabric booties are light and floppy. They can be rolled up and stuffed into a jersey pocket or seat bag. Wind resistance is good and so is water resistance, depending on the outer material. Fleece lining helps insulate but is less likely than neoprene to cause condensation.

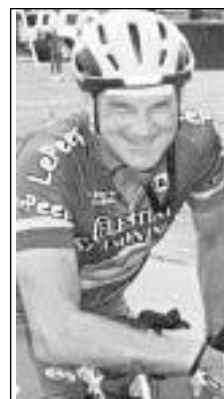
The budget version: A wool sock/plastic baggie/wool sock sandwich. But if you ride a lot, bite the bullet and get good booties. It's good for the economy and they work better, too.

It's hard to overheat feet, so wear booties even on days that are merely chilly.

Another option is toe covers. These usually are thin neoprene. If your booties are big enough, they'll even fit under them, for added protection. Choose booties that extend high up your ankle and have a snug top. And, in the low light of a dank winter day, bobbing booties with reflective stripes make you safer.

If you ride in cleated shoes, cut a hole in the sole, just large enough to expose the cleat.

If it's super cold or you want to stay out for more than 90 minutes around freezing, wear cycling shoes one size larger so you can wear thick wool or wool/synthetic socks.



## HANDS

It's hard to make feet too warm, but not hands. If they get too toasty and begin sweating, they'll feel chilly and may become numbingly cold. With hands, err on the side of cool.

If it's chilly in the morning but will warm later, wear regular short-finger cycling gloves under light long-finger gloves. A stretchy woven fabric like wool or polypropylene is the ticket. You don't need heat-retaining insulation, just protection from the cold metal of your brake levers. Gloves like these made for cycling have gripper material on the palm so your hands won't slip. Just strip them off when it gets warmer.

When it's colder, wear lightweight gloves that have wind-blocking material. Thin insulation is fine, but don't overdo it. Your hands might feel chilly early in a ride, but they'll warm up as your pedaling generates body heat. If you feel just right during the first couple of miles, you've dressed too warmly.

In the 30s, wear insulated, windproof gloves. Below freezing, switch to so-

called "lobster" gloves. These are a nifty design, putting your fingers into three compartments—one for your thumb, one for the first two fingers, and one for the last two. This pools finger heat like mittens but still gives you the dexterity to operate a bike. Regular mittens don't.

In cold rain, insulation will get soaked and chill your hands. We haven't found any good solution for that.

In really cold weather, make sure your gloves ride up high on your wrists.

#### ARMS, LEGS, TORSO

Between the low 60s and mid 40s, arm and leg warmers work great. If the air warms too much, you can peel them off and store them in a pocket or bag. Warmers come in thin spandex, spandex with a brushed lining, or woven fabric. We prefer the last two because the warmers have a wider temperature range. They also retain body heat better when wet.

When dressing for cold temperatures, the secret is to wear several lightweight layers rather than one thick one. On your torso, start with a thin base layer of wool or a synthetic. Although synthetics can make you smell like a hibernating bear, they do a good job of wicking moisture off your skin. Wool is just as effective and has the advantage of not producing an objectionable odor. Wool base layers are not as easy to find, but Rivendell offers several styles of that

don't itch or shrink.

Wear a short-sleeve base layer with removable arm warmers when the day is likely to become balmy. Wear a long-sleeve base layer when you know it's going to stay chilly. Wear a turtleneck if it's cold enough to create an icy chill on your throat and neck. Fred prefers a model with a zipper; Ed likes his without. It's up to you. If the fabric irritates your skin, lube the affected areas with Vaseline or skin lotion.

For cold weather riding, forget cotton. It gets soaked, then gets cold.

Over the base layer, add a short-sleeve jersey for moderate temperatures or a long-sleeve jersey for chilly ones. A cycling vest with a windproof front is good. Below freezing, switch to a jacket that has a windproof front and vents to keep you from overheating.

(Here's a trick Ed has used for years: Wear a small fanny pack around your jacket. It holds the jacket down so you can work the zipper with one hand, it holds heat on your low back, and it gives you a place to carry stuff.)

Legs are easy to keep warm. Most riders are comfortable in leg warmers down to about 45 degrees. Lightly lined tights work from there down to about freezing. Below freezing it's good to have tights with a windproof front panel, especially at the knees.

Covered your legs whenever the temperature is below about 65 degrees.

Otherwise, you risk knee injuries as well as cold feet.

Guys: When it's really cold, tuck something into your tights to protect against penile frostbite. Almost anything will work.

#### HEAD & EARS

It's not hard to keep your noggin warm and, in fact, the bigger danger is overheating and sweating.

Ears are a different matter. Wear a thinly insulated ear band (like a wide headband) under your helmet. Around freezing, a lightweight balaclava works great. Usually made of a wicking synthetic, a balaclava fits over your head and neck, sealing snugly around your face. It can even be pulled up under your mouth or nose. Tucked into a turtleneck, it prevents air leaks. If it's properly thin, it won't hold in too much heat or even require changing the size of your helmet pads.

Unless it's arctic cold, leave your helmet vents uncovered. The airflow helps prevent overheating. When your head gets hot, your whole body will start sweating. You want head heat to escape.

Finally, here's a riding tip that will help all of your winter clothing work better. On a windy winter day, ride into the headwind for the first half of the ride so it'll blow you back home. Doing the opposite will cause you to get damp with sweat, then freeze as the headwind is multiplied by your riding speed.

## Save \$10 On Your Next Monster Order

This coupon entitles the member-bearer to \$10 off any order of \$120 or more, deliverable, between now and February 15. If you don't want to wreck the photos on the other side of this page, photocopy this instead of cutting it out. Since this is the first issue of the *Reader* without for-sale items listed, please refer to the recent flyer or your catalogue. Mail orders only, please. Not combinable with other coupons.

Name \_\_\_\_\_ Member Number \_\_\_\_\_ Date \_\_\_\_\_

# Chain Line, Chain Path, and C.A.P.P.

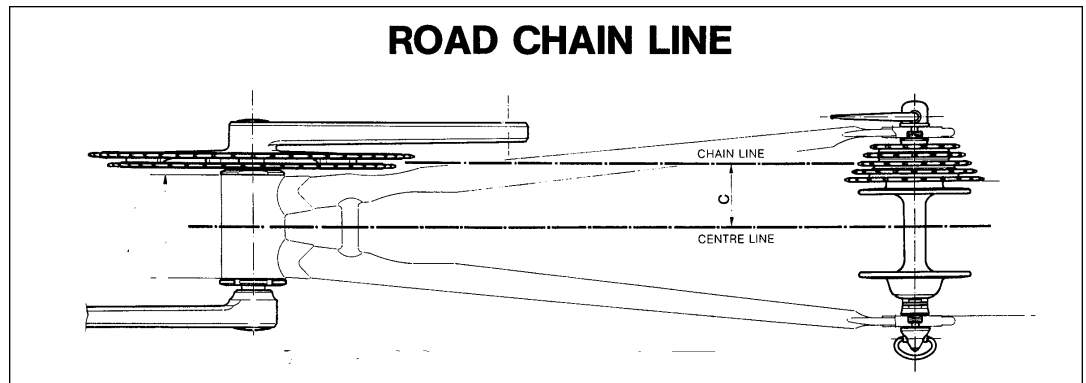
*Chain line* is a misnomer, because you can remove the chain from your bike and it still has a chainline. *Chain path* isn't a technical term, but it's a good, descriptive term, and it's what most people are referring to when they say *chain line*. *CAPP* (pronounced "cappy") is something I made up as a useful dimension in designing Bridgestones. I don't care if it never becomes part of the lexicon, but if you're a bike designer or a home mechanic, you ought to know about it, anyway, because it will come up. Whoever you are, if you go to install old or aftermarket cranks and bottom brackets on hobo frames, you ought to know about Chain Line, Chain Path, and CAPP. Here's an introduction.

## Chain Line

It's the chainring's offset from the center of the seat tube.

This illustration, from an old Campy catalogue, shows chainline for a double crank. Normal chain lines on doubles are 43.5mm to 45mm.

On a triple, it's measured to the middle ring. Old road triple chainlines were typically 45mm. Mountain bike triples range from 47.5mm to 51mm.



A crank maker designs its cranks around a particular chainline (or two). The front derailleur is designed around chain lines, too. If you take an old front derailleur designed for a 43.5mm chainline (like a Campy Record), and you put it onto a bike whose crank has a 51.5mm chain line, it won't swing out far enough to shift the chain onto the outer ring. All modern mountain bike front derailleurs will work with 51.5mm chain lines, but not all mountain bike fronts from the early '80s will.

## Chain Path

Chain path isn't a common term, but it's an important one, and it is just what it sounds like: The path that the chain travels between the chainring up front and cog in back.

Ordinarily you set up your bike so that when the chain's on the middle front ring and the middle rear cog (or as close as you can get to this), it's a straight shot between the two, as in the middle photo. This set-up guarantees reasonable chain paths when you use all but the extreme gear combinations (small x small or big x big). With two chainrings, or with even numbers of rear cogs, just get close to this.



**BIG X BIG = BAD Combo**

Because the chain is so angled. It won't kill the bike, it'll just make noise and wear out the chain and cogs faster. But if you like this gear, use it.



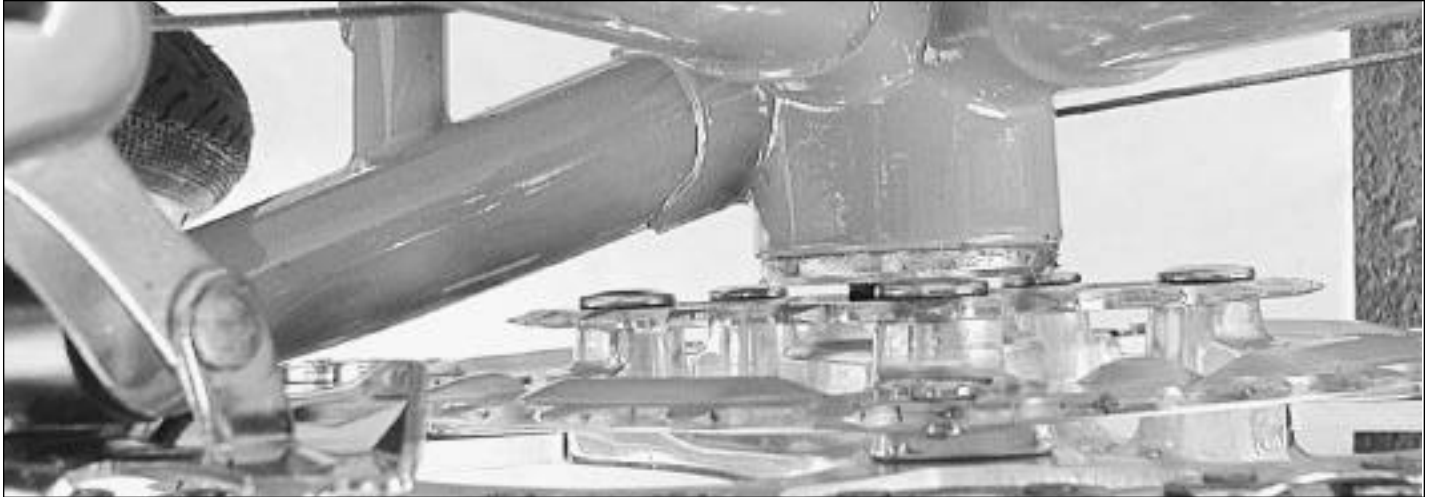
**POIFECT.**

When the chain's on the middle ring and one of the middle cogs, the path should be straight, like this. This is the happiest combination possible.

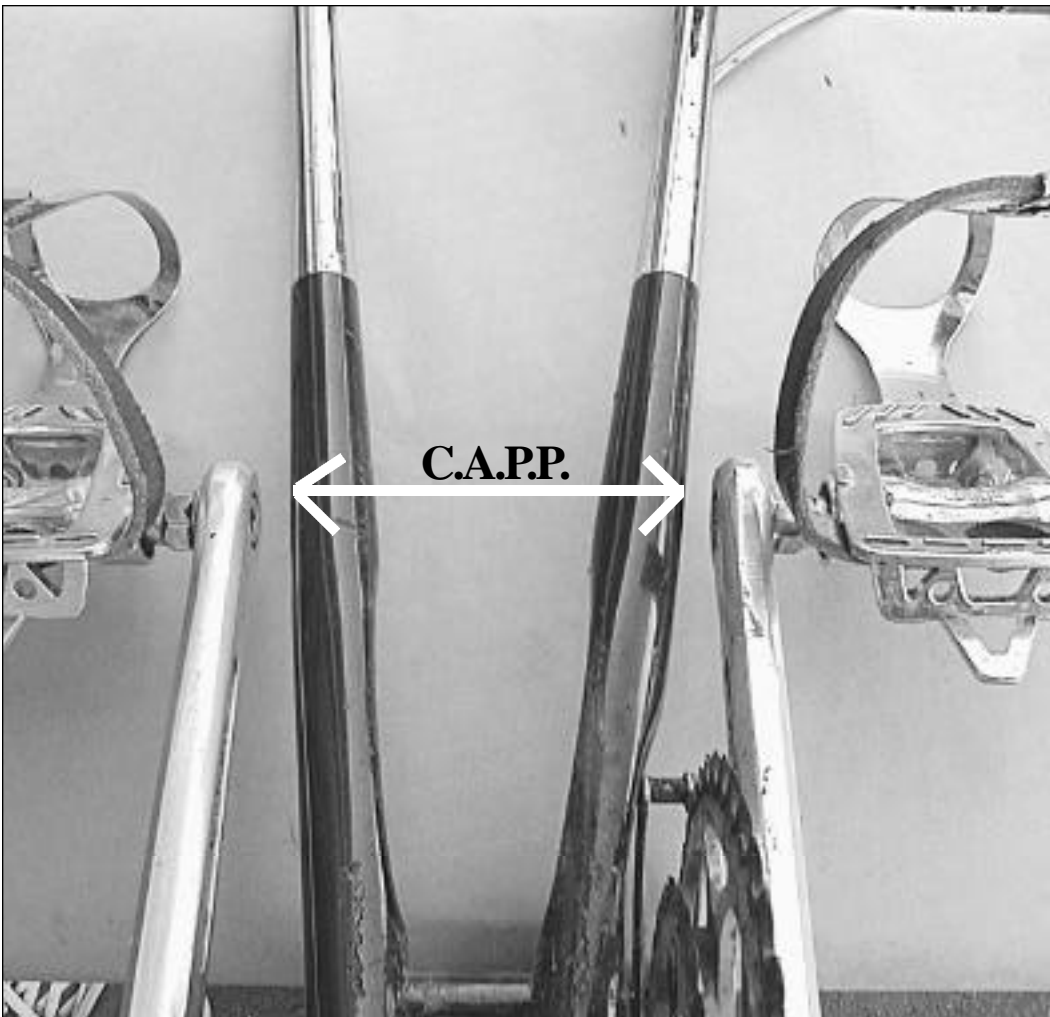


**SMALL X SMALL = BAD**

Because the chain is so angled, as it is in the Big x Big. A nutty person who needs the small front ring, you shouldn't be on the small rear cog.



THIS PHOTO SHOWS 2 THINGS.. First, see how the inner chainring sits just outside the bottom bracket shell? By about 5mm. If you're mounting a Brand X Model Y bottom bracket to a Brand X Model Y crank, this is about what it'll look like. If you're throwing together a mutt using mixed brands of parts, this is what you look for. Set up this way, your chainline will be about what the crank maker intended, and your front derailleur will likely have an easy time shifting to all chainrings. If the chainrings are much more inboard than this, some front derailleurs may not be able to drag the chain onto the small ring. And if the outer ring is hanging way out there, the front derailleur may not be able to reach it, either. Second, notice the chainring clearance. Although a miss is as good as a mile, the usual recommendation is that no piece of moving metal should come within 2mm of another piece of metal. There's about 4.5mm here. We're comfortable with anything over 3.5mm.



