



IN THE HALCYON DAYS OF
**TRICK PHOTOGRAPHY
 AND REVERSE PSYCHOLOGY**

The first story in this issue is another marathon one by Frank Berto. It's a long one, but this story explains how SunTour, a Japanese bike parts giant and one-time world leader, could fall *so* hard *so* fast. If you're too new to bikes to know or care about SunTour, you'll still find it worth reading. I'm not sure it holds messages for us all, but it's an interesting account, anyway. I was around and deeply involved in bike-spec'ing during the crisis time for SunTour, and his account rings true and brings back bad memories. Yen shock, a couple bad moves, a broken promise, and a little plain bad luck combined and crumpled SunTour. Everybody who rides bikes or makes bike parts today—even Shimano—owes SunTour a heap of thanks for its contributions and influence during the formative years of modern bicycle development.

Now I want to talk about something personal, not a fun topic, and it's okay to stop reading after the next sentence. My dad died yesterday, November 15. I got back from a ride and found out. **As** deaths go, it was a great one—a quick heart attack. The light in the bathroom was on, suggesting recent use, and he had his slippers on. He most likely died in the early hours, and he was laying on his bed, curled up a little as though he were cold but couldn't cover himself, and he made a pillow of his hands, which were also on the pillow.

He wasn't the kind of guy, I think, who'd fold his hands together and lay on them, so what I get from that is that he was trying to look peaceful, **as** a message that "It's happening and I'm okay with it." I know he was ready because we'd talked about it. He used to say "I'm an old man, I'm just worn out." (He was just 77.) He was stoic, not in a bad way, but in a way that makes me want to never complain about my health. I'd spent a few hours with him the day before (trap shooting, which was the only thing we could still do together, since he couldn't walk very well), and I'm glad I got to do that. We'd shoot trap every Saturday morning for the past two years. I hope the gun-related anecdote doesn't spoil Rivendell for you, but I'm my dad's son before I'm anything else, and it was the only thing we could do together. We each shot two rounds of 25. I hit twelve and twelve, he hit nineteen and seventeen. He couldn't see or walk well, but he could still hit the birds, however clay they were. In my defense, I use the low-gun technique, which—oh, forget it.

My dad and I were really close, and many of the details I value in bicycles came directly from the way he thought about his gear. One example is the grip-checkering of a gun handle. Are you still with me, even though "gun"? No? See you later. Anyway, he grew up hunting and I grew up hunting with him. That and baseball and fishing is how we bonded (I

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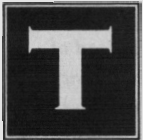
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BY FRANK BERTO

SUNSET FOR SUNTOUR

**SUNRISE - 1912 TO 1973.
ORIGIN OF THE SUNTOUR COMPANY.**



he Maeda Iron Works Company was founded by Shikanosuke Maeda in 1912 in Kawaji-Nagano. Maeda made freewheels and sprockets for bicycles and agricultural machinery. Maeda was owned by the Maeda and Kawai families. A few months later, Maeda moved to Sakai. The original sprockets and freewheels were called 8.8.8.

It was a good time to start a bicycle component business. WW-I ended bicycle imports into Japan. Osaka was a center of Japan's small arms production. After WW-I, many of the Japan's newly established small arms factories started producing bicycles. Similar swords-to-plowshares transitions took place in Saint Etienne, France and Birmingham, England.

In 1931, Mr. Taizo Kumagai married Shikanosuke Maeda's daughter and changed his name to Taizo Maeda.

During WW-II, Maeda Iron Works merged with eleven other small factories. The new company was called Toa Seiki Kosakusho. Taizo Maeda was elected President. The merged company was taken over by the Japan's military government in 1943. It became a subsidiary of the Kure Military Factory and produced ammunition.

On July 10, 1945, a major B-29 raid on Osaka burned out the Maeda factory. The factory was rebuilt after VJ Day and by 1946, 58 employees were producing freewheels at prewar volumes. Twenty-five year-old Junzo Kawai joined Maeda Iron works in 1946. He moved ahead rapidly and became President when Taizo Maeda passed away in 1975.

At the end of WW-II, there were about 7 million bicycles in Japan. The Japanese bicycle industry was centered in Osaka, which had been heavily bombed. The industry slowly rebuilt after WW-II. There was a large demand for basic one-speed bicycles to provide transportation for a Japanese population that had few motor vehicles and little money for gasoline.

Japan's pre-war experience with multi-gear bicycles had been with British Sturmey Archer and BSA three-speed hub gears. Very few derailleur bicycles were imported into Japan in the early years after WW-II.

In 1949, Junzo Kawai visited Europe and brought back samples of freewheels and derailleurs. He concluded that Maeda should make derailleurs and multi-speed freewheels.

The company name changed from Toa Seiki back to Maeda Iron Works in 1949. By 1950, Maeda Iron Works had 122 employees and annual sales of about forty million yen (\$110,000).

THE FIRST SUNTOUR DERAILLEURS.

In 1951, a series of Japan versus U. S. bicycle races were held in Japan. French racing bicycles with Simplex derailleurs were brought to Japan for the races. Shortly afterward, Sanko-Sha came out with a copy of the Simplex Tour de France rear derailleur.

This was the beginning of the Japanese derailleur and multi-sprocket freewheel industry. Shimano, Maeda (SunTour), Cheruvino, Dia/D.N.B./Dynamic, and Sanko were early Japanese derailleur makers. In the mid-1950s, most of them copied the pull-chain Simplex Tour de France racing derailleur.

By 1955, Maeda Iron Works had 177 employees and sales of about 90 million yen (\$250,000).

In late 1956, the first SunTour rear derailleur, the 8.8.8 SunTour Wide, was made for Maeda by the Iwai Seisakusho company. The SunTour Wide was a beefed-up copy of a typical French pull-chain, rod-guided, touring derailleur. It's hard to say if Maeda copied the Simplex Gran Tourisme, the Huret Randonneur, or the Cyclo Tourist, since they were nearly identical. In the 1950s, the French companies copied from each other.

When the Iwai Seisakusho company went bankrupt in **1958**, the Maeda factory started making SunTour derailleur.

Most of the early SunTour derailleur were stamped SunTour (one word with a capital T). Sometimes they were stamped Suntour (one word with a lower case t) and sometimes there **was** a space between the Sun and the Tour (two words). From the very beginning, there was confusion over the “correct” spelling of the company’s brand name, which continues to this day. In this paper, I spell it SunTour.

The Japanese demand for lightweight sport bicycles became significant in the middle **1950s**, providing a domestic market for derailleur and freewheels. The demand for derailleur bicycles lasted only a few years and then the Japanese sport bike buyers switched to three-speed hubs.

In **1959**, about 20 million bicycles were in service in Japan and **3** million bicycles were sold. The vast majority of these were inexpensive one-speed urban transportation bicycles. Sales of mopeds were booming and Maeda supplied moped components.

By **1960**, Maeda Iron works had **156** employees and sales of **120** million yen (**\$330,000**).

The first SunTour Skitter was an inexpensive stamped steel parallelogram rear derailleur was made in the early **1960s**. It was similar to the Huret Svelto.

1964 - INVENTION OF THE SLANT PARALLELOGRAM REAR DERAILLEUR.

Nobuo Ozaki, the head of Product Development at Maeda, invented the slant parallelogram rear derailleur in **1964** and Maeda obtained worldwide patents on the design.

This was a significant invention. The jockey pulley tracked the angle of the freewheel sprockets and maintained a nearly constant distance (chain gap) between the jockey pulley and the sprocket. For the next twenty years, SunTour produced technically superior derailleur. SunTour’s slant parallelogram broke the image of Japanese components being cheap copies of European components.

SunTour had good patent attorneys and they vigorously defended the slant parallelogram design. All of the major derailleur makers incorporated slant parallelograms when the patent expired in **1984**.



Nobuo Ozaki, head of product development at Maeda was the inventor of the slant parallelogram.

The first slant parallelogram rear derailleur was the **1964** Grand Prix. SunTour’s timing was good because the quality bicycle market was turning from hub gears to derailleur both in Japan and world wide. The bicycle races at the **1964** Olympics in Tokyo provided great publicity. SunTour became the largest derailleur manufacturer in Japan.

Derailleur sales went hand in hand with multi-sprocket freewheels. SunTour’s Perfect freewheel was a first class design with three splined sprockets and two or three threaded sprockets. It offered a complete range of sprockets between **14** and **28**. Over the years, larger sprockets; **30-**, **32-**, **34**, and even 38-tooth were offered.

JASCA (Japan Sports Cycle Association) was formed in **1963** and expanded in **1964**. JASCA promoted Japanese bicycle components with joint advertising and marketing. It consisted of Araya (rims), Daido (chains), Dia Compe (brakes), Maeda-SunTour (derailleurs and freewheels), HKK (chains), Kusuki (handlebars and stems), KKT (pedals), Nankai (coaster brakes), Shimano (hubs, freewheels, and derailleur), Sugino (cranksets), Taihei (saddles), and Takagi (cranksets).

JASCA had problems promoting competing companies. In **1969**, JASCA split into two trade associations: JBM (Japan Bicycle Manufacturers) and JEX (Japan Bicycle Parts Manufacturers Group for Export Promotion).

The JBM group consisted of Araya, KKT, Sakae Ringyo (cranksets), Shimano, Takagi, and Tange (tubing). JBM did not have a non-compete requirement. As Shimano grew, it expanded into components that competed with the other JBM members. JBM broke up in **1984**.

The JEX group consisted of Dia Compe, HKK, Maeda-SunTour, Nankai, Sugino, and Taihei. The JEX members agreed not to compete with each other’s products. This turned out to be a liability in the **1980s** when the market

turned to groups. When SunTour sold groups, they bought the other components from their JEX partners. By this time, Shimano was a much larger company with a much broader sales base.

Maeda SunTour opened the Mihara factory in 1965. Total employment was 171. Sales grew to about five hundred million yen (\$1,400,000). This included 600,000 one-speed freewheels, 400,000 multiple freewheels and 300,000 rear derailleurs.

SunTour made its first front derailleur, the Spirt, in 1966. Most of SunTour's front derailleurs worked "backwards" to other makers. Pulling the cable shifted from the large to the small chainwheel. The return spring shifted from the small to the large chainwheel. This was a better design because both levers gave you a lower gear when you pulled back. In addition, the down shifts are more severe as you drop to the smaller chainwheel under load. I used to write that SunTour worked correctly and that other front derailleurs worked backwards. Still, many writers criticized SunTour's unconventional design.

The SunTour Grand Prix rear derailleur was followed by the Competition, the Honor, the V, the second Skitter (RD 2200), and the Hero.

Both SunTour and Shimano wanted to export, but developing an export market for derailleurs was a slow process. The French component companies, especially Simplex, were well established. The mass-produced Simplex Prestige rear derailleur was largely plastic and cheap to manufacture. French bicycle companies were the largest exporters of derailleur bicycles and they used French components.

By 1965, SunTour and Shimano taken over the Japanese domestic market for derailleurs and freewheels. Until about 1968, SunTour sold only to the domestic Japanese market. SunTour made better derailleurs but Shimano was the better marketer and by 1970, Shimano had the largest share of the domestic Japanese market.

From 1965 to 1970, "High-Risers" or "Sting-Rays" were a hot item in the U. S. The more expensive models had a five-sprocket freewheel with a "Stick-Shift" lever mounted on the top tube. American high-riser bicycles were one of the first markets for Japanese components. SunTour sold a few derailleurs and stick shift levers but Shimano and Huret were the main suppliers.

Interestingly, SunTour's made an indexed stickshift lever, called 5 Speed Click, in 1969. SunTour also made a combined freewheel plus rear hub, called Unit-Hub, in 1969 for small wheel bicycles (Figure 10). This was a decade before Shimano offered indexed shifting or freehubs. SunTour did not follow through on either of these innovations.

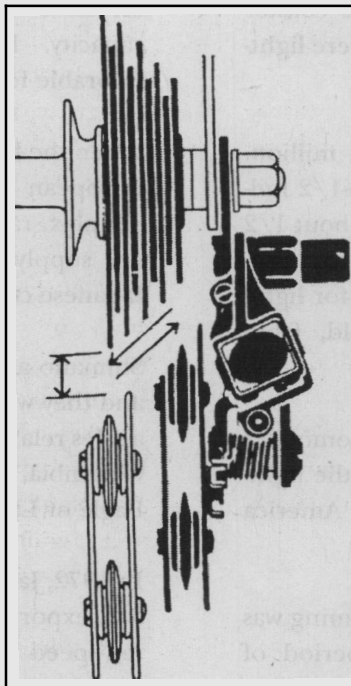
In 1968, Junzo Kawai made extensive studies and concluded that it was time to enter the international market. SunTour attended the European and American bicycle shows, ran ads in the trade magazines, and made sales calls on the bike makers.

Shimano did better in the U. S. market. Shimano made a first class threespeed hub and they aggressively marketed hubs, freewheels, and derailleurs. They established the Shimano American office in New York in 1965. By 1969, AMF, Columbia, Huffy, and Murray were equipping their low priced light weight bicycles with Shimano components.

SunTour started advertising in American magazines in 1968, but they had to wait for Japanese bicycle makers, like Panasonic, Fuji, and Bridgestone, to develop an export market for Japanese bicycles with SunTour derailleurs.

The Japanese bicycle industry recognized the potential for export growth of the light weight bicycle market. The Japan Trade Center exhibited Japanese components at the 1970 Amsterdam show. The Japan Trade Center set up bicycle show rooms in Los Angeles and New York in the early 1970s.

Sturmey Archer made 3-speed AW hubs with a SunTour logo on the shell for Maeda in the 1970s. The Sturmey Archer manufacture is not mentioned in either company



Sun Tour's slant parallelogram moved the jockey pulley down as it moved inward, providing a constant "chain gap", and precise shifting.

histories. SunTour made coaster brakes, or had them made, from **1979** to the present.

1970 was a turning point for SunTour. It built a new factory in Shiga and changed the company name from Maeda Iron Works to Maeda Industries. The SunTour brand name was used for all products. Maeda Industries had **244** employees and sales of **900** million yen (**\$2,500,000**). It made **1,700,000** one-speed freewheels, **600,000** multiple freewheels, and **800,000** rear derailleurs. Sales of front derailleur and shift levers closely tracked rear derailleurs.

1971 TO 1975 - THE U.S. BIKE BOOM.

In **1970**, **7** million bicycles were sold in the U. S.. **5-1/2** million were children's bikes. **1.2** million were coaster brake balloon-tired adult bicycles. Just **200,000** were lightweight 3-speed or derailleur bicycles.

By **1972**, total bicycle sales had doubled to **14** million. Sales of children's bikes remained constant at **5-1/2** million. Sales of adult balloon-tired bicycles fell to about **1/2** million. Sales of lightweight bicycles exploded to **8** million. Between **1970** and **1972**, the U. S. market for lightweight adult derailleur bicycles grew forty-fold, from **200,000** to **8,000,000**.

In **1972**, **1973**, and **1974**, more bicycles than automobiles were sold in the U. S. The center of gravity of the lightweight bicycle market shifted from Europe to America and has stayed here since.

The bike boom happened in **1972** because the timing was right. The **1960s** and early **1970s** were a period of unprecedented wealth for young people in the U. S. There was a growing awareness of fitness and the need for exercise. Traffic congestion and air pollution were widely discussed. A small group of enthusiasts started adult bicycle touring. All of these factors set the stage for a dramatic surge in sales of lightweight bicycles.

The baby boom children had grown and got their first good jobs. The same social and economic forces that allowed **15-** to **30-**year olds to buy expensive high-fidelity equipment, camping equipment, cameras, and other consumer goodies unleashed the huge cohort of baby boomers onto the bicycle market. It was an easy sell because a lightweight ten-speed bicycle was fast and fun

and exotic and a lot cheaper than a good hi-fi. Once the boom started, it fed on its own success.

The oil shortage did not cause the bike boom. The Arab-Israel war began in October, **1973**, and the lines at the gas stations didn't happen until the end of the year. The bike boom was **two** thirds over and bike sales were winding down for the winter. The best that can be said about the connection between the bike boom and the energy crunch was that public concern over the oil crisis kept the bike boom going for an extra year.

In the early **1970s**, Simplex and Huret doubled their factory capacity. Peugeot and Motobecane, the giants of the French bicycle industry, had the capacity to churn out low-priced ten-speeds for export. The smaller French bicycle companies had also expanded their production capacity. Exchange rates for exports to the U. S. were favorable for France and less favorable for Japan.

When the bike boom took off in late **1971**, the "big three" European component makers, Campagnolo, Huret, and Simplex, ran out of manufacturing capacity. They could not supply the bike boom demand, which allowed the Japanese component makers to become major suppliers.

Shimano and SunTour had also expanded their factories and they were quick to fill the void. Shimano already had a sales relationship with the low-priced U. S. makers. AMF, Columbia, Huffy, Murray, Rollfast, and Ross used Shimano Eagle or Lark derailleurs on many of their ten-speeds.

In **1972**, Japan produced about **5** million bicycles per year and exported more than a million to the U. S. Japanese ten-speed bicycles used either SunTour or Shimano gear train components. Japanese bicycles, with brand names like American Eagle (later Nishiki), Campania, Centurion, C. Itoh (later Bridgestone), Fuji, Panasonic, and Sekai took a significant share of the U. S. market. Some of the Japanese imports were inexpensive children's bikes but Japanese adult ten-speed bicycles got a reputation for quality and value.