C.A.P.P IS PRONOUNCED "CAPPY

and it's the outside-to-outside width of the frame's chainstays at the Crank Arm Passing Point. (Sticklers note that "crank arm" is wrong, since the crank is the arm, but old habits die hard and the vowel aids pronunciation.)

It's a useful dimension for frame designers, but most don't even consider it, and consequently, CAPP has increased over the years to the point where crank makers have been forced to splay out their cranks to clear frames with outrageously high CAPPs. CAPPs on road frames are generally around 105mm, but many mountain frames have CAPPs of 120mm and higher, forcing crank makers—who don't want their cranks to be ruled out on such frames—to design in lots of splay into the cranks, to get them away from the chainstays.

Yes, there are other reasons for splayed cranks. More ankle clearance for folks who pedal toes out is one. But ankle clearance is achieved with minimal arm splay, and when you look at so many modern cranks, it's clear that they're doing it for reasons other than that.

The straight road arms shown here wouldn't have a prayer of clearing a typical mountain bike.

# Brazing the Bottom Bracket

by Curt Goodrich

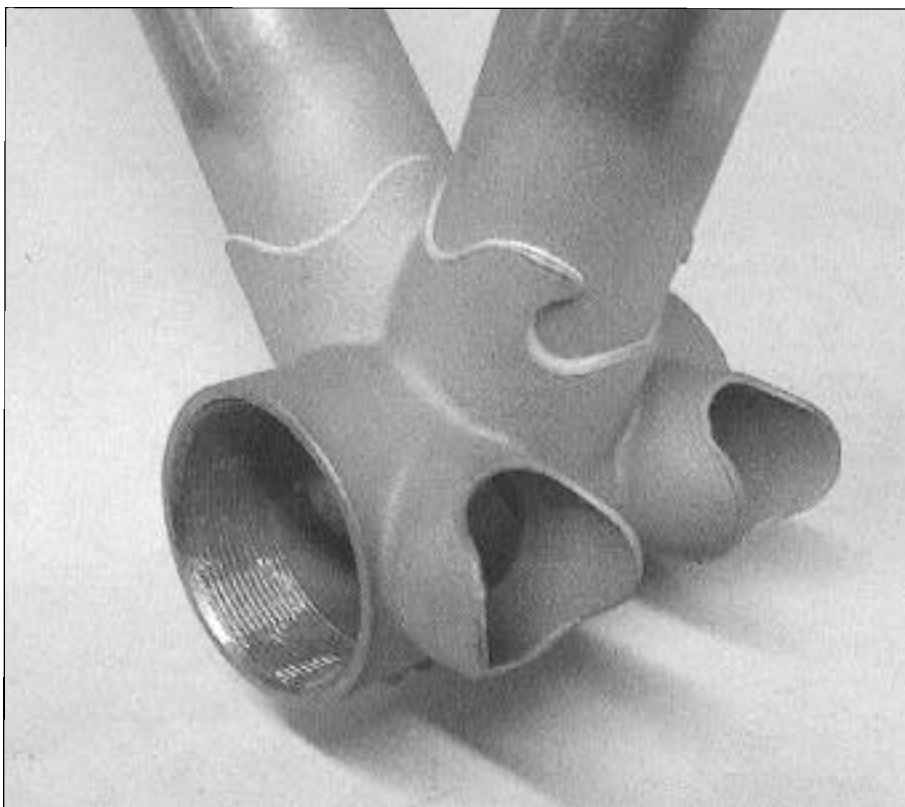
Rivendell's fancy head lugs get a lot of attention with their ornate waves and swoops, but the joint at the heart of the frame is the bottom bracket. In this article, I will be using BB to refer to the bottom bracket shell and not the bearing assembly inside the bottom bracket shell. The BB endures many stresses and abuses, so it must be properly brazed to become a lifetime joint.

After I've mitered ("coped"—*ed.*) the tubes, I prepare them for brazing. I use a die grinder fitted with an abrasive cartridge to sand the chain stay, seat and down tube. Then, with the same tool, I deburr the inside of the tubes. Once the edges are clean, I take some utility cloth and sand the outside of the seat and down tubes.

Next, I apply flux to the BB and tubes. This is a messy but important step. The filler material, in this case – silver, will only flow to areas that have flux. In the photos on the facing page, flux is the white stuff on the bush, and oozing out around the intersection of the tubes and BB shell.

Then I assemble the tubes in the frame fixture (or jig). The first part of the frame that I build is the front triangle, consisting of the seat tube, down tube, top tube, and head tube (count the sides—four—so it's not, technically, a triangle. But bicycle people don't count the head tube, since it tends to be so small). Later, I'll build and attach the rear triangle (the seat stays and chainstays, which are really just two big separate Vs until they become triangles with the seat tube). In the photos here, you will only see the seat and down tube in the BB but the head tube joints and seat lug have been prepped in the same manner.

I've pre-adjusted the frame jig to the particular frame's geometry. The jig keeps the tubes in the proper plane and perpendicular to the BB. Then I tack the BB in the jig. A tack is a small amount of brazing material I add to hold things in place. After the tacks have cooled, the front triangle is removed from the jig and put on the alignment table. At this point, alignment corrections can be made. I align it just by pulling on the tubes. They're held in place with the tacks (small spots of brazing material), so they don't bend as I pull them to perfect alignment. The brazed tacks give some, but the tubes



The BB (shell) soaked free of flux and blasted to remove any excess silver. (With good brazing, there's hardly any spillover).

don't flop around.

When I'm satisfied the alignment is perfect—verified with a heavy, costly Italian alignment table and tools—I put the front triangle in my Park stand, apply more flux, pull up a stool and start brazing. At this point I've already tacked the BB in two places – on the backs of the seat and down tubes. I start brazing 180 degrees from the tacks so the joint stays in alignment. I begin brazing between the tubes, at a place I call the crotch, or web. I concentrate most of the heat on the BB, since it's much thicker than the tubes, are, and therefore takes longer to heat and retains heat better. When the temperature is correct, I add silver at the base of the seat tube and continue adding until silver comes out onto the down tube. I continue this process until the whole web is brazed. Then I move onto the seat tube, heating and adding silver at the edge of the BB until I can peer into the BB from the inside, and see that the brazing material has fully penetrated.

I repeat this process on the down tube. The next step is chainstays.



1 This is a seat tube. The second cut allows the seat tube to completely contact the down tube inside the BB.



2 Sanding the tube with 80 grit utility cloth. If I had an assistant, this is one task I'd hand off.



3 Applying silver flux to the BB with a brush. I do this to the tubes, as well. Silver won't flow where there's no flux.



4 Here's the BB fluxed and assembled in the frame fixture, where it is tacked. I take it out of the fixture for brazing.



5 Tacking the backside of the seat tube. My right hand is holding the torch and my left hand is holding the silver.



6 Here I'm brazing the BB web. Now the front triangle is out of the jig. I start brazing in the web because this area is 180 degrees from the tacks. Note the clean lug edges!

*continued from page one*

regularly, but all the time they hope the guy on the bridge will jump, and that the accused is guilty, and that all nasty rumors are true.

We've been here 7 years, and are at the point where we aren't going to fall in a month or even three; but a bad year or a bad event could do us in. Our \$50K line of credit is still maxed out, and we still owe credit cards another \$45K, so we're \$95K in debt. We make payroll barely (often with credit card advances); and always pay our suppliers on time, though. We have huge bills coming up, and it makes me moody, tense, and nervous.

On a positive note, I've never enjoyed riding more than I do these days, and I can't get enough of it. I don't get to ride as much as I want, because I feel compelled to work constantly. I love designing frames and working on the Reader and catalogues and new products (more lugs and crowns and components). At 47, I find myself oddly looking forward to retirement, not because I don't like what I do, but because I don't like the tension and worry. I want Rivendell to have a future that's fundamentally the way it is now. There's lots of important work to do, and I want Rivendell to contribute. I think we can do that, and we have a plan. It's not an award-winner, but it's still a plan. Anyway, I can't imagine being able to retire.

There are not enough simple, affordable bikes out there. There are extreme one-speeds, the counterculture bikes assembled with a mix of salvaged and CNC'd parts, high-tech internally geared three-to-seven speeds, sneering road bikes and chest-thumping mountain bikes. There are stylized retro bikes you're supposed to buy as an antidote or a cute respite and ride to the high tech coffee cafe. There are old-folks bikes, with begging-dog positions, suspension stems and forks, and as much super cheap technology as the makers can manage in them. Extremism masquerades as evolution. General purpose bikes have gone the way of department stores (I am not poking fun at the demise of department stores or jobs lost by their closing). Even the typical \$120 kid's bike is a heap of cheap technology and noise. It's a mini dad's bike.

It was so different in the early '80s. There were sport-touring bikes you could ride fast, or on a short tour. Mountain bikes were designed for fun and safe riding on trails and in the woods, not daredevil downhill competitions. There's a difference!

One of our missions, I'm sure I've said this before here, is to help keep alive the craft of the minus zero/no limit frame, and that means continuing to employ Joe Starck, Curt Goodrich, and Joe Bell. We are JS's and CG's sole source of income, and nearly half of JB's

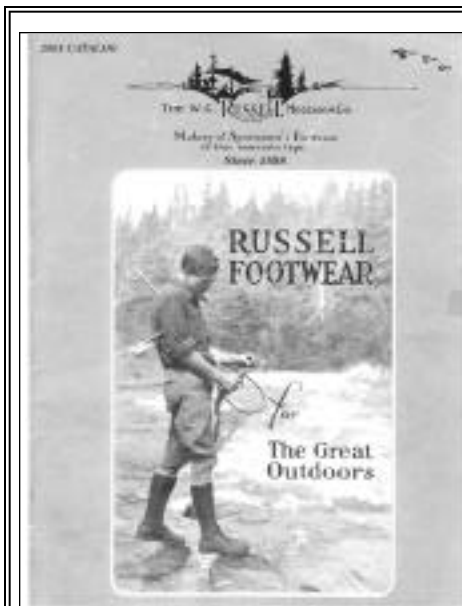
business, and that adds pressure to everything. When somebody has devoted his life to honing a craft that doesn't have any value outside of the box he's already in, that's a calling, and folks with a calling shouldn't have to worry about the future. We have to sell at least 120 Rivendells each year to provide for our builders. If it drops to 90, that's not enough to divide between Joe and Curt. Do we cut Joe, who's been with us longer, because he has no family to support? Or do we cut Curt, because he used to be a chef, and could probably find work in a restaurant? It's not something I like to think about.

Our Rivendell custom frame business is a balancing act between sustainable pricing and scaring off customers. Complicating everything are the Atlantis and Rambouillet. Are riders buying the Atlantis (and soon the Rambouillet) instead of a Rivendell? Or are they in addition to, or are Rivendells not an option, or will the Rivendell come later?

I think lots of people can afford a \$950 frame, but not a \$2250 one. So we needed a \$950 lugged steel frame. The Atlantis, and soon the Rambouillet are that, and there's no better bikes for twice the price. In 30 years they will be as smart, rideable, functional, and beautiful as they are today. Right now, they help us stay healthy, and indirectly help subsidize Rivendells and employ Joe, Curt, and Joe Bell & Crew.

This is the first ever Reader without a Flyer section in it, a decision that makes me a little nervous, but the plan is to make this more of a magazine, and send out separate Flyers. I want the Readers to get better. There is so much room for improvement. Andrew's photos are great. My layout skills are about a C-minus, but I'm getting better. We'll stick around and improve if you help us hang in there. Buying things helps, of course, but so does helping us get new members. If you're in a club, or have friends who ride, or can arrange to get catalogues or Readers or something inserted into even goody bags—anything like that, it would help a lot. It's not easy to ask, and it's awkward for everybody, but we've got to ask while we can, and right now, we can. I hope you like this issue; the next will be a good one too, I think.—Grant

There was one thing in the recent flyer that was kind of a goofy thing. Nobody here got it. Jerome told me that Andrew told him that he thought I was ill when I wrote it. It's the Scarf Trivia paragraph, which was a real quick attempt to fill an empty space with something related to scarves, but, here's the key, written without a single e. It's probably a bad idea to indulge my interest in "writing without fifth unit" in the Reader, or a Flyer. —GP



## Good Boot & Shoe Tip

The W.C. Russell Moccasin Company has been making moccasin-style shoes and boots since 1898, and I had a pair when I was 9 years old—my mom's hand-me-down Birdshooters, a Russell classic. They were always too skinny for my EEE feet, and I always wanted another pair. Then, when I was 15 and thrift-store shopping, I came upon a brand new pair of Russell Oneida moccasins (another Russell classic); but these, too, were as tight as the dickens. They have a boarhide sole (beats even buffalo), and I hated having to give them away, but after 5 years of not wearing them (pre-eBay), I did it.

I still don't have any Russells. but I look through this catalogue and check off the ones I'd get if I had the money, and I'm shooting for Spring. They have shoes, too, but everything is moccasin style (with a raised toe seam). For the most part, they're custom-made. The catalogue includes a form to trace your foot on, and then you pick a style from among the dozens, and send in your money and wait a couple of months. But first you should get the catalogue, which is free, so...so whatcha waitin' fo'?

W.C. Russell Moccasin Co. • Box 309 • 285 SW Franklin • Berlin, WI 54923

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# Reader Feedback, Please

1. In general, is this issue okay?      No      Yes

Anything you think we blew it on?      No      Yes

Comments:

And the good parts?

1.

2.

3.

2. How's the overall look, browsability, readability?

Poor      Fair      Fine

3. Are the technical articles too technical? Do they go over your head?

No      Yes

4. Is there something the fancy bike mags are doing that we should, too?

No      Yes (briefly specify)

5. Type size (generally 9 to 10.5 point Usherwood)

Too small      Fine

6. Photo quality      Bad      Fine

7. Photo quantity      Not enough      Enough

8. Subject matter      Wacky      Okay      Good

I'd like to see more

1.

2.

3.

The bad parts of this issue (RR 25) are:

1.

2.

3.

9. In this issue, rate the following stories from 1 to 10, 10 means *I liked it a lot*; 1 means *I didn't like it at all*.

\_\_\_\_\_ a. Lug story and interview

\_\_\_\_\_ b. Sheldon interview

\_\_\_\_\_ c. Women's frames & design stuff

\_\_\_\_\_ d. Maynard

\_\_\_\_\_ e. Letters

\_\_\_\_\_ f. Framebuilding (brazing the bb)

\_\_\_\_\_ g. Ed & Fred (riding when it's freezing out)

\_\_\_\_\_ h. Chainline, Chain path, CAPP

\_\_\_\_\_ i. Editorial (page one)

\_\_\_\_\_ j. Projects

\_\_\_\_\_ k. French Camping Bikes

\_\_\_\_\_ l. Goatheads & Thornflicker (the spread)

\_\_\_\_\_ m. CLASSICS: Pedals

10. What would you like to see down the road? (circle)

Reviews      Riding Tips      Other People's Trips

New Gadgets      How Things Are Made      Classic Parts

Bike Set Up      Readers; bikes      Medical stuff

Other (how can we improve, or general comments)

Name, member number: \_\_\_\_\_

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or fax (1-877) 269-5847 or (925) 933-7305**

# The Gramps of Platform Pedals – Lyotard “Berthet” Mod. 23

by Russ Fitzgerald

When I came back to cycling, one of my happier finds was a set of Lyotard mod. 23 platform pedals, the funky stamped looking steel ones marked “Berthet.” I’d been hunting for a pair for more than a year. I managed to control myself when I found them in the back room stash of used parts at an area bike shop, and would have gladly paid far more than the \$5 they cost me. These are my all-time favorite pedals.