When the bike boom exploded, Shimano and SunTour had **two** advantages over Huret, Simplex, and Campagnolo. First, they had concentrated on the low-priced market. Their low-priced derailleurs offered better performance and value than the low-priced Huret Allvit or Svelto, Simplex Prestige, and Campagnolo Velox or Valentino derailleurs.

Second, the Japanese derailleurs were designed for the “Alpine” gearing that was popular on low-priced ten-speed bicycles in the U. S. market. Alpine gearing used a 52-40 chainwheel and a 1417-20-2428 freewheel. The European derailleurs were designed for European gearing, which used smaller freewheel sprockets.

In 1972, Milremo, a joint venture of Ron Kitching and Andre Bertin, became the European agents for SunTour derailleurs and freewheels. In 1975, Milremo added Shimano Dura-Ace components. This was the beginning of the Japanese invasion of Europe. Milremo selected good performing components that were good value and sold them widely.

When Milremo advertised and distributed Japanese derailleurs, the handwriting was on the wall for Huret and Simplex. Interestingly, a few years later, Ron Kitching opted for SunTour in Britain whilst Andre Bertin opted for Shimano in France.

By 1973, SunTour dominated the middle priced market with narrow-range racing models, mid-range sports models, and wide-range touring models. Unlike Huret and Simplex, SunTour fine tuned the cage pivot location to match the expected gear range. There were SunTour steel models for the low priced market and alloy models for the low-to-medium priced market. All SunTour rear derailleurs had had slant parallelograms and most had an “open” cage so that the chain could be easily removed. The Maeda-USA office and warehouse opened in New Jersey in 1973.

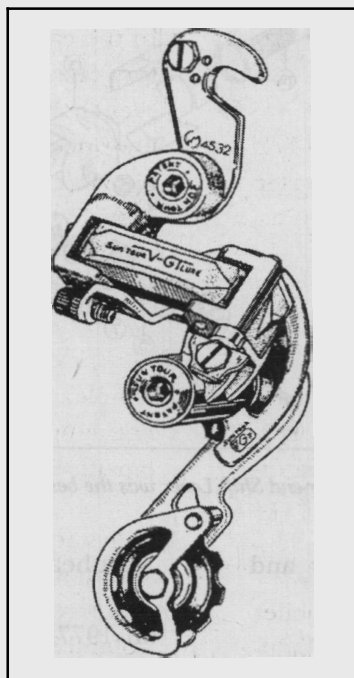
HIGH NOON - 1974 TO 1984.

By 1974, magazine writers, shop mechanics, and bicycle buyers were comparing derailleur performance. It was no contest. A 1974 “Consumer Reports” bicycle test reported, “SunTour was far and away the easiest to shift and the most certain of arriving at the right sprocket.” I said much the same thing in my derailleur articles in “Bicycling” magazine.

SunTour was the preferred derailleur maker in the export market. SunTour’s new modern factory in Shiga now

made all of the steel and aluminum forgings. The free-wheels, derailleurs, and shift levers were assembled in the Mihara and Sakai factories.

From 1970 to about 1984, buyers could select from hundreds of derailleurs. SunTour’s rear derailleurs were the best shifting and the best value on the market. Huret’s Duopar shifted better on wide range gearing but it was much more expensive. Only SunTour’s GT derailleurs and Huret’s Duopar could comfortably handle 34-tooth rear sprockets.



1973 Sun Tour VGT Touring Rear Derailleur could handle a 34-tooth sprocket. The “open” cage allowed easy chain removal.

SunTour derailleurs were inexpensive, especially on the replacement market. It was hard for snobbish bike writers to accept that a ten-dollar SunTour shifted better than a forty-dollar Campagnolo. Campagnolo’s main advantage was their better bearings, which lasted longer. A Nuovo Record would shift poorly forever.

SunTour’s Power shift levers included a small ratchet wheel that disconnected the friction from the lever when pulling on the cable. SunTour had a patent on this feature. Bar-Con bar end shifters had a lovely “light” feel and they remained in production until indexed shifting took over. SunTour sold more Bar-Cons than all other bar end shift levers combined. Mixing SunTour Bar-Cons with somebody else’s derailleurs was a neat touch that said this bike builder knows his business.

In 1974, SunTour was making Perfect, Procompe, and Winner freewheels. The quality was uniformly high. Gear freaks could get a complete range of sprockets from 13 to 34.

By 1975, Maeda Industries had 291 employees and sales of about 3000 million yen (\$10,000,000). They made 2,300,000 one-speed freewheels, 2,100,000 multiple freewheels, and 1,600,000 rear derailleurs. Shift lever sales exceeded rear derailleurs because of the popularity of the Bar-Cons.

By the end of the bike boom, Huret and Simplex had a reputation for poor quality. SunTour and Shimano, took over the U. S. derailleur market for low and medium priced bicycles. Their combined market share went from about 25% in 1973 to 90% in 1978. By 1983, more than

half of the derailleur bikes sold in the U. S. used SunTour. Shimano supplied almost all of the rest. A few Huret Duopars were used on top quality touring bikes and a few Campagnolo Nuovo Records were used on expensive racing bikes.

The graph on the next page shows U. S. market for gear train components. I prepared this graph by laboriously counting mass market bicycles in the magazine buyer's guides for each year. I picked an upper price range to excluded small-production models. The chart shows bicycle models, not bicycle sales. Shimano may have sold more derailleur because they were the main supplier to the low-priced U.S. makers.

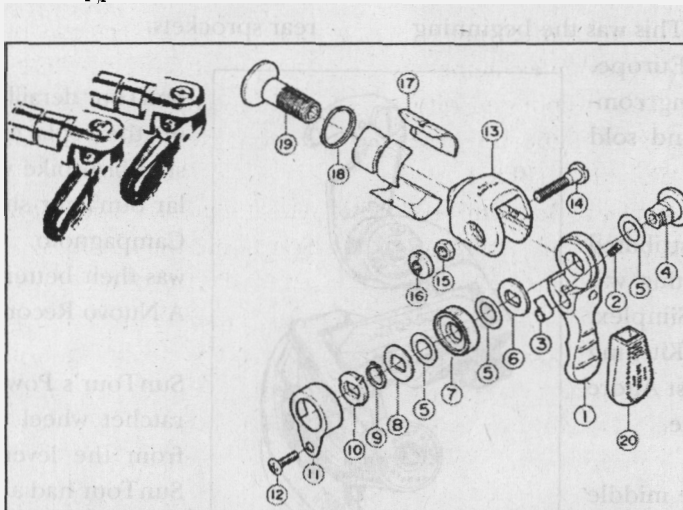
The U.S. bicycle market changed continuously. It was necessary to follow the trends (or fads) to survive. The mid-70s was the period of galloping "inflation" and bicycle prices more than doubled. In 1976, SunTour had eleven different rear derailleurs in the low and medium price range.

In 1977, Japan produced more than six million bicycles, and exported more than a million. However, by the late 1970s, Japan's labor costs were as high as Europe's, which meant that Japan had to compete on quality, performance, and innovation rather than just price. At that time a dollar bought about 250 yen compared to about half of that from mid-1985 to the present.

SUNTOUR'S PRICING POLICY.

In 1975, SunTour introduced the Cyclone derailleur, which was a lighter, polished version of the SunTour V. SunTour's policy was to add a markup to production cost to set a "fair" price. They did not charge what the traffic would bear. In 1975, a Cyclone cost \$16.00, a Campagnolo Nuovo Record or a Huret Jubilee cost \$40.00 and a Shimano Crane cost \$20.00. The Nuovo Record and Crane both weighed about 200 grams and the Jubilee weighed 140 grams. The Cyclone weighed 175 grams and it shifted best.

The result of SunTour's pricing policy was that its top derailleurs were specified for medium-priced bicycles, while their competitor's top derailleurs were found on top-of-the-line bicycles. With 20-20 hindsight, SunTour should have charged more for their top lines and invested more on research and development. SunTour never had more than twenty people working on research and development and this was simply not enough to design and develop and test new products for the 1980s marketplace.



1972 SunTour Bar-Con bar-end Shift Lever was the best available.

In 1977, SunTour introduced the Superbe group to match Shimano's Dura-Ace and 600 groups. Campagnolo had been selling groups (complete sets of components with matching cosmetics) for twenty years. SunTour used their partners in the JEX combine to produce the Superbe groups of derailleurs, shift levers, cranksets, brakes, hubset, pedals, headsets and seat posts. The price was a bargain. Superbe was designed to match Campagnolo's longevity so the front and rear derailleurs were

a bit heavier than Cyclone. Not by much, but by some.

In 1977, SunTour introduced the Vx derailleurs, a cosmetic upgrade of the V models, and the Ultra-6 freewheel and chain. By narrowing the sprockets, spacers, and chain width, they made a 6-speed freewheel that was the same width as a 5-speed and fitted on a 120-mm hub. Two years later, this became Ultra-7 for 126-mm hub widths. SunTour's 1980 New Winner freewheel offered complete flexibility. One body could be set up with 5, 6, or 7 sprockets, wide or narrow spacing, and almost any combination of sprockets between 12 and 34 teeth.

SunTour's narrow-spaced Ultra sprockets and chains sold well, but they did not shift as well as the conventional wide spacing. SunTour bought chains from HKK, their JEX partner. HKK did not make a good shifting narrow chain. The Sedisport was best chain for Ultra sprockets.

Shimano introduced Positron indexed shifting for low-priced bicycles in 1977. Positron was redesigned three times over the next three years. It sold poorly in spite of

heavy promotion. In **1980**, SunTour introduced the Mighty Click rear derailleur with matching indexed shift levers. They also sold poorly. The makers of low-priced bicycles were not ready for indexed shifting in **1980**.

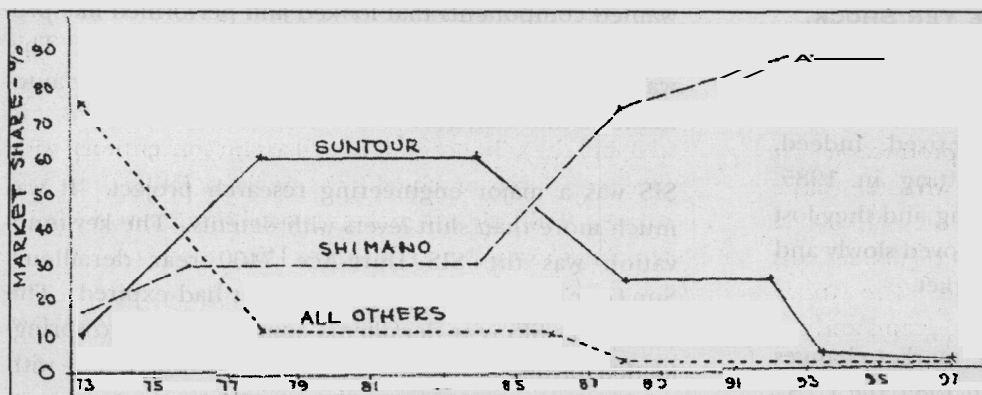
By **1980**, Maeda Industries had **330** employees and sales of **8000** million yen (\$**38,000,000**). They made **1,500,000** one-speed freewheels, **4,500,000** multiple freewheels, and **3,800,000** rear derailleurs.

By **1981**, the bike industry was using the annual model changes in derailleurs and groups to provide excitement for each year's "new" bicycles. SunTour responded with cosmetic changes. Superbe became Superbe Pro. Cyclone became Cyclone 11. ARx, AR, and BL (Blue Line) were new lines. SunTour also made a **38-tooth** AG (Alpine Gear) freewheel sprocket and an AG rear derailleur to handle it.

SunTour had a long term special relationship with certain bike makers. Fuji got a one-year exclusive on the first Ultra-6 freewheel. Nishiki got a Le Pree with two lower pulleys—one strange looking rear derailleur.

Shimano introduced aerodynamic AX components in **1981** to deafening silence. Coming after Positron, it really seemed that Shimano had lost its way.

In **1982**, the year before mountain bikes became significant, SunTour equipped about **60%** of the medium-priced bicycles, compared to Shimano's **30%**. SunTour had **13** different lines of derailleurs. From the top they went; Superbe Pro, Superbe, Cyclone Mk 11, Cyclone, BL, ARx, Vx, AR, Seven, Volante, Honor, GT, and Mighty Click. Most lines had a racing and a touring model. Vx rear derailleurs came in four different capacities.



U.S. Derailleur Market Share. (Shows bicycle models, not total number of bicycles, Excludes custom-made.)

SunTour derailleurs, shift levers, and freewheels were the favorites of the replacement market. If you came into a bike store with a poor shifting Simplex or Huret derailleur or a sick Regina or Cyclo freewheel, the standard repair was to replace it with SunTour.

1983 - MOUNTAIN BIKES TAKE OVER.

The mountain bike was born in Marin County in the late **1970s**. The early Breeze, Fisher, and Ritchey mountain bikes used an eclectic mixture of components: Huret Duopar or SunTour VGT rear derailleurs, Simplex front derailleurs, SunTour Power thumb shifters, Magura motorcycle brake levers, and Mafac cantilever brakes.

The **1982** Specialized Stumpjumper and Univega Alpina Sport were the first mass produced mountain bikes. They established that mountain bikes were no fad. SunTour and Shimano kept on top of mountain bike developments. SunTour sponsored a Fat Tire Conference at Crested Butte, Colorado, in September, **1982**, and President Junzo Kawai attended.

SunTour moved quickly. In **1983**, it introduced the SunTour Dirt Component Ensemble. Sugino and Dia-Compe supplied the triple crankset and cantilever brake set. Almost all **1983** mountain bikes used SunTour's Dirt group.

Everything was on target except the Mounitech rear derailleurs. They shifted beautifully. I recommended Mounitech after using one to replace the Huret Duopar on my loaded touring bicycle. The fatal flaw was not obvious. The large diameter jockey pulley housed a spring to move the second parallelogram. The 1-inch diameter seal was inadequate. After about a year of road service or a few months of off-road service, the pulley wore out and it was not easily rebuildable.

SunTour also introduced the Superbe Tech rear derailleurs in **1983** with an elegant enclosed parallelogram. The design was flawed. The internal pivots wore or the return spring failed. It took special tools to repair and reassemble a Tech derailleur and no one tried.

The 1983 New Winner and the later Winner Pro were the most versatile freewheels ever made. A single body could be used for wide spaced 5- or 6-speeds, or narrow spaced 6- or 7-speed combinations with almost complete availability of sprockets from 12 to 34 teeth. It was not a simple system. There were three different spline sizes, three different thread sizes, and eight different spacers. There were five different 16-tooth sprockets.

1984 was another good year for SunTour. Most of the 1984 bikes had been specified before the problems with MounTech and Superbe Tech were known. However, these problems hurt SunTour's reputation.

The common feature of the problems was SunTour's small size. Their small development staff could not completely check out the outpouring of new models. MounTech and Superbe Tech were rushed to market with inadequate testing. In the early 1980s, when SunTour had 20 people working on research and development, Shimano had more than 200. By this time, Shimano had about 2000 employees compared to SunTour's 350.

Shimano introduced the 600 road bike group and the Deore XT mountain bike group in 1983. Deore XT was introduced too late for the 1983 model year but it was used on about 40% of the 1984 mountain bikes. 600 was a brilliant marketing innovation. It looked expensive and it brought gruppissimo prestige down to the \$300 bicycles. Shimano gave Aero AX and Positron a quiet burial and carried on as if nothing had happened.

SUNSET FOR SUNTOUR 1985 TO 1995.

1985 - INDEXED SHIFTING AND THE YEN SHOCK.

Mountain bikes and indexed shifting were major changes that took over the bicycling market in about two years. Shimano adapted to these changes and thrived. Indeed, Shimano introduced SIS indexed shifting in 1985. SunTour waited a year on indexed shifting and they lost market share. Huret and Campagnolo moved slowly and they ceased to be a factor in the U. S. market.

SunTour's struggle to keep up with the market changes was exacerbated by the revalued yen. In 1985, the U. S.,

Canada, Germany, and Great Britain were suffering massive trade deficits with Japan. The five governments met in mid-1985 and signed the G 5 agreement. Over the next six months, the value of the yen went from 240 to 125 per dollar.

The 'Yen Shock' had a profound effect on the bicycle market. In 1985, the major Japanese bicycle makers exported full lines of bicycles to their U. S. dealers. After the yen shock, Japanese bicycle makers could not compete profitably in the low or medium-priced market and that market quickly shifted to Taiwan and later to China. As Japanese wages rose and the yen kept appreciating against the dollar, only high-priced bicycles were exported from Japan.

Many Japanese component companies, including SunTour, rushed to build branch factories in Taiwan but the Taiwan construction industry could not build the new factories fast enough. Shimano had built its Singapore factory in 1973 and they quickly shifted production of the lower priced lines to Singapore.

I remember the 1985 bike show when Shimano introduced the Dura-Ace EX with SIS (Shimano Index System). It did not seem like a huge deal at the time. Biopace non-round chain rings generated most of the hoopla at the Shimano booth. Shimano engineers were very confident. The marketers were concerned about the problems with AX so the shift levers included a friction shifting backup.

Shimano's development of SIS is an interesting story. A year after the Aero AX fiasco, Shimano commissioned a major survey of the U. S. adult bicycle market. The survey concluded that the market had changed from hard core racing and touring enthusiasts to yuppies. The yuppies wanted components that looked and performed like professional racing equipment but were easier to use. This was the same market shift led to products like fully automatic 35-mm cameras.