Most of the folks I ride with in South Carolina don’t understand my delight. I say, “platform pedal,” and they think of some big blocky thing on a cheap mountain bike. The Lyotard 23, named for French racer Marcel Berthet, is anything but big or blocky.

To start with, they’re elegant looking. Despite being steel, they were some of the lightest pedals made. Lots of ‘70s bike boom book authors noted that they weighed less than Campagnolo’s offerings of the era. If you didn’t have cycling-specific shoes, that was fine. There’s a nice, flat area that supports your foot even when riding in thin-soled sneakers. If you did have the fancy shoes, there’s a nice little ridge that fits snugly into your cleats. It works just as well with the slots on old Avocet touring shoes, or the similar ones in the Sidi Touring shoes. Best of all, in the 70s you could buy new pairs of these pedals all day long for \$15 or less.

What made the mod. 23 popular is the big tongue-like extension at the rear. If you look at the photos, you’ll see it. That tongue is what made these the easiest clip and strap pedal to get into in the history of cycling. It didn’t matter how klutzy you were, if you just stuck your foot down there you hit the ramp and your toes slid home. If you ride fixed-gears and don’t trust clipless pedals, but



have trouble finding your off-side pedal when starting from traffic lights, these are the solution.

I got my first set of Berthets in 1978, when my father purchased my first moderately nice bike. Before it ever left the showroom, I made arrangements to have some parts swapped out. Among the parts swaps, I had some Berthets fitted, replacing what were probably quite acceptable SRs. Things came and went on that old Puch, but the pedals were there to the day it was stolen from a friend’s back yard.

I liked them. They were comfortable, and did what pedals are supposed to do without a fuss. I didn’t know it at the time, but every time I rode I was connected to old style French racing tradition – Berthet pedals, Christophe clips, Lapize straps. The mod. 23 pedals were coelacanth bike parts, even more so than T.A. Cyclotouriste cranks or Maxicar hubs.

My sources are a little sketchy, but from asking around on the Internet (especially on the Classic Rendezvous list) I’ve learned that these were advertised in English language publications at least as early as 1935. I

suspect they were old then. The rider they're named after, Marcel Berthet, first set a world hour record in 1907. He became embroiled in a competition with Swiss racer (and Super Champion derailleur chief) Oscar Egg, wherein they bounced back and forth breaking each other's records until Egg finally set one in 1914 that lasted until 1933. Berthet was a contemporary of Eugene Christophe (who wore the first yellow jersey in 1919) and Octave Lapize (who won the 1910 Tour and died in aerial combat in the War). I suspect (but cannot prove, yet!) that the early versions of this pedal were in use by 1920. They were available at least into the early 1980s, and for all I know they're still making them for use in France by riders who ignore trends.

Earlier ones were fancier looking, with more knurling and a little more detailed appearance. The details seem to have pretty much evolved to their final appearance by the mid-1950s, with very minor changes after that. They came in French 14mm size, of course, but also the English/Italian 9/16-in thread pattern. Interestingly enough, they were also made in the old American 1/2-in. size for use on certain Schwinn's, something I discovered after a set purchased at a swap meet turned out to be too small to thread into my old Peugeot's Stronglight cranks.

The set shown here appears to be later. The ones on my bike with are probably 1970s vintage, with two simple, 15mm wrench flats on the spindle. The pretty, shiny pair show here is probably from towards the end, with 6mm allen key sockets in the spindle ends and hexagonal wrench flats spaced for a 17mm wrench. Checking those measurements, I am again reminded that the French never missed a chance to make their bike parts different from anyone else's.

They're not perfect. When I was asking around about them, several long-term cyclists commented about how the bearings tended to be less than stellar. The spindles were some lesser steel, rather than the now standard chro-moly. As a result, they tended to bend under heavier riders. There's probably no easy way to keep that wonderful ramp and still have them meet CPSC requirements for rear-facing reflectors.

Clipless pedals pretty much killed them off, and I suspect it's been fifteen years or more since any were imported. The distributors are long out of them. Short of finding some in someone's parts stash pile or on the dusty back shelves of an older bike shop, you're pretty much reduced to eBay, swap meets or the lucky thrift shop find.

It's a shame, really. If ever a part cried out to be re-introduced with a few simple modifications, it would be these pedals. Imagine them with chrome-moly spindles and replaceable, standardized sealed bearings, but with their same simple shape and the glorious, foot-guiding tongue. Keep the simple, chromed steel platform and the low-zoot, low-cost simplicity. It's something to think about while waiting for practical bikes to become fashionable again.



## The Next Best Thing (and maybe better)

Mikashima, better known as MKS, makes a platform pedal still, and it's this one, the GR-9. We sell it as part number 14-030, and it's only \$26 (when our next catalogue comes out it'll be in the mid to high 30s, as it ought to be).

It has been our most popular pedal during the past year, for all the reasons the Mod.23 was so well-liked. It's easy to flip into, as was the Mod. 23. The flip-tab on the Mod. 23 is even higher, which has to make flipping easier, since there's no rear plate to stub your shoe on when you go to slip it in. But as Russ pointed out, putting the tab where Lyotard did makes it impossible to mount a backside pedal reflector, and these days that's a major drawback. Although the pedals don't come with reflectors, reflectors can be had and retrofitted. In fairness to the MKS, they are still so, so easy to flip into. The MKS-ers also allow a front pedal reflector. Ankle bands are just as good or better, anyway.

The MKS body is all one-piece, die-cast, I think. There's nothing to come loose and jiggle, as was so often the case with the Lyotards.

The Lyotards have a metal dustcap, easily removed with a tool so you can have at the bearings. The MKS pedals have a dustcap, too, but it's grey plastic, and has to be pried off with a knifeblade or a micro-screwdriver. MKS thoughtfully supplied a little pry-slot for you, but a metal one that screws on beats the pants off a grey priable one, any day.

We haven't and won't scientifically evaluate the bearing quality, but if I had to bet on the results of such a test, I'd bet on the MKS. Middle-quality Japanese bearings are fine, and low-quality French ones are famous.

# Mail

HOW CAN THE ATLANTIS CLAIM to be a real 'all rounder', when it doesn't have shocks for trail riding? Like what flexes enough to sustain the shock of the bumps, uneven gravel and even occasional rocks in the ground from being transported to the body and thus causing fatigue...this is a real interest of mine, so I'd love to hear your explanation.— Joseph C.

**Hi Joe, An "all-rounder style frame" refers to its being a budget version of a much more costly Rivendell model called the All-Rounder...but that, too, lacks the linkage you refer to, so the question remains. There are different approaches to anything. Some mountain climbers (boots and ice axe variety) and some off-road riders are out to conquer the land, and their vocabulary ("summit assault," "attack the downhill" and so on) reflects it. They see defeat in not making it to the top, or having to walk, or being last down the hill. Others (and not just zen monks), don't see riding as a winning or losing thing, they just like to do it. They seek out the best path through a natural obstacle course, and get off and hoof it—and don't feel "beaten"—when walking makes more sense. The All-Rounder is for them and anybody who favors simplicity and technique over technology.**  
— Grant

## Advice From A 61-year Old

IN A RECENT ISSUE OF THE RR, YOU ASKED for suggestions and wrinkles which have a beneficial effect on the operation and maintenance of bicycles. Having ridden as an adult since the early fifties, and having kept my ears and eyes open, things have come to notice which are rather ameliorative in their effect and application to bicycles.

First is the boot lace tire saver. Vastly superior in effect, as well as long lived and low in cost, is to tie a piece of rawhide boot lace, commonly available at many hardware stores, from one side to the other, most often from some place on the brake calipers, so that it rubs lightly on the tread of the tire, sweeping debris away before it can be driven over several revolutions of the wheel. These are far more effective than the wire gizmos, far more durable, and replaced when worn out at a much lower cost.

The second is the use of caulking to fill level the eyelet holes on the inside of a rim, giving support to the rim tape/ The weight penalty is inconsequential.

The third is the use of Nev'r Seez or other non-seize compound on freewheel threads and crank spindles. If you have ever had a crank seize to the spindle, then experienced the effort



*If you are the type who falls off ladders and sues, please ignore this great idea. As for the photo here: There are different ways to attach the leather, and this is just one of them. Some folks tie the leather to the forks. The neat thing about this (aside from its being leather), is that it works with a fender. You could even rig it onto the front of a fender.*

of removal, often stripping the threads in the crank, you will understand. Also, the crank can be bedded with less torque on the bolt (whose threads should also be coated with the compound). Likewise, it is very good for pedal threads, bedding headset races, stems, seat posts, etc. As a matter of routine, I apply anti-seize compound to all threads and press fits.

Fourth, during time and in places where Brooks Proofide was not available, I have used tallow as a substitute. It is easily rendered from meat fat (keeping cholesterol out of the bloodstream). Applied to the top and bottom of a saddle, which is best left in the sun on a warm day, it soaks in well. In rendering tallow, the grease which is slowly cooked out of meat fat is then clarified over boiling water; adding ammonia or baking soda, reduces the acidity present in some fats, militating against corrosion. Some vegetable oils are also suitable, and can be spread over the leather in a very thin coat.

Fifth, there are many odd greases available, particularly in locations where ships and boats are harbored. Some are very water resistant.

Sixth, for some forty years, I have used the hot wax method of lubricating the drivechain. This has the advantage of lubricating without attracting grit and dirt. The process is simple. First, clean the chain by soaking it in kerosene or diesel fuel. Best results come if one lets it lie for several days, so the kerosene works all the way into the joints. One then melts enough wax to cover the chain. Get hold of an old coffee percolator basket, and make some kind of feet to hold it up from the bottom of the wax pan. The safest way to heat the wax is with a hot plate, keeping a fire extinguisher and some baking soda handy. Coil the chain, put it into

the basket, and lower it into the wax. The kerosene thins the wax further, so that it penetrates deep into those close fitted chain joints. It is good to leave the chain in the hot wax for an hour or so. Remove the basket and let it drain, and then hang up the chain to cool. It will be stiff at first. Reinstall it on the bicycle and run her through the gears. Wax will flake off, other wax will stick to the machinery in the chain's path. If one is fastidious, one can wipe off the flakes that stick to the frame, etc.

These processes have contributed to longevity and smooth operation, and are easy to do, and low in cost.

Many doubtlessly may do some of these things, but I feel an obligation to pass them on for the possible benefits that may be obtained. I am not of the abuse and dispose school of thought.

A properly made steel frame is the heart of a fine bicycle, is durable and most elegant in aesthetics. I have had some rather fine bicycles in my nearly 50 years of riding. All else is somehow inferior in some way. Incidentally, some alloys of titanium are amenable to silver brazing; I am not sure how a bicycle frame so made will behave or last. Some titanium alloys make fine treble strings for harpsichords, of which I have built two, and now have orders for seven more.

As the proclivity of old men (61 and counting) is to maunder at prolix length, it is time to close. May all success and attendant prosperity lie in the future of Rivendell.—J.E. James, Jr.

## Fat & Silly Sheep

1. THE NEW MAST HEAD for the *Rivendell Reader* is fine - stop worrying.
2. Kudos on selecting orange for the new Rambouillet . Beeswax is for bees and mustard is for hot dogs. Please don't even think about them again. You may recall I suggested orange about three times.
3. Now for the fourth time, the new Rambouillet headbadge dancing sheep is fat and silly looking - cute for a child's bike if you should ever want to offer one. If you don't like the idea of a Rambouillet's head don't show any of it. If you stay with the fat silly sheep I probably will buy a Rambouillet anyway but on condition that you leave the headbadge off or provide instructions on how to remove it. Sorry.— Joel Rizzo

**The head badge is based on heraldic design, which often were silly. The pose is a "rampant" pose, generally used for real predators such as lions and snakes, and fake ones such as griffons and other mythical beasts. The sheep is a domestic animal, properly posed on all fours standing in a field, but being that**

we aren't true heraldics, and this is 2001 and we're a bike company, we took liberties—all the while meaning no disrespect. I think the best way to appreciate it is to look at a bunch of heraldry before looking at it. Anyway, I think you'll get used to it, and I bet you twenty dollars you decide to leave it on. I promise I'll pay if you promise you will.

I think hard-core heraldics will find fault with it, anyway. There so many rules to heraldry, and I suspect we broke them all. —gp

#### Riding a Recumbent...and it's O-Kay

I RECEIVED THE LATEST ISSUE OF THE RR. The piece about the seatstay plugs was interesting. I always wondered if they were plugs, or caps, etc, and now I know.

The zipper, "big," and now/then pieces are good, too. I found the now/then particularly interesting because I recently sold all my bicycles, including my Mercian. Because of back problems that I could not solve w/o risking an anxiety attack (I'm serious), I bought a recumbent. It's downright impossible to find a "classic" or even "classic-inspired" component on a recumbent, so the now/then piece reminded me of my old bikes, and my new one.

While recumbents are probably not for everyone, I really enjoy riding my Vision. I don't think I've been this happy riding a bike since I bought my first mountain bike in 1982/83. I don't have a computer on it, so I can't say if I'm slower or not, but I generally feel a lot more relaxed, and less pressured to go "fast." My Vision is equipped with some of the lower-end parts (Deore, Tiagra, etc), but everything works well together, and I actually don't feel com-

elled to replace anything. In short, I like where I'm at, and riding the 3.5 miles to work is as satisfying as any long ride or race I've done in the past. By the way, I liked what you wrote about Mt Diablo. I never liked riding it, because I'd mentally beat myself up for being so slow. Reading what you wrote, however, reminded me what I probably missed all those years. Hope things are going well (as can be expected).— Mark Chandler, Colorado

#### Cars versus Heads, Helmeted or Not

A COMMENT ON YOUR SIDEBAR to the Helmets, Boys... in RR24. I too heard about the NY Times article saying that despite a decline in cycling and an increase in helmet wearing, there is an increase of cycling-related head injuries. You overlooked one possible explanation - that it has nothing to do with helmets. I have not read the study, but this seems a sensible explanation to me: Many "cycling-related" crashes, and certainly many of those that involve head injuries, are really automobile-related crashes.

Today there are more drivers and more cars on our roads than ever. Simply increasing the number of cars on the road is enough to increase the number of injuries and deaths. As little as a decade ago there were fewer cars around, and cyclists crashed without the "help" of as many autos, incurring fewer head injuries. Add more cars into the mix, and the number of car-bike (and car-pedestrian, and car-scooter, and car-car) incidents will predictably rise, and therefore the number of cycling head injuries will rise, because even a helmeted head is no match for tons of steel moving really fast. Perhaps cyclists are incurring head injuries because they are increasingly being hit by cars, rather than crashing in the poison oak on the

shoulder of the road. I wonder if the puzzle posed by the results of this study may lie in the definitions of "cycling-related" and "automobile-related". The NY Times reporters didn't make this simple connection, and possibly the epidemiologists of the study didn't, either.

Sometimes our inability or unwillingness to understand how automobile dependence affects us makes me seethe. Helmets are great, and we should wear them, but cars are much much more dangerous to cyclists (and peds, skaters, razor-scooter riders, wildlife, and dogs) than unassisted self-takedowns.— Anna Sojourner

#### When You Can't Find It In the Can

Best Brown Bread I've ever eaten. It's baked, not steamed like "Boston".

3 C Mix (Up Country Naturals Buttermilk & Honey Organic Pancake Mix - 1 16 oz box)

2 T sugar

1 t baking soda

1 C molasses (try 6 oz of light molasses)

1 C buttermilk (Organic Strauss) (try 1 1/2 C)

1 C raisins (Organic Pavich)

Combine first 3 dry ingredients in large bowl.

Mix molasses and buttermilk in smaller bowl.