SIS was a major engineering research project. It was much more than shift levers with detents. The key innovation was the SIS Dura-Ace 7400 rear derailleur. SunTour's slant parallelogram patent had expired. The Shimano's SIS rear derailleurs combined the two spring-loaded pivots, developed by Simplex in the 1940s, with

SunTour's 1964 horizontal slant parallelogram. It was the first computerdesigned rear derailleur. By optimizing cage dimensions and spring tensions, the design provided a nearly constant chain gap, which was the key to reliable indexed shifting. Shimano developed a factor, Ridable Range of Adjustability, to measure how far a system could be out of adjustment and still be ridable.

After a brief trial, the professional racers refused to use Dura-Ace AX and this was a major cause of the failure of the aerodynamic concept.. Shimano was determined that SIS Dura-Ace would be accepted by the professional racers. Shimano's two professional race teams used SIS Dura-Ace in 1984 and 1985. Shimano mechanics and engineers accompanied the teams. Problems were quickly identified, corrected, and reported back to Japan. Shimano leaned from their Positron experience about the quality control problems with low-priced bikes. SIS was introduced from the top (Dura-Ace) down to the lower-priced levels. The first SIS Dura-Ace gear trains were properly installed on first class bicycles by trained mechanics.

SunTour peaked in 1985 but no one knew it. The 1985 catalog showed 26 different rear derailleurs. At that time, SunTour offered the best combination of performance and value in conventional friction-shifting gear trains. There were three complete road bike groups, Superbe Pro, Superbe, and Cyclone. The new XC mountain bike group had a new rear derailleur that eliminated the problem Mountech jockey pulley.

Roller cam brakes were licensed from Wilderness Trail Bikes. There were early problems when SunTour substituted plastic for the brass rollers. Performance quickly degraded in mountain bike service and SunTour had to retrofit brass rollers.

BMX (Bicycle Moto Cross) was a major market and SunTour had full BMX groups in three anodized colors. Nevertheless, SunTour's share of the U. S. market fell from 60% to 50%.

The biggest single problem was the revaluation of the yen. Orders had been written in foreign currencies, rather than yen, so SunTour suffered a major loss and had to borrow to finance the move to Taiwan and the development of new mountain bike components.

SunTour hosted three focus group meetings at the 1985 U. S. bike show. Each group had about twenty bike dealers. SunTour asked the dealers what they thought of Shimano's indexed shifting. The consensus response was that it was too complicated and too expensive and it would just be another Shimano fad. Based on this advice, SunTour decided that responding to Shimano SIS could be postponed for a year. This turned out to be dead wrong. The wolf was at the door and SunTour did not have a year of grace.

1986 was a retrenchment year. SunTour introduced the Sprint group, priced between Cyclone and Superbe. Sprint was splendid value and everything looked expensive, but it was not indexed. Superbe Pro was dropped.

Shimano proved out the SIS concept with 1985 Dura-Ace. All of the bicycling magazines raved about the performance of Dura-Ace SIS. Shimano also used Bio-Pace non-round chainrings as an effective marketing tool.

In 1986, SIS trickled down from Dura-Ace to the medium-priced 600 and L Series groups. SIS was in short supply and Shimano could insist that the bike makers buy complete sets of the critical gear train components. They could also insist that the key dimensions of the bicycle frame meet Shimano's specifications. Indexed shifting bicycles flew out of the bike stores. The maxim was, "If it doesn't click it won't sell."

Shimano took over most of SunTour's customers in the low priced Original Equipment Manufacturer (OEM) market. Shimano's costs were lower because their low-priced components were made in the Singapore factory. SunTour's Japanese factories were still suffering from yen shock and could not match Taiwan or Singapore prices. SunTour's U. S. market share fell to about 40% and Shimano passed SunTour in 1986. SunTour lost more money and SunTour-USA borrowed against its inventory to help cover the losses.

1987. THE FAILURE OF ACCUSHIFT,

SunTour realized that the market had shifted to indexed shifting. 1986 saw a crash program to develop indexed shifting for all of SunTour's groups. There was no time for the luxury of trickle down from Superbe to the less

expensive lines. 1987 would be the catch-up year. All of the engineering and development was handled by about twenty people.

In 1987, SunTour introduced indexed shifting across the board with five road bike and four mountain bike groups. Eleven indexed rear derailleurs were combined with ten indexed shift levers, and nine freewheels with five, six, or seven sprockets and wide- or narrow-spacing.

The new 1987 rear derailleurs for road bikes were redesigned to include a spring-loaded top pivot. This was similar to Shimano's SIS design. SunTour called it Twin Tension. The mountain bike rear derailleurs did not pivot on the top. They had longer chain gaps and needed a chain that was "stiffer" laterally. Daido (DID) made all of SunTour's chains. Four different chains were needed for the different derailleurs and freewheels. You could not mix and match chains. Using Shimano's criteria, Accushift had a narrow Ridable Range of Adjustability.

The technical problems were fairly minor and could have been overcome with more time and testing. The critical failure was SunTour's inability to "police" the low-priced market. SunTour desperately needed orders so they could not require complete SunTour groups of Accushift-compatible components. They made strong recommendations, but major bike makers, including Schwinn and Raleigh, decided to use up their inventory of old French freewheels, hubs, cables, and casings. Worst of all, they used up the miles of cheap chain in their warehouses. These old components did not provide the critical tolerances needed for reliable indexed shifting.

As the prototypes were assembled and the first bikes were shipped, problems erupted. SunTour rushed engineers and service people from Japan to the factories and the bike shops to identify and correct the problems. Once in a "fire fighting" mode, the cost of doing business increased dramatically and this chewed up the profits needed to develop new products.

When the SunTour AccuShift-equipped bikes reached the customers, they would not index shift well, or they would work for a few weeks and then go out of adjustment. This led to unhappy bicycle buyers and unhappy bike shop mechanics. The "shop rats" in the bike stores quickly learned to prefer Shimano SIS and their complaints

worked back up the line to the distributors and eventually to the people who were selecting the Original Equipment Manufacturer (OEM.) components for the 1988 bikes.

In 1987, Shimano had SIS across the line, Dura-Ace, Santé, 600, 105, Deore XT, Deore, and MS. It was SIS with three years of testing and development. In 1987, Shimano started making narrow, bushingless chains, and this improved indexed shifting on the narrow-spaced 6- and 7-speed freehubs.

In 1987, SunTour's U. S. market share dropped below 30%. SunTour posted a large loss and they had to borrow more money from the banks. To raise cash, they sold the old Sakai factory that sat on valuable land. The head office relocated to the Mihara factory, which was out in the country and required a long commute by bus.

By 1988, SunTour's Taiwan factory was making the low-end (non-indexed) components. The new mountain bike rear derailleurs got spring-loaded top pivots, which improved their indexed shifting. SunTour's new 2000 derailleurs brought indexed shifting down to the \$200 price range.

In 1988, Shimano Deore dominated the profitable high end mountain bike market. SunTour's U. S. market share dropped below 25%. SunTour's Japanese management did not want to hear bad news from SunTour-USA. Management truly believed that SunTour was still on a par with Shimano and that the wheel would turn and SunTour would again be on top.

Although it was no help to SunTour, they certainly were not the only ones to misread the market. Sachs (Huret) and Campagnolo totally missed the switches to mountain bikes and indexed shifting. Their share of the 1988 U. S. market for bicycles selling for less than \$600 was less than one percent.

For 1989, SunTour had four new AccuShift road groups: GPX, Olé, Edge, and Blaze. There were two new mid-priced mountain bike groups, XCE 4050 and XCM 3040, and four new low-priced mountain bike rear derailleurs. All of the important SunTour rear derailleurs now had two spring-loaded pivots to go with the horizontal slant parallelograms. In 1989, SunTour was almost as good as Shimano but the component specifiers made their decisions based on 1987. SunTour never got a second chance.

016 was a sad story. The group was produced in response to a request from a major U. S. brand (starting with an N) for a group to compete with Shimano's Santé. When the time came to place the order, the purchasing manager changed his mind and Olé was an orphan. SunTour could ill afford such broken promises.

SunTour-USA came up with a great advertising promotion for 1989. They offered a pair of top-of-the-line groups to all of the U. S. custom bike builders, one to try out and one to install on a 1989 show bike. It worked beautifully and it helped to slow down the decline of SunTour's market share.

In the 1980s, SunTour's production policy was to satisfy the OEM market first and then ship components for the replacement, or after-market. This was a fine with VGT derailleurs and Perfect freewheels, with a 10-year shelf life. When the component market shifted to annual model changes, the policy meant that SunTour missed the profitable summer season for after-market sales and its U.S. warehouse filled up with unsaleable obsolete inventory.

In 1989, SunTour-USA finally convinced Japan to ship replacement components early in the spring. SunTour had a good year in the replacement market and they did well in the low and medium priced OEM markets. Its market share rose to about 30% and SunTour-USA showed the first profit in four years.

Shimano got two important patents in mid-1988. One covered the design of indexed shifting rear derailleurs and the other covered indexed shift levers with a friction option. In 1989, Shimano charged SunTour with patent infringement. SunTour counter-charged Shimano with infringing a 1987 SunTour patent on front derailleurs with bulges on the cages. The patent suits dragged on for two years until both sides shook hands and agreed to stop enriching the U. S. legal profession. The worst result for SunTour was that the lawsuits demanded management and engineering attention at a critical time.

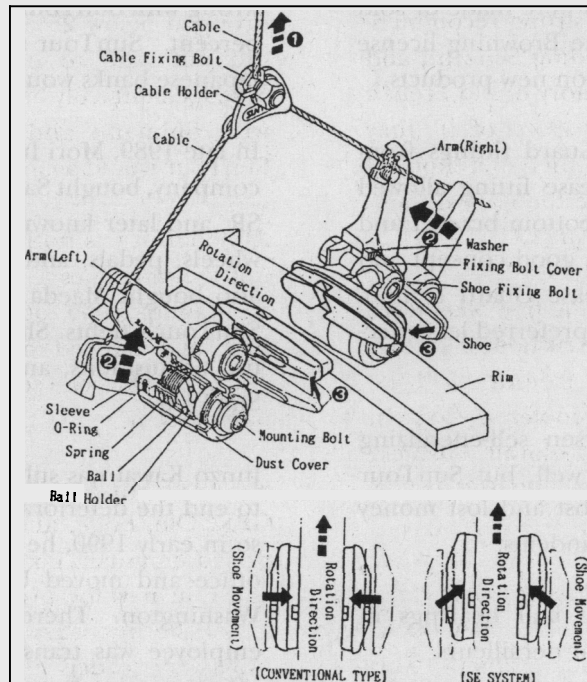
SunTour-USA had been headquartered in New Jersey from the early 1970s. In 1989, they moved to Marin County in Northern California to be closer to the mountain bike arena. Only four people made the move to California, but SunTour was able to hire competent replacements in the northern California bicycling hotbed.

The New Jersey warehouse was closed as part of the move to California. The obsolete inventory was sold off for a quarter of book value and eventually wound up in South America. SunTour-USA maintained tight inventory control in their new California warehouse.

However, the working relationship between Maeda SunTour in Japan and SunTour-USA turned sour. Both sides blamed the other for SunTour's misfortunes.

1990. THE LAST HURRAH.

By 1990, SunTour was technically on a par with Shimano. AccuShift Plus shaped sprockets competed with Shimano Hyperglide sprockets, and PowerRing chainwheels competed with Shimano Superglide chainwheels. There was a new flexible bushingless chain and X-Press push button shifters for mountain bikes. All of the mountain rear derailleurs were redesigned to work with the revised sprockets and chains.



1990 SunTour SE Cantilever Brakes. Very powerful stopping power. SunTour underestimated the cost to manufacture.

Finally, there was a SunTour freehub, which was essential for wide 7-speed mountain bike hubs. The shift to freehubs destroyed the profitable market for separate screwed-on freewheels.

SunTour did not want a "just as good" image, but its small research and development group was not producing any more slant parallelograms. By this time, SunTour had only half a dozen engineers working on research and development. SunTour licensed three developments to provide excitement and uniqueness.

First, SunTour licensed the Browning Electronic AccuShift Transmission (BEAST), the swinging gate crankset invented by Bruce

Significant Bicycle Developments - 1978 to 1998.

| | Shimano | SunTour | Sachs-Huret | Campagnolo | Other |
|------------------------|---------|-------------|-------------|-------------|------------|
| Indexed Shifting-Road | 1985 | 1987 | 1987 | 1992 (1987) | |
| Indexed Shifting-Mtn. | 1987 | 1987 | 1989 | 1990 | |
| Modern Rear Derailleur | 1985 | 1987 | 1988 | 1991 | |
| Freehub | 1978 | 1989 (1969) | 1994 | 1991 | |
| Bushingless Chain | 1986 | 1990 | 1978 | 1990 | Sedis 1978 |
| Brake-Shift Levers | 1990 | never | 1994 | 1992 | |
| Hyperglide Sprockets | 1989 | 1990 | 1994 | 1994 | |
| Superglide Chainwheels | 1990 | 1990 | 1994 | 1994 | |
| Compact Chainwheels | 1994 | 1992 | 1994 | 1992 | |
| 7-Sprockets | 1981 | 1980 | 1988 | 1987 | |
| 8-Sprockets | 1989 | 1992 | 1991 | 1991 | |
| 9-sprockets | 1997 | | | 1997 | |
| Clipless Pedals | 1987 | 1990 | never | 1988 | Look 1985 |

Browning of Browning *Arms* fame. This eliminated the front derailleur and provided almost instantaneous shifts.

The Beast name was prophetic. The Taiwan factory could not meet the promised deliveries. The first Beasts were 18 months late. By that time, the expensive 1990 bicycles designed for Beasts had been retrofitted with triple chainrings and front derailleurs. The word got out and there were no 1991 buyers. Very few Beasts were made or sold but SunTour paid a great deal for the Browning license and they had to cut back on research on new products.

Second, SunTour licensed Grease Guard fittings from Wilderness Trail Bikes. A small grease fitting allowed grease to be injected into the hubs, bottom bracket and headset, to flush out water. This is a good concept and Wilderness Trail Bikes still sells Grease Guard components at premium prices. The public preferred less effective "sealed" bearings.

Third, SunTour licensed the Pedersen self-energizing cantilever brake. These performed well, but SunTour underestimated the manufacturing cost and lost money on every set. They were popular on tandems.

Finally, SunTour installed cartridge ball bearings in Superbe-Pro and XGPro hubs and rear derailleurs.

By 1990, SunTour and Shimano were close in performance and SunTour had some unique features. However,

a "Self-Fulfilling Prophecy" had set in. SunTour offered 12 road and 15 mountain derailleurs, but the people writing OEM specifications chose Shimano because they assumed that Shimano would sell better. There were fewer and fewer SunTour-equipped bikes. Sometimes the buyer would issue a "mercy" specification for one SunTour bike in the entire lineup. The bike shops and the buying public assumed that there was still something wrong with SunTour. Its market share slipped back to 25 percent. SunTour suffered another major loss, and the Japanese banks would not make new loans.

In late 1989, Mori Industries Inc., a Japanese steel tubing company, bought Sakae Ringyo Ltd., better known then as **SR**, and later known as Sakae, made handle bars, chainwheels, pedals, and seatposts. Then, in mid-1990, Mori also bought Maeda SunTour. Essentially, Mori assumed SunTour's debts. Shortly afterward, Mori combined the two acquisitions, and the new company was named **SR** SunTour.

Junzo Kawai was still President of SunTour. He decided to end the deteriorating relationship with SunTour-USA, so in early 1990, he closed SunTour's Novato, California office and moved U.S. sales to Sakae's office in Kent, Washington. There was a severance package. Just one employee was transferred to Kent. A small California office remained open for a year to close down the legal and banking issues.

From 1991 on, my history is based on SunTour catalogs. I have been unable to document the details and the timing of the transfer of SunTour from a Japanese company based in Osaka to a Taiwan company. My guess is that some of the 1992-93 innovations like Micro Drive and the S1 rear derailleur were developed by the old Maeda SunTour design group, but I don't know for sure.

There were no major introductions in 1991. The **SL** road group replaced Sprint. There were cosmetic changes (and new model numbers) on many of the derailleurs. Four low-priced groups were dropped. The market share remained about the same but **SR** SunTour competed only in the low-price, low-profit market.

Taiwan Sakae Ringyo started making the lower priced SunTour front and rear derailleurs. Micro Drive was the significant 1992 innovation. Smaller bolt circles allowed chainrings like 42-32-20, which offered less weight and better ground clearance. New short-cage rear derailleurs were provided to go with the Micro Drive cassettes. It was a good idea, and Shimano copied it two years later.

PowerFlo was SunTour's name for revised freewheel sprockets with "gates" for easier shifting. **SR** SunTour's U.S. market share fell to 10%.

There were fewer groups in 1993. The catalog showed Sakae front suspension forks with SunTour nameplates. The gear trains got a twist grip shifter and 8-speed freehubs.

The major innovation was the S-1 derailleurs for hybrids and city bikes. These mounted on a special boss on the chain stay. The horizontal slant parallelogram harkened back to the 1960's Altenberger or the 1930's Nivex. The indexing cam was in the rear derailleur rather than the shift lever. You could dump the bike on the right side with no damage to the derailleur. It was a good design and it would have flown ten years earlier when SunTour was a dominant supplier. In 1993, with **SR** SunTour on the ropes, no one specified S-1.

At the end of 1993, **SR** SunTour had to recall 300,000 coaster brakes to replace a small spring. **SR** SunTour paid the dealers \$6.00 to replace the springs. Even though the brakes had been made by a Taiwan subcontractor, the recall was one more nail in **SR** SunTour's reputation. **SR** SunTour had only about five percent of the U. S. market.