Combine all with spoon in the large bowl.

Fold in the raisins.

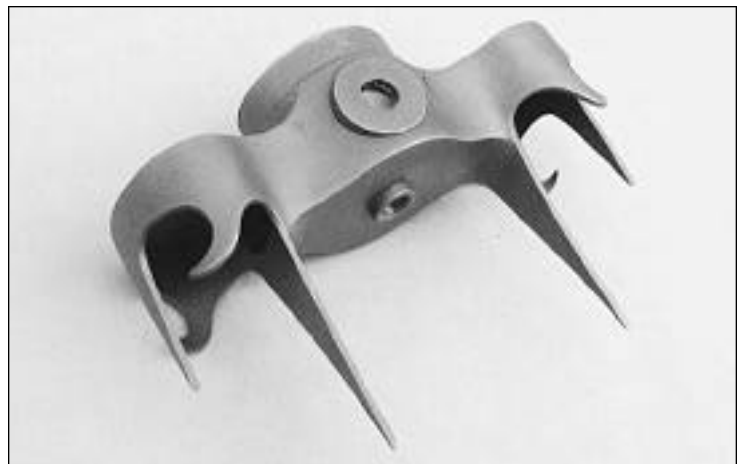
Bake in buttered dish at 350 degrees for about 1 hour—Pierra LaPlant, Berkeley, CA

**Stop the presses, for heavens to Betsy! Because it's not every day there's...**

## A New Fork Crown In Town

Kirk Pacenti-friend, Rivendell member, former Match builder (of Rivendells, with Curt) and now resident custom frame designer at Lightspeed (got all that?)-has designed a fork crown that makes me/Grant hate him lots. This is one of two samples, and the final will be changed here and there, but if you like the way this looks, you'll like the final.

It is made by Long Shen, the same fine folks who make ours. Kirk sent us this one (of two samples) for some feedback, not because he needs any style guidance, but because he'd like us to offer it as an option on Rivendells, and he likely figgers that if we have any input, that's more likely to happen. We made 4 suggestions, but would be proud to use it, anyway. Good job, Kirk, and good luck selling this crown to other builders. Fork crowns? In 2002? YES!



# The French Camping Bicycle

photos and story by Jan Heine



Photo 1: Loaded bike: With 32 quarts of soy milk on board (80 lbs.: 50 in the front panniers, 20 in the rear), this bike handles great. The rear low-rider lowers the center of gravity and greatly improve cornering.

**B**icycle touring in France became popular when a mandatory four-week vacation was introduced in the 1930s. With little money, a bicycle was a great way to see the country. Camping was the cheapest accommodation. The two went together naturally. Many people strapped racks and bags to their production bikes. Then as now, bicycle touring can be done on almost any equipment. The memories count, not the bikes. Nonetheless, a good bike can prevent many problems and make the trip more enjoyable. In that spirit, starting in the 1940s, builders like Alex Singer, René Herse and Cycles Goëland made very special bikes for those who could afford them.

Today, many expensive "loaded touring" bikes are sold without racks, fenders or lights, leaving it up to the customer to figure out how to assemble it all into a working unit. A French camping bike, like a "randonneur" (see RR 24), always is sold as a complete bike. While randonneur bikes may have some racks and can carry a load, camping bikes have stiffer frames and a different steering geometry designed for heavy loads and slower speeds. And, of course, elaborate racks. Custom-made for each bike from steel tubing, the racks are stiff, strong and light. They won't fit any

other bike, even by the same maker. This lack of adjustability means that there are less parts to flex, loosen or break. Contrary to a common perception that low-rider racks were invented in the U.S. during the 1970s, French camping bikes since the 1950s usually have had front low-riders, sometimes rear low-rider racks as well. On top of the front wheel, a small rack supports the handlebar bag, which holds camera, snacks, raincoat and the map.

Correct packing places most weight in the front panniers, with bulky, lighter items in the rear. That way, the weight distribution of the bike - with rider's weight mostly on the rear wheel - is very balanced, with great handling and less broken rear wheels as a result. Most camping bikes use 650B wheels, a little bigger than 26" mtb wheels. Sealed bearings in hubs (Maxicar), bottom brackets (usually made by the frame builder) and pedals (TA) have been common since the 1950s, and the entire machine is designed with durability in mind. When you're in some remote part of the world, the last thing you want to worry about is your bike.

The bike featured in the photos is my 1985 Alex Singer. It is heavy-duty even for a camping bike, with 40-hole wheels and additional lateral stays that stiffen the frame. It even has

two rear brakes - the original owner was somewhat eccentric. Unloaded, the ride is jarring unless I reduce the tire pressure to 65 psi. But loaded, it is amazing. To test its capacity, I packed 80 lbs. (50 in the front, 30 in the rear panniers). Starting was difficult, with all the weight on the front wheel and a bit of wheel flop. But once under way, it was easy to forget the load. I was able to ride without holding onto the handlebars at about 18 mph. At 30 mph on a downhill, again without holding the bars, it was absolutely steady, as if it rode on rails. Twisty switchbacks didn't faze it, in fact, the lower center of gravity (low-riders front and rear) made it turn better than an unloaded bike. On S-curves, the weight became apparent - it required considerable input to lean quickly from one side to the other. Not a problem, just different. Starting from a traffic light, I was able to stand up on the pedals without any wobble from the bike. Amazing - I have ridden many a loaded touring bike, and riding no-hands or standing usually isn't part of the experience. So those rumors about rear low-riders being a bad idea just aren't true - if the low-riders are sturdy and well-designed. With those cheap alloy low-riders, it would be a different story...

A minor drawback becomes apparent on speed bumps: The rear panniers are cantilevered behind the rear axle. For very bumpy roads, a standard rear rack, which places the weight further forward, may be superior. My Singer has both, allowing me to move the panniers as the road surface changes. Camping bikes are very specialized machines - not ideal for commuting or a quick weekend spin. But when it comes to loaded touring, no other bike comes close. I can't wait to head for the Andes - of course, I won't take 80 lbs. of luggage. But it's good to know that the bike could handle it. Lugging a trailer beats staying at home.



Above: My Singer camping bike. The rear "low-riders" have a reputation for not carrying a load well, but I've not found this to be true at all. A Singer properly carries the French Giles Berthout canvas bags, available in grey-blue or black.



Above: The handlebar bag attaches with an ingenious quick-release. Look careful and you'll see two prongs that fit into the tubes attached to the stem at the bolt. Gravity holds it in place, it never pops off, and to release it for when you want to go into a restaurant for lunch, just lift it up. The Japanese have copied this style for some of their own bar bags. Nitto has made them. Note the permanently attached map case, the fine leather cording around the edges, and the handy elasticated loop closures for the pockets.

The right brake lever controls both rear brakes. Three brakes, total.

Right: Long ago, the French Cyclotouring Federation decreed that all parts on randonneur and camping bikes had to be brazed-on, the thought being that clamps can loosen or even fall off. Two eyelets are brazed onto the seat tube for the front derailleur, replacing the front half of the clamp. That is a Singer bottom bracket - made since the 1950s with cartridge bearings. Note also the TA Cyclotourist cranks and half-step gearing, both standard on bikes of the era, and still preferred by many today. The second rear brake, a Mafac centerpull, is brazed onto the rear lateral stays (unique to this style of bike).



# Goatheads: The Bad Seeds

by Steve Leach (a botanist and bicycler)

Its common names include goathead and puncture weed, but it's also known as caltrop, tackweed, ground burnut, bullhead, Mexican sandbur, cat head and gokharu. Most of these names describe the rather impressive fruits that the plant produces. But this plant's most imposing name is its Latin one: *Tribulus terrestris*.

*Tribulus* is from the Greek *tribolos*, which means "three-pronged."



Roadside popcorn. Pophorns? Nasty things.

*Terrestris* means earth (or ground), and the combination refers to a weapon thrown on the ground to impede cavalry. The words bur and tack used in several of the common names conjure similar images. The common name gokharu appears to be a Hindi word possibly derived from the Hindi word, *gokha*, which means anger...the way I feel after discovering that several of these thorns have flattened my bicycle tire. Because they grow in low, dense mats on the ground, when you have one gokharu in your tire, you'll likely have another two, three, or even ten.

Botanists are usually rather reserved and equivocal in their judgement of a plant, but they make an exception with this one. In my books, descriptions of the goathead are often followed by editorial remarks like "vile

weed", "aggravating to bare feet", "troublesome", and "pernicious." Some of the resentment may stem from the fact that the goathead is not native to North America, but to the Mediterranean region of Europe. It was first recorded in California in 1902 and in the past 100 years it has spread throughout California and across the southern half of the U.S.

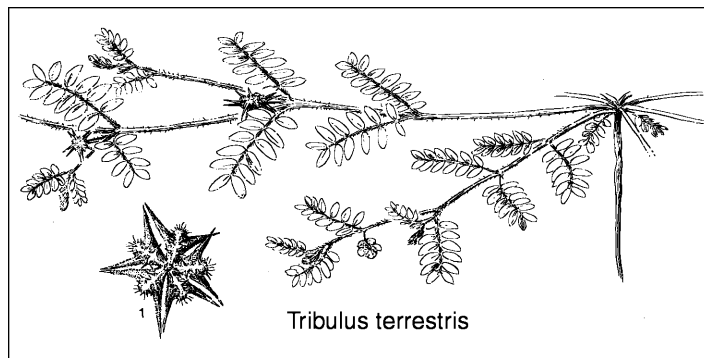
Goathead is a low-growing plant that flourishes on disturbed sites along roads, cultivated fields and, in our area, along bicycle trails. Stems are prostrate to the ground and bear small yellow flowers from July to October. Each flower produces a fruit composed of 5 nutlets, each about as big as a broken piece of popped popcorn, with 2-4 stout spines. It is hard to control, because the seeds in each nutlet can remain viable for 4-5 years. However, in 1961 a stem weevil from Italy was introduced that provides some control of this species.

Despite goathead's bad rap with bicyclists, this species has some interesting pharmaceutical properties. The vegetative portions of the plant are toxic to livestock. When eaten by sheep, the plant is reported to cause some sort of affliction called "big head" or geeldikop (an even more important reason to



This is a real Goathead. I/Grant jammed it smack into a Ruffy Tuffy. It didn't pop it. It may pop yours, but it didn't phase this one. Make of that what you will, but that's what happened this time.

*hate them—ed.*). Without further information, this would be enough to keep me from eating it; but bigheaded sheep and dead livestock are not enough to scare some people. The root, stems, and fruit of goathead are used by herbally inclined humans as a tonic, anti-inflammatory, antilithic, diuretic, alterative, demulcent, and an aphrodisiac. I can't personally speak to any of these benefits but the internet carries more than a few optimistic advertisements for herbal treatments made from the ground-up parts of good ole goathead. Some of these extracts have even been clinically tested by the Chemical Pharmaceutical Institute in Sofia, Bulgaria according to one web site. However, I still don't think I will save those thorns the next time I pull them out of my tires.





# The ABC's of the Leather Thornflicker

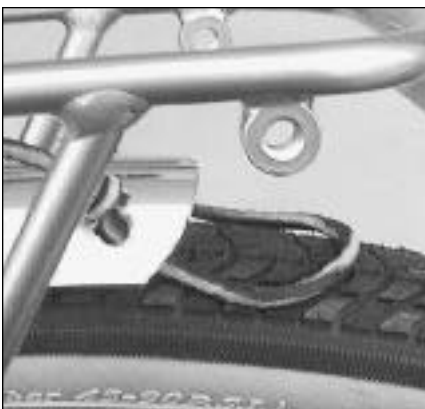
Leather thorn-flickers belong in the category of Things That Work Well, But Have No Commercial Potential, and Have Been Around For a Long Time, But Most Modern People Have Never Heard of Them. What's more, as safe as they seem, they're probably not what you'd want to have on the front tire when a large-headed nail punctures the tire and sticks out just enough to get caught, but in that regard, they're probably no more of a threat than are the super tight fork-to-tire clearances so common these days on most bikes. Still, it is prudent to slice 3/4 of the way through one of the sides, maybe just outside the knot, so it breaks free easy. I/Grant can't say that I'll do that on my own, but if you don't, and a nail catches on the leather, heaven help you if something doesn't give. Leather gets wet and dries in a nice, tire-conforming shape, and is better to look at, anyway. There's another photo of a thornflicker in the letters section (from the letter that inspired this page). Consider other possibilities: Vegan materials...spiraling baling wire around the cord to increase wear and help hold it down...twining and shellacking the cord...go nuts!



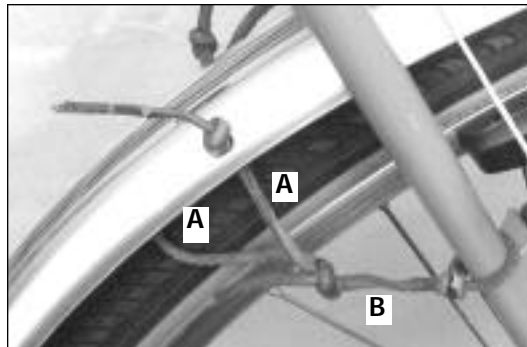
An Amazing Photo, taken on a 48 mph descent (1/10.000 second shutter speed, full manual camera, leaned over, one hand), of a duel between a goathread and a thornflicker. This rack, by the way, is the Nitto Mini Front Rack. It mounts to most forks with a hole in the crown and normal dimensioned blades. This one's on an Atlantis. It'll certainly fit on most cyclo-cross bikes, too, and any Rivendell with cantilever brakes.



The Moment of Truth: An even more amazing photo, taken 1/1,000,000th of a second later, of a thorn-flicker in action. That goathread was flicked up off the tire, and back onto the road, where as far as we know, it still lurks, ready for the some hapless, unsuspecting, running late-already rider without a thornflicker, all because he/she failed to renew his/her membership to Rivendell, and thus was not properly prepared.



Fendermount. Keep the loop short so it doesn't roll to the side, or take other measures to prevent that. Lower, fork blade, brake, or rack attachments prevent flicker-roll.



Rear fendermount. A is all the same piece. Since it's attached above the fender, it tends to roll, left to its own devices. B is a separate length tied to the seat stays (on each side), to anchor A. What a mess. It works, but now that I look at it this way, shoot, I should've just run B over the tire to the other side. What a mess this is (however, it does work). You do better!



Forkmount. The classic. Slide the knot up and down on the blade until you find nirvana. A 2-3 twist timber hitch is a good knot. Don't know that knot? You should've bought our knot book!



## Say It Ain't So, Jöel

Write down this email address:

[zefal@zefal.com](mailto:zefal@zefal.com)

And this name:

Mssr. Jöel Glotin, General Director

Zefal owns Christophe, the toe clip and toe strap makers. Christophe is one of the oldest makers in all of cycling, and its oldest product is the steel toe clip. It's a rare, perfect cycling product. There are lighter clips, but they aren't that much lighter; and there are no prettier clips, or better ones—and naturally they're being cast off like eskimo elders. Who buys steel toe clips anymore? We do, you do, but there aren't many others, and the bean counters are canning this most classic cycling product.

We're not saying Mssr. Glotin is a bean counter, just that he's the guy to write to if we want whoever the bean counters are, to reconsider. Considering that without this product's contribution in the past, Christophe might not have even been around for Zefal to buy! The counters might be working somewhere else, or notatall!

I've met Mssr. Glotin. He's a nice fellow, and he understands English well. This Reader is being mailed to 4,800 cyclers. Most won't write, not because they hate steel clips and want to see them die, but because there are other things to do. But please, out of respect for all those memorable miles that cyclers have pedaled in these to clips, write. Or fax (+ 33 2 38 59 9914. If you're in the U.S., dial 011 first (so: 011 33 2 38 59 9914). Put attn: Mssr. Glotin.

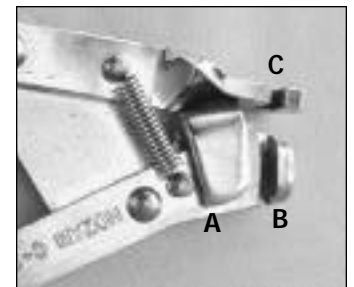
image by Andrew



## The Fourth Hand

**A Neat Tool That's Fun To Use and Makes Brake Adjustments a Cinch. Good for derailleurs, too.**

Ask ten bike mechanics what their least favorite part of assembly is, and most will say "da brakes," and they're right. That's on accounta there's more to go wrong with brakes, and there's more going on with them, and if you don't get it right, they'll howl at you and could be dangerous. *Then what?*



**Tool perfection: The business end of a Hozan Fourth Hand.**

There's pad height, pad alignment, shoe tightness, and toe-in. Nothing by itself is all that hard, but the sheer numerosity of issues makes brakes a drag, and any tool that simplifies anything is worth having.

The Fourth Hand—so named because there was already a Third Hand—does two things at once, better than you can do either by hand. As you squeeze the handle, part A (see small photo) moves against part B, with the cable in between 'em. Then Part C, which is butted up under the brake arm, pushed the brake arm up, tensioning the cable. Then you just tighten the cable pinch bolt, and you're all set. It works with any kind of brake, and we say that it's good for nothing else. Whoever invented it did a good thing that day.

There are several models, made by several companies. We don't like the locking ones, since they cost more and don't work as well, and lock when you don't want them too. The one we use is made in Japan, by Hozan.

We weren't planning to offer it, but we ordered 50 just to supply any demand we might have been responsible for from this column. It's a great tool.

**Part Number 19-062 Price: \$27**

# Women's Frames

**This is about the challenges of designing a frame for a typical woman's body, and some solutions.**

## 1. Women's body types

In measuring woman, observations, and from collecting body dimensions from Reader and online surveys, I think there are several common body types (limb-to-height proportions). They are:

1. LONG LEGS, SHORT ARMS (LLSA). This is the most common, and is common among women of all heights. But mainly among the shorts and mediums.
2. SHORT LEGS, SHORT ARMS (SLSA). The short, long-waisted woman. Many Asian women are built like this. Few black women are.
3. LONG LEGS, LONG ARMS (LLLA). Almost always found in women taller than 5-9, and proof that not all women have short arms for their height.

I'm not saying that list sums up the entire population, just that most of the women I've seen and measured and got measurements from fit in there. The main difference in men's and women's proportions is that "monkey-men" with short legs and long arms are common, but monkey-women are unheard of. Sorry, girls.

But as incomplete as this list of body types may be, it's more useful than stereotyping all women as the LLSA variety, as the sports-media tend to do.

## 2. Strength, or Lack Thereof

The typical woman is not as strong as the typical man, particularly in the upper body. Get angry with that statement all you like, but arm wrestling, rope climbing, and weight lifting competitions bear this out. When you lean forward on the handlebars, you support your upper body weight with your back and neck and arms and hands. If your muscles aren't strong, it's harder to hold yourself up, and the challenge is greater as you lean forward or lower to reach bars that are too far away—as you will do if you have short arms and the frame isn't designed right for them, or your bars too low or too far out there. Your weak back and the bad position puts more weight on your arms and hands. All heck breaks loose! The heavier your upper body, the more this is exacerbated.

The frame should be designed around the body, as always. But women tend to be smaller than men are, so any selection of frames-for-women have to include at

least two sizes smaller than a 50cm (which is already small). In the smaller sizes, the top tubes should also be shorter, and that's where the trouble starts. When you shorten the top tube, the front wheel gets closer to the downtube, and in the case of a 700c front wheel (standard for adult road bikes), the front wheel gets too close before the top tube gets short enough.

An issue related to the tire clearing the downtube, is "toe clip overlap," or the interference between the foot and the tire when the footed pedal is forward and the wheel is turned enough to intersect it. In real life, toe clip clearance is an issue only when doing really slow sharp turns, because at speeds above about 6mph, you'll crash before you can turn the wheel enough to hit your foot. But traversing tourists and others like it, and when somebody orders a Rivendell, we ask whether or not they can live with toe clip overlap or not.

If the answer is No, and they're short and need a small frame, and they insist on 700c wheels, we don't accept the frame order, because it can't be done without designing a wacky frame (more on that later).

## Short History of Women's Frames

In the late '70s to mid-eighties, there were all kinds of poorly designed small frames. Most production frames of the day came in 19, 21, 23, and 25-inch sizes, and it was common for 19-inch bikes to have the same 22-inch top tubes as the 21-inches. When people started hating those, the designs were modified, and many 19-inch frames started showing up with 11 1/2 to 12-inch high bottom brackets, and resulting standover heights just an inch or less lower than the equivalent 21-inch model. They were among the worst-designed frames of all time, for their intended purposes. That people didn't hate their guts is just a testimony to how fun it is to ride any bike. They weren't heinous, just pretty lousy designs.

As you know by now, the main challenge in designing a small bike with a short top tube around a 700c wheel, is getting the wheel to clear the down tube. Another concern, if you're really conservative, is getting the front wheel far enough away from the bottom bracket so that the tire clears the rider's foot (or toe clip).

If you build a 700c-wheeled bike with a short top tube, say 49cm, and you don't change any of its other dimensions, then the wheel will be too close to the downtube. There are lots of common, bad ways to increase the clearance. Here what they are and why they're bad.

**1. Steepen the seat tube angle.** This moves you too far forward, changing and likely wrecking your weight distribution. Most small frames are already too steep (74 to 75 degrees), and that's bad enough. But if you want the front wheel to clear the downtube, and you want a short top tube, one way to get it is to steepen the seat tube. In the aftermath of Terry frames (see sidebar, below), some big famous makers created their own women's bikes, but with 700c wheels. They had 78-degree seat tube angles, which is just, you know, terrible.

**2. Raise the bottom bracket.** Raising the bottom bracket "lifts" the down tube off the tire. In the late '70s through the mid-'80s, it was common to find 19-inch bikes with standover heights less than an inch lower than the same model in 21-inch. The bottom brackets were right up around 12-inches; another bad solution.

**3. Too shallow head tube, too much fork rake.** This is another thing that pushes the wheel way out there, so it'll clear the down tube. The drawback is that it makes the bike ride like a chopper. It won't corner well, and is too hard to control on steep, slow climbs, because the wheel flops from side to side. Small bikes almost always have shallower head tubes than do larger bikes (72-degrees, for instance, when the same style frame in a 58 might have a 73 to 74-degree head tube). In itself that's not a bad thing (72 can make a nice head tube angle on a larger bike, too). But with a 700c front wheel, once the head tube starts falling below about 72-degrees, the bike's sharp cornering abilities decline rapidly.

By itself, any one of the above bad solutions would (and has) make an extreme bike: The 78-degree seat tubes, 12-inch bottom brackets, and 70.5-degree head tubes. So

usually a designer will tone down each and combine them: 75-degree seat tube x 72-degree head tube with a 10.75-inch bottom bracket. That will allow a short top tube, and none of the changes is extreme enough to call attention to itself in isolation. It isn't super-wacky in any one area, just lousy all over in general.

Small bikes should have lower bottom brackets than bigger frames, if anything, because short-legged folks should be pedaling shorter cranks, which have more ground clearance, making it possible to lower the bottom bracket without running into problems. Seat tube angles shouldn't vary that much from small to big frames, because body proportions don't vary. For decades we've been told that short femurs require steeper seat tubes, in order to keep the knee centered over the pedal when the crank is horizontal. But that's chock full of nuts. Short femurs do not require steeper seat tubes; the knee-to-pedal relationship we've been sold all these years is hogwash (no time to go into it now; Keith Bontrager blew holes in that notion years ago, but the industry didn't pay attention); and other aspects of a woman's physiology—mainly her strength—point toward shallower seat tubes, not steeper ones.

Another thing that makes it worse for women, is women's saddles. Many women's saddles have a shorter section of usable rails that doesn't allow you to shove them back far enough for a good position. When you combine that to a seat tube that's already too steep, you can forget about getting a good pedaling position. In a future Reader we'll talk about women's saddles. They ain't all that good, either.

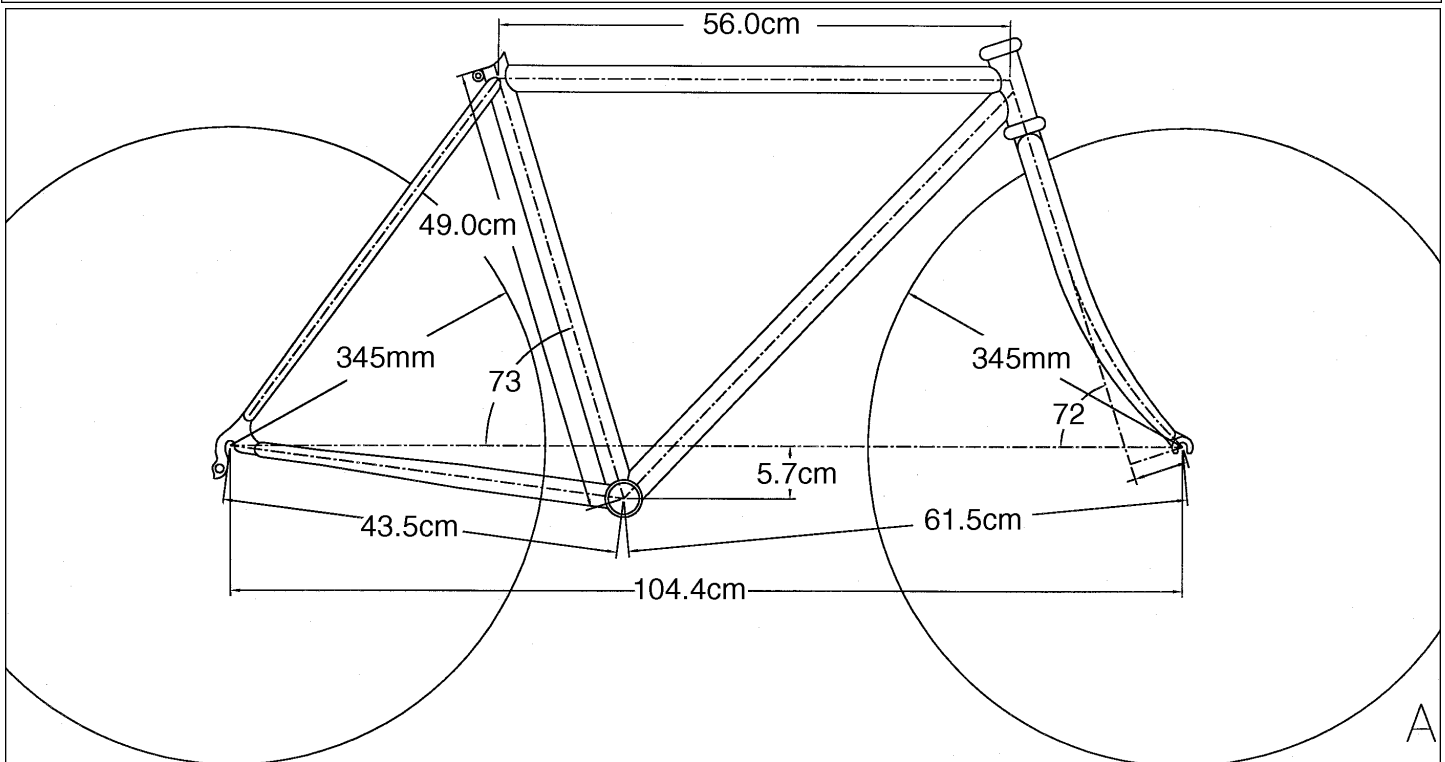
### What About Terry Bikes?

The notion that only a woman can design a frame for women is sexist. Even so, it's more than coincidental that it was a woman, Georgena Terry, who called the cycling world's attention to the lack of well-designed small production frame, and did something about it. In 1985, Terry introduced her "Precision" model, hand-made in Rochester, NY. It got lots of ink, and riders liked it, and a year later, she was bringing in Japanese made production frames of the same style (the "Despatch"). Since then, several other models followed, and now there are more than you can shake a stick at.

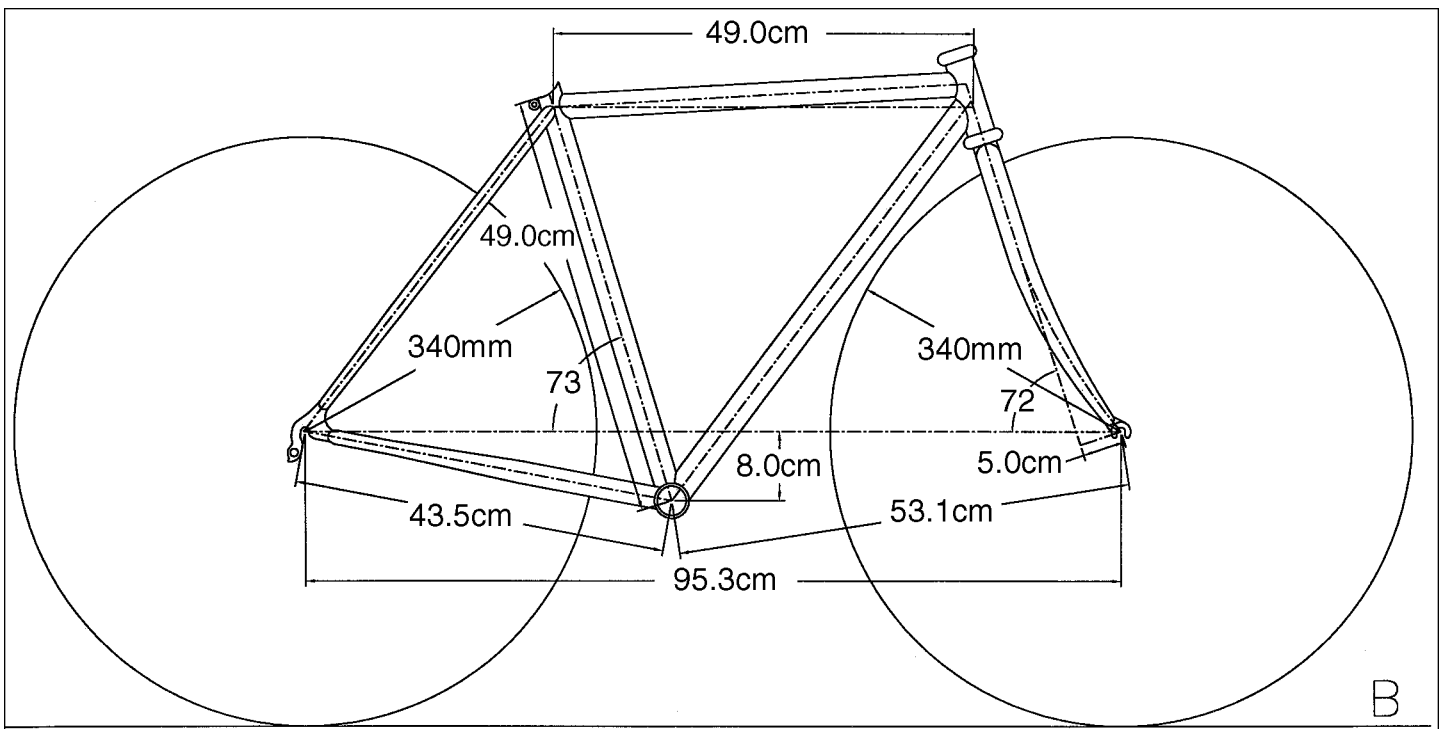
Terry was able to design a reasonable frame without the long top tube, high bottom brackets, and super slack head tubes, because she went to a 24-inch front wheel. With the smaller wheel, there was no need to wreck the design of the frame in order to have the front wheel clear all the tubes.