In 1994, **SR** SunTour made only the products that they thought would sell. The mountain groups offered either twist grip shifters or thumb shifters. The three road groups, Superbe Pro, **SL** and Blaze were unchanged. Only the top mountain bike groups were still made in Japan. Everything else was made in Taiwan. **SR** SunTour provided six- and sevenspeed screwed freewheels with Powerflo teeth and ramps. S1 rear derailleurs were promoted for city bikes. By the end of 1994, **SR** SunTour was offering close out prices on the medium and high priced equipment. The Mihara factory closed its doors and the Shiga factory ceased making bicycle components. The last XC-Pro, XC-Expert, and Superbe Pro groups were supplied from warehouse stock. When the inventory was gone, there was no more.

Mori decided to shut down its bicycle component business in March, 1995: Daisuke Kobayashi and Hideo Hashizume, the former owners of **SR** Sakae Ringyo, arranged a management buyout. The new management took over in July, 1995. They bought the SunTour name and the **SR** factory in Taiwan. Mori got out of the bicycle component business and sold most of SunTour's Japanese facilities piecemeal.

SR SunTour closed its U. S. office in early 1995. There was a six-page close-out catalog. **SR** SunTour continued to sell SunTour components in Europe and worldwide where the markets were technically less demanding than the U. S..

All manufacturing moved from Japan to Taiwan. Since its share of the U. S. OEM market was near zero, **SR** SunTour emphasized the replacement market.

At this point, the old Maeda-SunTour had disappeared, and a new company, **SR** SunTour, had taken over. **SR** SunTour maintained two offices in Japan for R & D and for Japanese sales. Taiwan Sakae Ringyo used the SunTour brand name because it had better recognition. Taiwan Sakae Ringyo was a Taiwan component maker, like Falcon, Joy Tech, Long Yi, or SunRace.

SR SunTour owned the name "SunTour" but they did not own SunTour's patents, intellectual property, or the rights to any of the pre-1995 designs. Various people tried to buy the tooling for SunTour Superbe Pro components, but Mori sold the tooling for scrap.

SR SunTour introduced the XR-150 and XR-50 groups for 1995. They were compatible with Shimano's inexpensive Alivio and Acera groups. SR SunTour called the easy shifting sprockets and chain wheels PowerFlo. An ErgoTwist grip shifter was made for buyers who wanted better quality than Sram.

SR SunTour reopened a U.S. sales office in early 1996. By 1997, SR SunTour had 250 employees. It made inexpensive gear train groups consisting of cranksets, freewheels and cassettes, front and rear derailleurs, twist shifters, and suspension forks. Their best group was called Giga. The S1 rear derailleur design carried on as the SX-50. Sales grew from 12 million dollars in 1994 to 27 million dollars in 1997.

There were no changes for 1998 except names. The S1 style derailleur was dropped. In early 1998, SR SunTour announced a Superbe crankset as its first step into the medium priced market.

COMPARING SUNTOUR WITH SHIMANO.

The Shimano comparison is inevitable. Shimano **always** spent lavishly on research. Ten percent of its employees are engineers. Ten percent of its profits are spent on research and product development. Starting in the early 1980s, Shimano not only adapted to the changing market, it instituted many of the changes. By 1990, Shimano dominated the component market. Shimano has succeeded **so** well that today's bicycles are defined by their Shimano parts. It's a Dura-Ace bike, or an Ultegra bike, or a 105 bike.

By 1995, these items were features of almost every quality derailleur bicycle. Shimano **was** not always the inventor. Often, it just fine-tuned old inventions. Items were like the freehub had appeared years earlier, but Shimano refined them and made them part of the modern bicycle. The thing that is not well known is that Shimano grew rapidly in the 1960s. It expanded into a full line of components and fishing tackle. During the peak SunTour years, 1974 to 1984, Shimano was five or six times larger than SunTour.

SUMMARY.

SunTour fell victim to the fast changing bicycle market that started in 1983 with mountain bikes and indexed shifting. SunTour was too small to maintain the kind of

research and development department that was needed to survive. It's easy to blame Mountech, Superbe Tech, Beast, or AccuShift, **but** the real problem was the lack of timely research and development.

SunTour did not charge enough for its top-of the line components **so** the market assumed they were middle-of-the-line. Because of their lower margins, SunTour did not set aside enough profit to expand its research and development facilities in the 1980s, and did not have enough reserves to see it through the 1985 yen shock. The 1985 revaluation of the yen was the overending disaster.

As a small privately-owned company, SunTour did not have a management chain of command. All of the major decisions were made by one man, President Junzo Kawai. There was no delegation and almost no feedback up the line from the lower level managers. **As** the pace of change accelerated, it became too much for one man, no matter how well-intentioned.

So Maeda SunTour, a fine honest company, came to a sad end. Those of us who watched the bicycle develop and grow in the last twenty years can only regret the Sunset of SunTour.

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• APPENDIX A. Significant SunTour Rear Derailleurs. 1956 to 1985.

| Year | Low Price Medium Range | Low Price Wide Range | Medium Price Narrow Range | Medium Price Wide Range | Expensive Racing | Expensive Wide Range |
|------|---|---|--|---|--|--------------------------|
| 1956 | | 8.8.8 Wide | | | | |
| 1958 | Skitter | | | | | |
| 1964 | | | Grand Prix 2300 | Grand Prix 2301 | | |
| 1966 | Skitter 2200 | | | | | |
| 1968 | Honor 2600 | Competition | | | | |
| 1969 | Hero 2700 | | V 2900 | | | |
| 1972 | | GT 4600 | | V-GT 4900 | | |
| 1973 | | | | VX 3902? | | |
| | | | | VGT 902 | | |
| 1974 | | | | VT 3902 | | |
| 1975 | Love 2000 | | Cyclone 3902 | Cyclone-GT 3905 | | |
| 1976 | Seven 2320 Honor 2310 Skitter 2210 | Seven GT 2321 GT 2321 | V 2620 | Cyclone GT 2812 VT 2630 VGT 2720 | | |
| 1977 | | | Cyclone RD-1700 Road Vx RD-2200 Road VxT RD-2300 | Cyclone GT RD-1800 Road VxS RD-2500 Road VxGT RD-2400 | Superbe RD-2100 | |
| 1978 | Seven RD-1900 Honor RD-1100 Skitter RD-1000 Love RD-1600 | Seven GT RD-2000 GT RD-1200 | | VGT RD-1500 | | |
| 1979 | | | | AG RD-3400 | | |
| 1980 | Mighty Click RD-2700 Volante RD-2600 | Mighty Click GT RD-2800 Hole Shot RD-2900 AR GT RD-4400 ARX GT RD-4500 AG RD-3400 | | | Superbe Pro RD-3100 | |
| 1981 | AR RD-4200 ARX RD-4300 Volante S RD-4100 | | BL RD-3200 | BL S RD-3600 BL GT RD-3300 | | |
| 1982 | | | Cyclone II RD-3500 | Cyclone II GT RD-3700 | | Superbe Tech L RD-4800 |
| 1983 | | AG Tech RD-5000 | | Mountech RD-4900 Mountech GTI, RD-5500 | Superbe Tech RD-4700 | Superbe Tech GTL Rdp5400 |
| 1984 | Trimec RD-4600 CAP RD-5100 | AG Tech GTL RD 5600 | | | Superbe Pro RD 5200 Superbe RD 5300 Superbe Tech S RD 4700 | XC RD-6300 |
| 1985 | Trimec RD-6400 | Trimec S RD-6600 | Cyclone-S RD-6000 Cyclone-W RD-6200 Le Free RD-6100 AG TECH RD-5000 | Cyclone-GT RD-6800 Le Free-GT RD-6700 AG TECH GTL RD-5600 | | |

• Significant SunTour Rear Derailleurs. 1986 to 1993.