These bikes got people thinking about women's bikes and small bikes, but as most radical ideas are, they were controversial. The major resistance was the 24-inch front wheel. It looked funny (and still does, as far as that goes), and required you to carry two different spare tubes; and tire availability wasn't and isn't as good as it was for 700c.

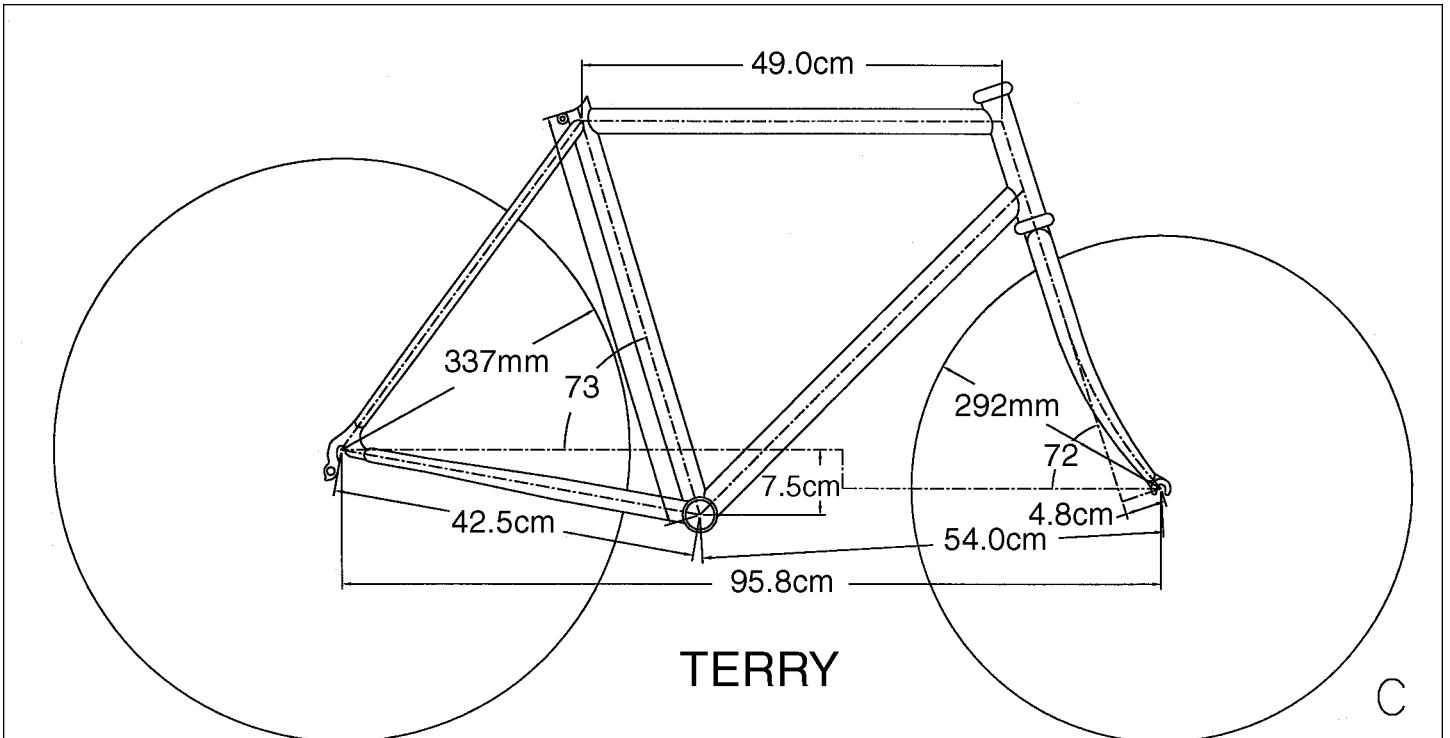
You might wonder, "Why not use a 24-inch rear wheel, to balance the look? Because the smaller rear wheel would have required huge chainrings in order to achieve the same gearing. It's easier just to deal with the funny front tire. Still, bike designers and other makers looked for a way around it. Everybody wanted in on the women's market, and wanted to offer a bike that overcame the objections to the Terry. Worse designs immediately followed.



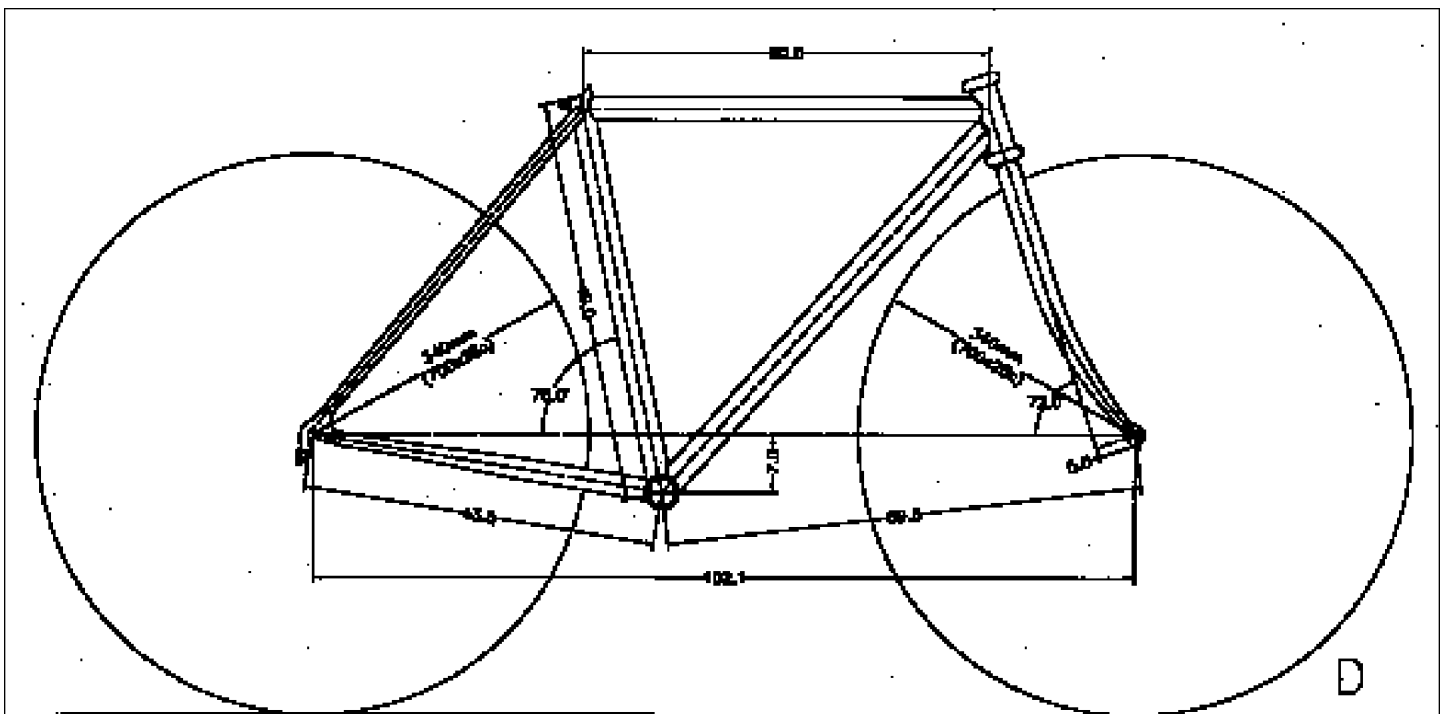
Typical "sport-touring" frame from the early '80s. It has some serious flaws, which ultimately lead to Georgena Terry designing her own. For instance, the 56cm top tube is too long for the 49cm seat tube (these bikes came in 19-21-23-25-inch sizes, but I've metricized them for consistency here). Also, the 57cm bottom bracket drop isn't enough, and resulted in a standover height, for this 19-inch frame, only about an inch less than that of a 21-inch frame. (Should be 2-inches.) These bikes typically came with 27-inch wheels, which are larger by about 3/8-inch than their 700c equivalents. In those days, 700c wheels were considered racy, and 27-inchers toury. Basically, this bike fits a short rider with a monkey's proportions.



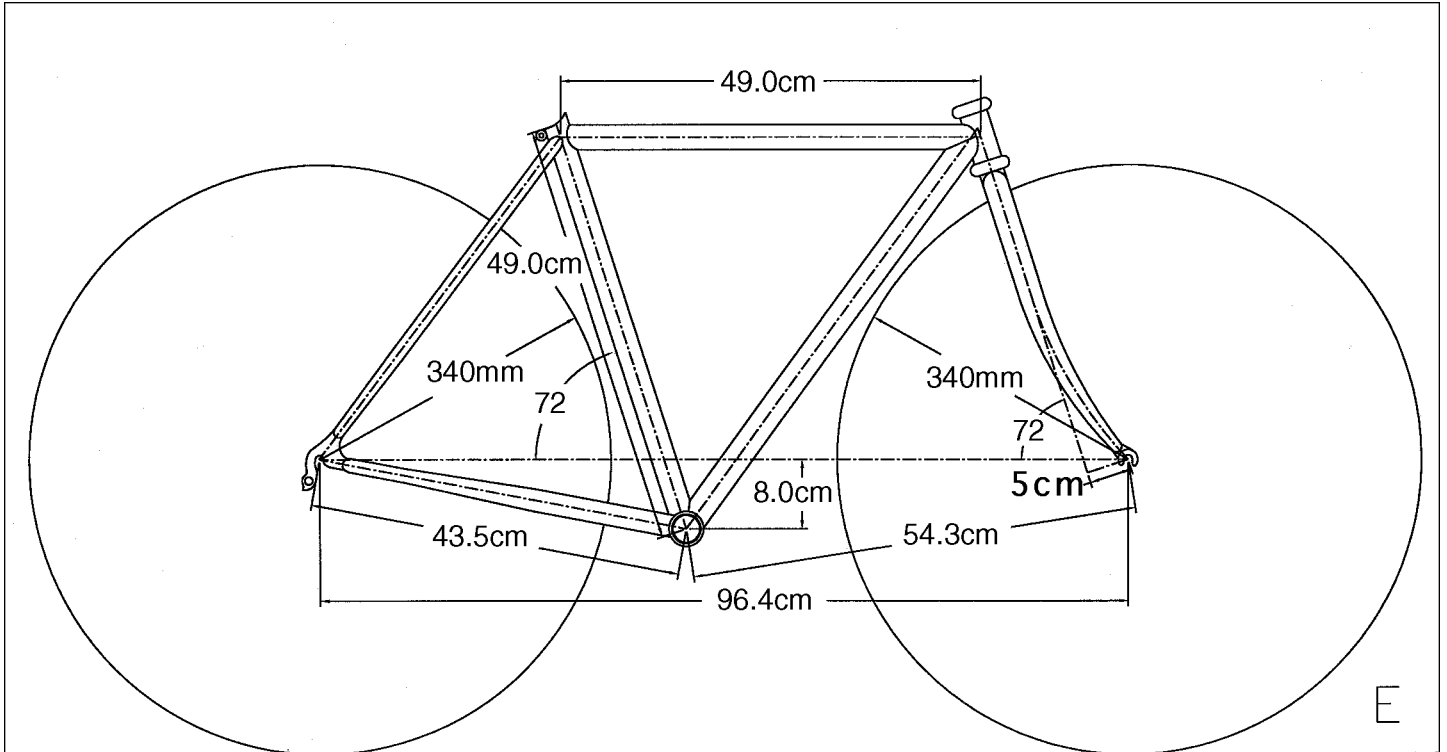
Here's a smarter small frame, but it doesn't quite work in the real world. It has 700c wheels, and a nice short (49cm) top tube. The bottom bracket height, seat tube, and head tube are normal, but their cumulative result is that the front wheel is too close to the down tube. A slight rearward force would send it into the downtube and pitch you over right now. It has tons of "toe clip overlap," which in itself isn't so bad (though some people hate it). For a production bike, it just doesn't work.



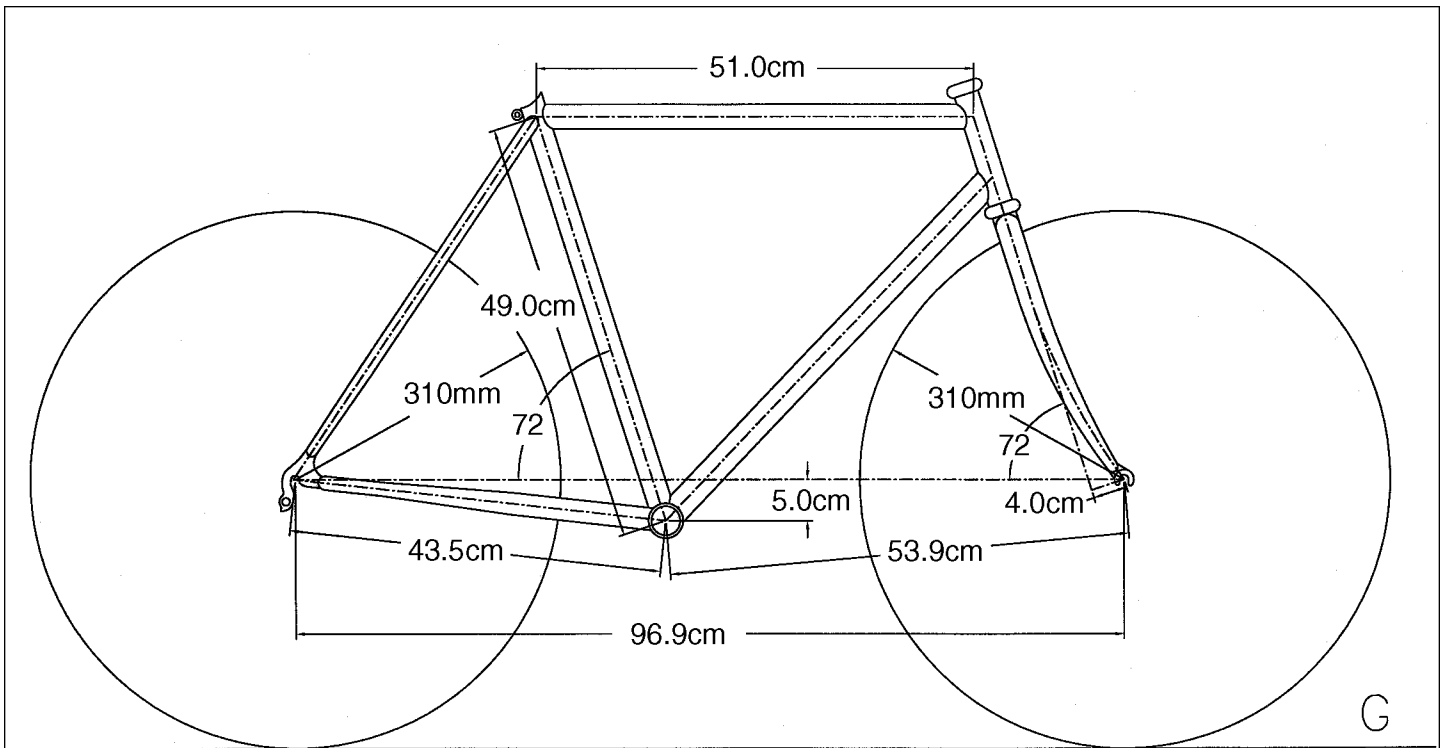
Georgena Terry's solution to frames A & B. By using a smaller front wheel, the frame can have a short (54cm) front-center without the wheel being too close to everything. Critics—and you know, radical solutions, no matter how smart always attract critics—didn't like the two different sized wheels or the look. But this is a smart design and as much as any bicycle design, an historically important one.



Frame designers and manufacturers who didn't like the small front wheel on Terry's bike, but knew they had to sport an acceptably short top tube cheated like scoundrels, with super steep seat tubes, such as this one here. The steep seat tube "pushes" the top tube and front wheel forward, getting around wheel clearance issues. But it whacks out your riding position. Your knee will be way ahead of the pedal, more weight will be on your arms...it's just no good. The 78-degree seat tube on this frame actually showed up on at least two big popular bikes. Modern small 700c bikes typically have 74-76-deg. seat tubes. Still too steep, but not so extreme that they can't get away with it. Shorter femurs DO NOT require steeper seat tubes. That's a myth!



Here's a really smart small frame design that still doesn't quite work. The good: Shallow seat tube, normal head tube, short top tube. The numbers make sense, but the combination doesn't work: The wheel is still too close to the down tube. And there's no room for a larger tire. The 340mm tire radius here represents the outer circumference of a typical 700x28. Look at the scarce tire clearance behind the seat tube and in front of the down tube. The wheel's still too big for this frame.



Here's a winner. Small frame, good angles, short top tube, but the smaller wheels (the 310mm radius shown represents about a 26x1-incher) allows good tire clearances. Big makers won't do a bike such as this. It requires an informed and patient salesperson, and there aren't many of those. Also, many women are "coached" by male friends, who can't break out of the 700c box, and don't know anything of the compromises a 700c wheel brings to a small frame. In short, this frame is too smart to sell well. And that well-meaning, 700c-biased boy always butts in.

When you order a frame, it starts in motion a process which includes 5 forms and many questions. Each form and question specifies something we need to know to design and build the right frame for you. The form here is an internal form, with information taken from one of the forms you fill out. Note the notes. By the time we're done with the form, it usually has lots of scribbling on it, often information garnered from telephone conversations.

## Turning the Info On This Form Into A Frame Design

First I look at the form overall to get an overall picture of the rider. Age, weight, years riding, what *kind* of a bike, and so on.

Second, I look for inconsistencies and incompatibilities. An inconsistency might be requesting front rack mounts on a road bike. We'll then ask, "Why low-riders on a road bike? A saddlebag or handlebar bag is better for that purpose..." Calls such as these make it seem as though we're not willing to do what you've asked; but we just want to make sure you're asking for the right reasons.

An "incompatibility" could be something like 50x46x26 chainrings and a maximum tire of 26 x 2.2. Chainstays bowed out to make room for the tire will run into a 46t middle ring, so you'll get a call suggesting a 36t middle ring. If you're stuck on half-stepping, we'll say "give up the super fat tire, then," and we'll build the frame with dented road chainstays, which accept a 700x38.

The middle portion is where I fill in the frame dimensions. I have a custom program that tells me every detail of the frame and completed bike, and after doing this enough, I can see the bike by its numbers. Then I look over the lower-middle box (Braze-ons, etc) and make sure all's well and clear. I pick a crown based on the tires you'll ride. The Fancy options on the fork crown are popular. Even though they look great right out of the box, most people like the idea of Joe or Cut hacking away at them a bit. For dropouts, most people check off Rivendell's choice, but either way is fine.

**Grant's In House Design Order**

Serial #: \_\_\_\_\_

**CUSTOMER NAME:** ANDREW DRUMMOND

ORDER #: 1127

MODIFIED: 7/5/01

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**Rider Info:**

Rider Height: 71ish  
 Rider Weight: 143  
 P. Bone Ht.: 87  
 Saddle Height: 77  
 Miles per year: no idea  
 Years riding: 6 yrs, off & on  
 Age: 28

Phone: 510 428 1305  
 Daytime: \_\_\_\_\_

**Frame Style and Size:**

Rivendell Custom Frameset

SIZE: 61

TCO ACCEPTABLE?:  YES  NO

REAR SPACING: 135mm WHEEL SIZE:  700c  26"

CHAINRINGS: (most likely) 46 36 26

TIRE SIZE: (typical and max) 700 x 35 700 x 38

STYLE:  QUICK ROAD BIKE  
 SEMI-RELAXED ROAD BIKE  
 LOADED TOURER/TRAIL BIKE  
 ALL-ROUNDER...MAX VERSATILITY 98% PERFECT FOR EVERYTHING

**TYPICAL RIDE:** Not unlike a typical Rivendell employee ride - part on the road, part off, fire roads to singletrack, always hilly, anywhere from 10 to 50 miles, sometimes overnight, sometimes loaded. In short, a little of everything.

**Details for Frame Production Manager and Builder:**

TT Horiz Eq.	<u>58</u>	Head Angle	<u>72.5</u>	CS Length	<u>44</u>
Top Tube Slope	<u>1.5</u>	Fork Rake	<u>45</u>	Wheel Radius	<u>34.5</u>
Seat Angle	<u>72</u>	BB Drop	<u>80</u>	Brake Reach	<u>62</u>

**Braze-ons:**

Lowrider:  Nitto Mini  Blackburn  Jandd Extreme Front

Rear Rack Mounts on Seatstays:  Yes  No

Brakes:  Cantilevers  Sidepulls  SHORT reach  STD reach

Pump Peg:  Yes  No

Waterbottle Mounts:  Two  Three

Front Dropout Eyelet:  One  Two

Rear Dropout Eyelet:  One  Two

Rear Dropout Style:  Horizontal  Vertical  Rivendell's Choice

Fork Crown:  RC02  RC02 FANCY  
 LC-17  LC-15  AR  RC03

Special: Other Braze on (specify): \_\_\_\_\_

**Tubing Specifications:**

Head Tube	<u>std</u>	Seat Stays	<u>16 DT 0.7 HEAVY</u>
Down Tube	<u>BBB 9-6-9</u>	Chain Stays	<u>Newies w/dents A/R</u>
Seat Tube	<u>9-6 std</u>	Fork Blades	<u>TT 1.1</u>
Top Tube	<u>8-6-8</u>	Steerer Tube	<u>std</u>

*Reynolds' best. Shipped same to Tokyo & I think to us, not to me.*

*If you'll ride to pipe w/ 36 or smaller middle ring, why not 46t chainring?*

*Bhuna may leave. I'll email Reynolds... anyway, you should get these or the A/Rs.*

Then I pick tubes based on your weight, how you'll ride, what's being brazed on, and the particular lugs your frame requires. We have a stupendous selection of tubes, about half of which are custom for us.

I give this form to Andrew, he computerizes it, then sends it to Joe or Curt. At that point they'll start cutting the tubes, and the only other thing we need from you is your color and paint style (plain, standard, or fancy).



# Random *Opinions & Nothing More,* About Things Related To Bicycle Frame Design

1. Low Bottom Brackets are good. They make the bike ride light, lean easily, and feel good on everything from smooth pavement to tricky-bumpy trails. Road frame bottom bracket drops, therefore, should always be at least 75mm, and 80mm is even better. The industry standard for production bikes is 70 or slightly less. It will be mired there for many reasons, too lengthy to go into here; but too bad.

2. Long live long chainstays. The jerky feel of a short chainstay is misinterpreted as a powerful, forward thrust by almost every cycling journalist and rider. Short (sub-41cm) chainstays are dumb. Long chainstays smooth out the jerks and make things better on fast descents and bad roads.

3. Shallow seat tubes are great, but for many riders, even 72-degrees isn't enough. I/Grant am not quite brave enough to feel comfortable in the netherworld below that, but sometimes it's called for. Even at 72-degrees and with seat posts with good amounts of offset, almost everybody shoves the saddle back all the way and still rides on the rear rim. I think our seat tubes should start getting slacker...but some customers who know enough to be dangerous would freak out.

4. Fork rake doesn't affect comfort. Although it might seem that a low, tight radius (such as ours) might soak up bumps more, that metal down there is too thick to bend. If it flexed, paint would chip. The softest element in a system will give before anything else does, and in a bicycle, that element is an air-filled tire. How is it possible for a fork blade to flex before the air in a tire is totally squished?

5. Frame stiffness is the most overrated quality in the solar system, if not the galaxy. And it's hard for a rider to tell small differences between frame stiffness, anyway. A bicycle is a collection of parts working as a whole, and the stresses of pedaling and pulling on the handlebars affect other parts of the system, too. If you want your bicycle to

feel stiff, ride hard tires, a low-Q crank, and a stiff stem, and stay away from superlight handlebars. A "stiff" frame and a "stiff stem" combined with a flexy handlebar—well, what sort of thought goes into that?

6. Higher bars and lighter riders and shorter stems quicken a bike's steering, and need to be accounted for in a frame design. Because bike set up and rider physicality have so much influence on how a bike handles, it is ridiculous to read ANYBODY'S words about how a particular bike handles—unless those issues are addressed, along with that rider's history with other bikes. What's "quick" to one rider is "squirrely" to another.

7. Every bikemaker should list the largest tire each model will take, with and without a fender. Road bikes that can't accept fenders should be the exception, not the rule.

8. A mountain bike that doesn't accept a rear rack is really made to perch on a roof rack. It's gotten off-track.

9. Every bike should be able to pass the broken spoke test: A wheel with a broken spoke should still roll without hitting the fork blades or chain stays. Probably not one production bike in 50 can pass this test.

10. No steel tube should have diameter to wall thickness ratio greater than 63:1. For aluminum, 45:1.

11. You shouldn't buy a road bike that doesn't let you get the handlebar as high as the saddle; and if you tour or ride centuries or are stocky or old, you should be able to get the bar at least 2cm higher.

12. Brazed on front derailleurs—why? (Bear in mind, this is a page of random opinions. If you actually like them, that's fine, and I don't need to know the reasons. I'm not saying they're terrible. Some of my best friends like them...)

13. \$300+ carbon fiber forks that all come with the same rake, and even the makers don't know off the top of their

heads what the maximum tire diameter they'll fit, or what the brake reach is—why?

14. Why ride a bike that isn't beautiful? And how can you NOT like the look of well-proportioned tubes, continuous lines (no interruptions), predictable and natural intersections, and details that suggest somebody cared? A bike such as this should be your everyday bike, not just a Sunday model. Don't ride a beater 90 percent of the time with the idea that you're saving your good bike for ideal conditions and ideal riding. You love your bike by riding it, not by keeping it pristine and lightly ridden, so an heir can get more money for it in a future eBay auction.

15. The main graphic element of a bicycle should be the frame. The best paint doesn't steal the show, it highlights it. Parts logos should be small, silver parts always beat black, and color balance matters, too. When there are options (tape, saddles), natural materials always look better. Embroidered saddles? Ugh.

16. Integrated headsets look bad and have no redeeming value except to manufacturers who either have bad taste and think they look good, or are spinelessly going along with the crowd.

17. A bicycle should be identifiable without paint, and to that end, all bikes over \$1000 should have a head badge, even if it's a plastic one.

18. Standard reach sidepulls should be standard. The high volume bike makers are in control of this one, and they aren't coming through.

19. Good style leaves plenty of room for variety, in all styles of bikes. There are ways to make any style look fine. The elements of bicycle style that result in good looks and proportions can be applied to bikes outside "traditional road bikes," although...when it comes down to a single, final winner, it's hard to beat the look of a well-done road bike, isn't it?

Henry Kingman is known in some circles as the rider with the fastest unsupported (carried his own junk) time in last year's Paris-Brest-Paris; mentioned here mainly because he rode a Rivendell. He also is the guy who got us to put our catalogue online, and did the programming for it. Henry rides a lot, and recently he stopped by to get some fenders for a two-week tour he was about to go on, and left with our 62cm prototype Rambouillet. He took some notes, we asked him to write something up, and he did. There's only one thing I'd like to add to this, and that is: Self-contained superlight tours in the boonies are not something to tackle out of some romantic notion of it. Do you panic when you get lost? Do you cry when you have two flat tires and it's pouring rain? Is there any part on your bike that you're unfamiliar with or can't fix if it goes bananas on you? Are you okay wearing the same clothes every day? Do unidentifiable noises at night scare you? If you're going to be a Saddlebag Tourist, you get only one Yes and one Sometimes to those questions —Grant

# Superlight Saddlebag Touring (SST)

by Henry Kingman

Where bicycling is concerned, I'm mainly a tourist, and I reckon in the last twelve years, I've spent about 365 days on the road. I have learned a thing or two in all that time, and I'd like to pass on EVERYTHING.

The important thing about bicycle touring is to really go. Don't wait until you have the perfect bike/route/conditioning. Just go. THAT is "everything."

It's fun to shoot for the ultimate Superlight Saddlebag rig. To me, that means good loaded handling manners, roughstuff-worthiness, packing convenience, and making every ounce count.

The Bike, a Rambouillet prototype, was a good start. The ride is everything that's right and good about bicycles, God and America. (Apologies to, well, you know who you are—ed.)

Hurray for sidepull brakes! Easier setup, less wear-fiddling. Better modulated, less abrupt, hence safer on the road: fewer corner slide-outs, fewer wheel-lappers down. Anything else is almost impolite in a fast group ride. They're fine offroad, too, truth to tell, especially for us tourists. You won't really be hanging it out there to begin with, with weight on the bike. If your hands are on the weak side, or if you just like the feel, get dual-pivots.

Tire clearance is important, and the Rambouillet has as much of it as you'll find on any bike with sidepulls. If you need more, you need cantilevers. For my 165lbs, and 15lbs of stuff, 35mm Pasetas are just right and leave tons of room for fenders and mud.

## What To Take

That's right, I said 15 pounds. I see people whose racks



All I needed fit into, in front of, or behind a Carradice Camper and a Baggins Boxy Bar Bag. By securing the bottom of the Camper to the Nitto Saddlebag support, I easily made room for my tent. My pad is in the Camper, my bag is behind the Boxy up front.

and panniers alone weigh nearly that. Yet this setup has everything you'll need for reasonably indefinite periods of life on the road. And the best thing: convenience.

This was the fastest touring rig I've ever used in terms of time needed to set up and break camp. Everything is accessible regardless of which side of the bike is leaning against the tree. Packing up is simple. There's no bent over, upside down pannier cramming as the front wheel flops around. Clamp rear wheel with calves, open Carradice, do business, close flap...this is civilization.

I tested this on a three-week, first-light to dusk, on- and off-road, rainy October, camp out and listen to the short-wave in the tent at night, cook-my-own dinner tour from Vancouver, B.C. to San Francisco. I rode mostly inland, through National Forests where possible. I went over to

Rivendell before the trip to buy some fenders and somehow left with a 62cm Rambouillet prototype all set up.

For a Nevada-raised desert rat like me, riding soaked to the skin through the woods rates up there with skinny dipping and sleeping naked on cool sheets, and at the end of a long, dry California summer, I craved it. I wasn't disappointed. Brief travelogue here: <http://www.milly.org/Rambouillet>.

**Bike and Stuff as One**

The saddlebag/bar bag combination puts the weight higher up than a more typical rack/pannier setup, and I feared the higher center of gravity might detract from handling. It didn't, which I'd attribute to two factors.

First, combined bike/rider center of gravity is actually higher or about the same height as bar- and seat-bags, so adding weight there should lower or barely change over-

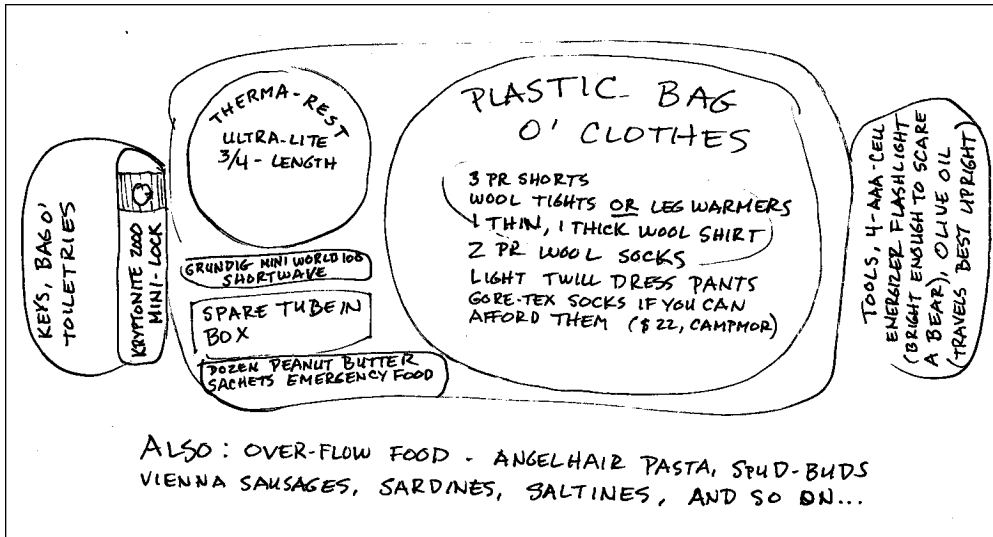
all vehicle center of gravity.

Second, diamond frames are meant to support weight from the saddle and bars, so adding weight there seems to have fewer weird effects on stability. Like, that awful wheel- and frame-flex you get when accelerating hard with heavy panniers.

That is not to say that handling does not change with a load. I find I can ride No Hands if all I've got is a few books in the Boxy Bag, but once I add a 3-lb. sleeping bag, as with any loaded bike, it gets harder. I found the handling natural, easy to get used to. In fact, when I got back home and unloaded the bike, I had to get used to that feeling again, too. Anyway, I think that minimizing the weight is more important than where you carry it.

The photo on the facing page was taken on my trip, and the illustrations below are exactly how I packed. For more detail, see <http://www.milly.org/rambouillet>

**A Superlight Touring Rig**

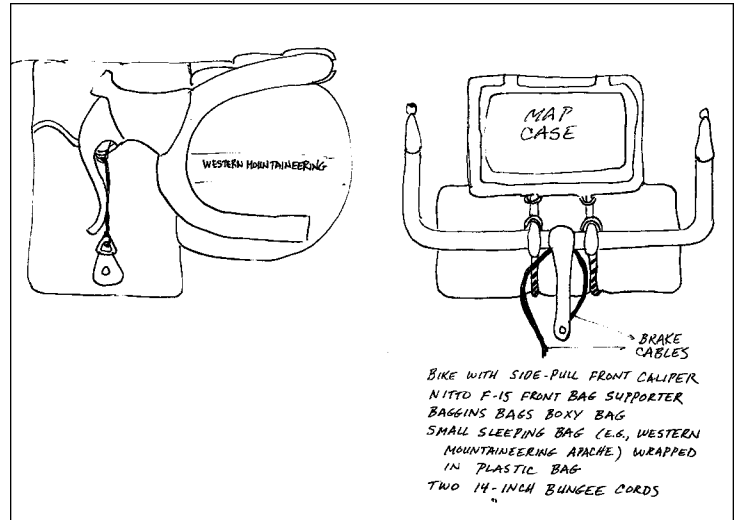
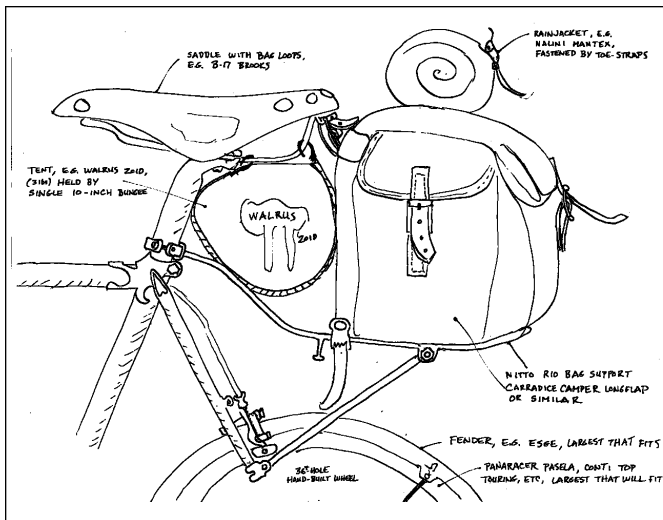


**Hey, Buddy—Wanna buy a good tent cheap?**

We'd planned to sell tents, did lots of research, considered price, availability, packability, weight, weatherworthiness...and settled on the Walrus Zoid. Then the delivery frustrations and model changes hit the fan, and to make a long story short, we have a few of these puppies around, and no real means of selling them except this here box of words. So here we go!

Zoid 1. A one-person tent. Weighs about 3lb. Super compact, good in the wind, easy set-up, a fly for rain, a mesh top for stars, coyotes, rangers, and scoundrels. \$100. It sleeps one person or two tiny people, but if you're stuck in a storm, it'll hold two. We have five. #31-233 Phone orders only. (925) 933 7304

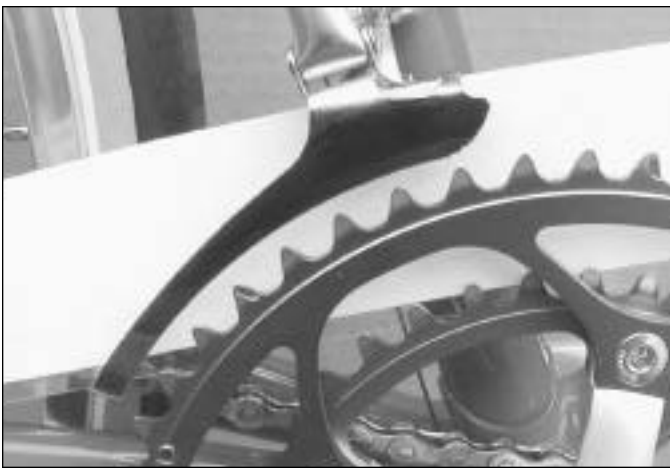
It's a good tent. You won't regret it. For pics, see [walrusgear.com](http://walrusgear.com)



# Setting Up a Front Derailer

As we've said many times before, even if you don't remember them, the front derailer is the least necessary part on your bike, and besides that, nobody makes a bad one. Ugly ones, yes, but they all work fine provided you set them up halfway properly. That's not an exaggeration—halfway is about all it takes. Front derailleurs are amazingly tolerant of imperfect set-up, and beyond that, they generally (we've never known an exception) perform well outside their listed capacities. For instance, road front derailleurs designed for two chainrings no more than 14t apart work well on three chainring combinations with 22t differences. For a year or so I pedaled a 50x46x24 front combination with a 13 x 32 rear, and the racing Dura-Ace front derailleur worked as though it were made for it.

It is possible that there's a decrease in shifting performance when we do this, but it would take a laboratory, a stethoscope, and a magnifying glass to detect it. We sure can't. That should put you at ease when you install a new front derailleur. Follow the tips below, and you'll be all set.



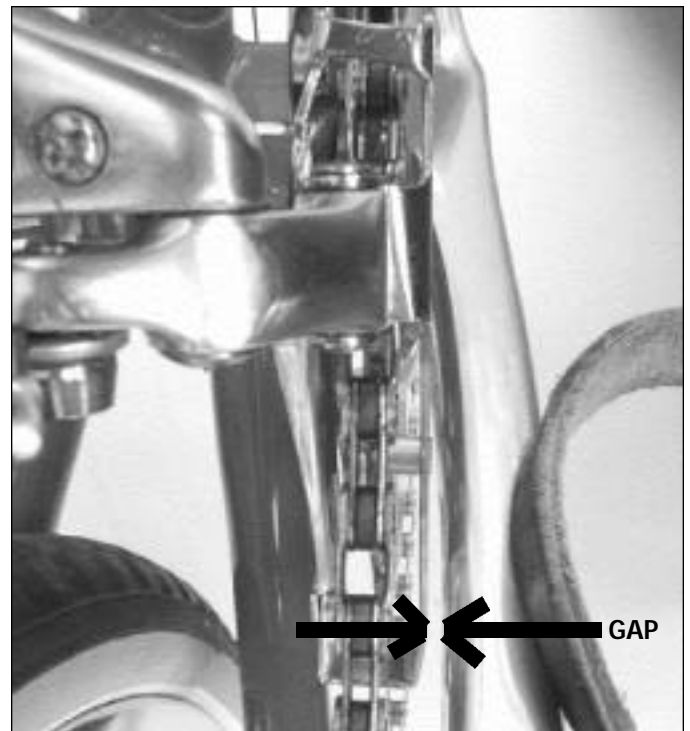
## HEIGHT

When the front derailer's outer plate is directly above the outer chainring, there should be about a 2mm gap. But anywhere from one to four seems to work. Most front derailleurs come with a template for you to follow. This one is shown without. Don't be template-dependent!



## INWARD & OUTWARD TRAVEL

If the front derailer is aligned and at the right height and you're still shifting off the outside of the front ring, turn the outer limit screw clockwise until that doesn't happen. Likewise, you shift off the inside of the small ring, turn the inner screw clockwise.



## CRANK CLEARANCE AND PARALLELISM

When you shift to the outer ring, the crank should still clear the front derailer cage by a few millimeters. At Bstone, the standard was 4mm, and the CPSC might have a standard right around there, as well. But clearance is clearance, and we're comfortable with about 2mm. To increase the clearance to the recommended 4mm (which, I suppose, we are suggesting), turn the outer limit screw clockwise until you can't shift closer than 4mm.

Modern cranks tend to have big gaps between the chainrings and the cranks, to make room for modern, widish front derailleurs; older cranks tend to have smaller gaps between the arm and ring, and older front derailleurs were narrower. So you can always fit an old front derailleur on a modern crank, but often you can't fit a new front derailleur on an old crank. Anyway, you don't want the crank to clank on the derailer every time it passes it. That is also a function of the angle of the cage. Keep the outer cage parallel to the plane of the chainring.

# The Way It Used To Be

by Maynard Hershon

BECAUSE NO ONE CARES WHEN I DO MY WORK, I can ride every day. And I do, nearly every morning, almost always with friends. Occasionally I do ride alone, but only to stay fit enough to hang with the group on upcoming rides.

I do rides arranged the previous night via phone or email, and I do scheduled club training rides. Thus I spend most of my riding time on someone's wheel, at a pace dictated by the group. I'd rather suffer a bit on a fast wheel than grind along alone, watching the sun push shadows across the mountains around Tucson.

I don't train in a systematic or scientific way. I never wear a heart-rate monitor. I just ride. Different rides provide different levels of intensity. Some days I go hard; Some days I noodle along. I've traditionally been able to survive on brisk group rides without training, without doing intervals or hill-work or going to some distasteful gym. I know how to find shelter in a paceline, I'm lean and adequately aerobic. I do okay.

I've ridden with pro teams on "slow days," or days when they were racing in the afternoon and wanted to roll their legs around in the morning. I've ridden with lots of stars, guys and women with giant talent. Almost all rode at a steady, leg-pleasing pace. They had no need to drop me or make me hurt. I'd do okay.

Well, I used to do okay. A few weeks ago, I heard about a Tuesday ride here in Tucson, a club ride from a store I'd never visited. I could climb a long, shallow grade from my home and meet the ride about five miles from its start. I thought, hey, let's do it.

I didn't worry about the pace. It wasn't called The Take-No-Prisoners Ride or the Knife-fight. There were no cash prizes. Just a ride. I've been getting out on my bike. Why worry? I'd never worried before, and always been able to hang. I didn't hang that Tuesday - or on subsequent Tuesdays. I struggled on the ride, and I've been struggling with what I learned from doing it.

We ride north on a road that gains elevation steadily for nearly 20 miles. Then we do a loop in a big retirement community, then come back to town on the same road, mostly downhill. I'm often spun out in the 13; Don't have a 12. On the way out, the road rolls, long rollers, never 39-23 steep, but pretty steep, leg-breaking steep at race pace.

And the ride does go race pace, or nearly race pace. Maybe the pace of some local Masters-class race. The group always splits up: Breakaways split off the front, small groups and solo riders get shot off the back. I get shot off the back.

Too many Tuesdays, I've found myself dropped and hurting. If I'd been dropped by guys in Mercury or Saturn jerseys, or local team jerseys, lean, tough-looking guys with sponsors and bikes they didn't have to pay for, that'd be one thing.

Instead I've watched helplessly as folks who don't look all that much like bike riders grew smaller in the distance. Sucks. Legs hurt, pride hurts. It sucks.

And it isn't just doing badly on the one ride that sucks. This feels global. Much as I hate to consider it, I'm not 25 anymore. I'm gonna be 60 next spring, and I'm afraid I'm face-to-face with the sudden loss of something I had, athletically. If you're over 40 yourself, you may appreciate how much I hated typing that sentence.

I never had big talent, never wanted to kick anyone's butt. When I raced, in the '70s and early '80s, I was a mid-pack finisher - unless the race was almost all uphill, and the really good climbers stayed home. Then I'd do well.

Years passed and I was always able to get along - without Spinning classes or weights or training programs. Long as I rode with groups of less intense, less competitive cyclists, I could put my age out of my thoughts. What did it matter how old I was? Hey, I could always do okay. I could think: You'll be raging fit by fall. You'll do a best-ever EI Tour de Tucson in November, under six hours probably for the 111 miles, and you'll feel as good about your riding as ever.

Really: I could shield my eyes from the passing of the years until last month, when I began meeting that ride on Tuesday mornings. Now I'm scared. I've taken my easy competence for granted for a quarter of a century.

Maybe my best-ever EI Tour is one I've ALREADY done. Will I be okay with that? Hey, I don't know. It'll be an adjustment, and not a pleasant one.

I'm about to find out what kind of cyclist I really am. Will I continue showing up for those Tuesday rides? Hey, they're fun and "good for me" because they stretch me out. Will I ride them even if they show me how much I've lost?

Will I be happy rolling up three minutes late at the halfway stop, a Circle-K store, trying to breathe and squinting through the salty drips on my Oakleys? Or will I quit chasing younger, stronger people, and ride with my less intense friends, never pushing myself, never "seeing stars?"

Is it time for the more upright riding position and the third chainring? Is it time to join a kinder, gentler bike club? Should I feel guilty because I've gotten away with merely riding my bike, while many men and women my age have suffered for their fitness? While they've eaten carefully, spent hours on windtrainers and paid professional coaches for workout programs? I don't know the answers to those questions and I'm scared about my riding. I don't want to suffer several days a week so I can hang on those Tuesday rides. I just want to ride my bike, to stick with 53-39 and 13-23. I want to cruise with the guys over the tops of those long rollers on the way to Oracle, Arizona.

I want it to be easy, the way it used to be.

# Invest In ~~Y~~our Future

## Give a Membership! (or renew yours)

We don't suggest that a Rivendell membership is the finest gift a cyclist can give or receive this year, but there are worse things, and it doesn't have to be the only thing; and on a more positive note, if you have a casual acquaintance you don't want to weird out with a big gift, it could be just the ticket. The giftees needn't be shellac-and-twiners, or fans of leather saddles and steel toe clips to like our catalogue. We also sell erasers and soap, and you can't tell us your cycling friends don't make mistakes or need a washing now and then. And the *Reader's* meanest critic will admit it's among the top ten ad-free cycling publications currently in circulation. Send us \$15 for a gift membership (or a renewal), and we'll send them or you at least 4 Readers in the next year, and at least 3 catalogues and four Flyers. Somewhere in all of that will be coupons worth at least \$75 on qualified purchases, and to top it all off, we'll credit your account \$10 for each gift membership or renewal you buy when you use this form. Photocopy it if you need more room. Thanks.

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