| Year | Low Price Medium Range | Low Price Wide Range Mountain Bike | Medium Price Narrow Range | Medium Price Wide Range Mountain Bike | Expensive Racing | Expensive Wide Range Mountain Bike |
|------|--|--|---|---|--|---|
| 1986 | SVX RD-7300 | Alpine RD-5050 SVX-GT RD-7400 | Sprint RD-7000 | | | XC Sport RD-6900 |
| 1987 | α-3000 RD-3000-SS Seven-SS RD-SN00-SS Honor RD-1100 | α-3000-GX RD-3000-GX Seven-GT RD-SN00-GT Honor-GT RD-1100-GT | Cyclone 7000-SS RD-CL10-SS α-5000-SS RD-5000-SS | Cyclone 7000-GT RD-CL10-GT α-5000-GT & GX RD-5000-GT & GX | Superbe Pro RD-SB00 Sprint-9000 RD-SP10 | XC-9000 RD-XC00 XC-Sport-7000 RD-XS00 |
| 1988 | α-2000 RD-2000-SS RT-1000 RD-RT10-SS | α-2000 RD-2000-GX AT-1000 RD-AT10-GX | α-4050 RD-4050-SS α-3040 RD-3040-SS | XCD-4050 RD-4050-GX α-3040 RD-3040-GX | | XC-9010 RD-XC10-GX XCD-6000 RD-XD00-GX |
| 1989 | α-2000 RD-2001-SS α-1500 RD-1500-SS RT-1000 RD-RT10-SS | α-2000 RD-2001-GX α-1500 RD-1500-GX Scrambler RD-SR10-SS-GT Allegro RD-AE-00 | GPX RD-GP00-SS Ola RD-OL00-SS Edge 4050 RD-ED45-SS Blaze-3040 RD-BE34-SS | XCE-4050 RD-XE45-GX XCM-3040 RD-XM34-GX | | XC-9010 RD-XC10-SS |
| 1990 | FT RD-FT50-SS VX RD-VX00-SS AC-2000 RD-A200-SS AC-1000 RD-A100-SS Allegro RD-AE00 ET RD-ET50-SS | XCE RD-XE00-GX XCM RD-XCM00-GX XCT RD-XT00-GX AC 2000 RD-A200-GX AC 1000 RD-A100-GX | Radius RD-RA00-SS Edge RD-ED00-SS Blaze RD-BE00-SS | XCD RD-XD10-GX & GT X-1 RD-X100-GX X-1 Chroma RD-CR00-GX | | XC Pro RD-XP00-GX & GT XC Comp RD-XC20-GX & GT |
| 1991 | VX RD-VX01-SS RT RD-RT00-SS | XCE RD-XE01-GX XCM RD-XM01-GX XCT RD-XT01-GX XCU RD-XU00-GX Scrambler RD-SR20-SS-GT FT RD-FT01-SS FTU RD-FU00-GX | SL RD-SL00-SS Edge RD-ED01-SS Blaze RD-BE01-SS | XC Ltd RD-XL10-GX X-1 RD-X101-GX X-1 Chroma RD-CR01-GX | | |
| 1992 | VX RD-VX02-SS RT RD-RT01-SS | XCM RD-XM02-GX XCT RD-XT02-GX XCU RD-XU01-GX | Blaze RD-BE02-SS | FS-E RD-FE00-EX Scrambler RD-SR21-SS & GT | | XC Pro RD-XP00-SS/GT/GX XC Comp RD-XC20-SS/GT/GX XC Ltd RD-XL10-SS-GX |
| 1993 | | Honor RD-HN00-GX | S-1K RD-S120-SS | XC Expert MD RD-XX00-GT/GX XC Sport MD RD-XS01-SS/GT/GX Scrambler RD-SR21-GT/GX S1A RD-S100-GS S1B RD-S100-GX | | XC Pro MD RD-XP01-SS/GT/GX XC Comp MD RD-XC01-SS/GT/GX |

• Significant SunTour Rear Derailleurs. 1994 to 1998.

| Year | Low Price Medium Range | Low Price Wide Range | Medium Price Narrow Range | Medium Price Wide Range | Expensive Racing | Expensive Wide Range |
|------|------------------------|--|---------------------------|--|---------------------|----------------------|
| 1994 | SX100 RD-SX00-SSZ | XR100 RD-XR00-GX | | | | |
| 1995 | | XR150 RD-XR15-GX XR100 RD-XR00-GX XR50 RD-XR05-GX | | XC Expert RD-XX00-GX | Superbe Pro RD-SB00 | XC Pro RD-XP01-GX |
| 1996 | | | | | | |
| 1997 | SX50 RD-SX05-SS/GX | XR250 RD-XR25-GX XR150 RD-XR15-GX XR300 RD-XR30-GX XR250 RD-XR25-GX XR150 RD-XR15-GX | | GIGA 4SU RD-AP45-GX GIGA 350 RD-AP35-GX AP 450 RD-AP45-GX AP 350 RD-AP35-GX | | |
| 1998 | | | | | | |

Note 1. These tables are provided to help derailleur collectors and bicycle restorers determine dates. They also give a count on the very large number of very similar derailleurs that were made from 1980 onward when the annual model change became standard.

Note 2. An Old bicycle may be equipped with a later model derailleur. It will rarely have an older rear derailleur.

Note 3. Many companies used the same model name for a series of different rear derailleurs. The Model Name usually model appears on the derailleur. It is shown in **Bold**. The ~~derailleur Model Number~~ is shown in smaller type.

Note 4. The year is Model Year that the Model Number was first sold. It would probably have been shown at the Call show the prior year.

Note 5. It isn't possible to provide a final year. Derailleurs would be shown in the annual catalogs for a year or two after production ceased to allow the inventory to be sold.

11. SunTour catalogs and instruction books from 1969 to present.

ACKNOWLEDGMENTS:

Thanks to Tom Franges, Ricky Comar, and Chris Allen for their suggestions and help in reviewing the drafts of this article. All three worked for SunTour-USA in the glory days. Tom was the Vice President of SunTour-USA from 1987 to 1990. Ricky was the lone employee to transfer from Novato to Kent.

Shoji Onazawa provided me with valuable background on the events from 1989 onward. He is currently president of Sidetrak Inc., the U. S. representative for SR SunTour. Allan Willoughby supplied two 1969 SunTour catalogs.

Special thanks to Shiro Yagami who dug out the old Japanese records that showed production, employment, and sales up to 1980. He was unable to obtain similar SunTour statistics for the years after 1980. My efforts to get facts on the last decade from other Japanese sources were not very successful. This paper is based on the facts that were available.

If anyone reading this paper has more facts on the Sunset of SunTour, particularly from 1985 to 1990, I would be delighted to hear from them.

Frank Berto. August 26, 1998

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BY SHOJI ONOZAWA

SUNTOUR RISES

SHOJI ONOZAWA FOUNDED SR SAKAE U.S.A. (DISTRIBUTOR FOR SR PARTS) IN 1983, AND SIX YEARS LATER TOOK OVER U.S. DISTRIBUTION OF SUNTOUR. IN 1991 HE STARTED HIS OWN CYCLING ACCESSORIES COMPANY, SIDETRACK INC., AND FOUR YEARS AFTER THAT, IN 1995, WAS ASKED TO DISTRIBUTE SUNTOUR IN THE U.S., FOR THE THEN NEWLY FORMED SR SUNTOUR. HE IS BOTH JAPANESE AND IN A POSITION TO KNOW MORE ABOUT CURRENT SUNTOUR THAN ANY OTHER PERSON IN AMERICA. HERE'S HIS TAKE ON THE SITUATION, FOLLOWED BY A SHORT QUESTION-ANSWER SESSION.

Suntour keeps on pedaling, though there have been a few drastic ownership changes starting early in this decade. Suntour has gone through three different hands since the mid '90s. In July of 1996 the old SR owners purchased the company "new" from Mory who had purchased Suntour from Maeda in 1992.

Mory dissolved the Suntour operation in 1995 to terminate the liability issues before the sale of the company to the old SR owners which took place in the following year. Suntour is in good hands now. In spite of all the changes the spirit that holds the name Suntour together has never changed. The same old Suntour engineers joined with SR Sakae engineers are complementing each other to keep the company on the right track.

RR: *Are there plans to reintroduce a y of the old groups, or develop new ones? Mid-to-high end? Which parts are in the works?*

SO: The new, current Suntour parts are for bikes \$500 and below, but the new Superb group is in works now for the year 2000 delivery.

RR: *Given Shimano's strength in the industry, what is SunTour's strategy? In other words, is it going to shoot arrows at Tyrannosaurex REX, or will it likely find another hunting ground, maybe in the form of niche parts that Shimano doesn't make?*

SO: Suntour is not planning on battling against the giant, and there is always a room for the second party. Now Suntour is busy catering to the market which is bigger than its capacity. Plus, SR Suntour suspension business is also filling the same market, keeping them busy. But, in the meantime they are now investing in the magnesium technology for lighter weight products.

RR: *Electronic shifting is a hot topic now. Mavic has it, Shimano's been working at it, and SunTour's early effort flopped for a number of reasons. Given that, how will SunTour approach shifters and shifting during its comeback?*

SO: Shifter is a very complicated area, as many OE cross spec the drive trains. Twist shifters Suntour has now works really well, but this is what everybody is doing. Electronic shifting is in the works, and SunTour realizes that for anything in its Superbe group, the function has to be flawless.

RR: *How many employees does SunTour have?*

SO: I think it is now around 300 people

RR: *There are so many different bicycle markets worldwide, and the American market is a tough, kind of high-tech/sporty one. Can the current SunTour satisfy the demands of American cyclists, or will its strength be in other markets, and which ones?*

SO: Well, as I said, the current SunTour products are for "price point" bikes, and they're very good for them. The upcoming Superbe group will fill in at the high end. I should also say that the Suntour operation was never shut down in Europe and Taiwan. SunTour is relatively successful there, and part of the reason it did poorly the last couple of years here in the U.S. market was a strong, anti-SunTour sentiment, from a variety of sources.

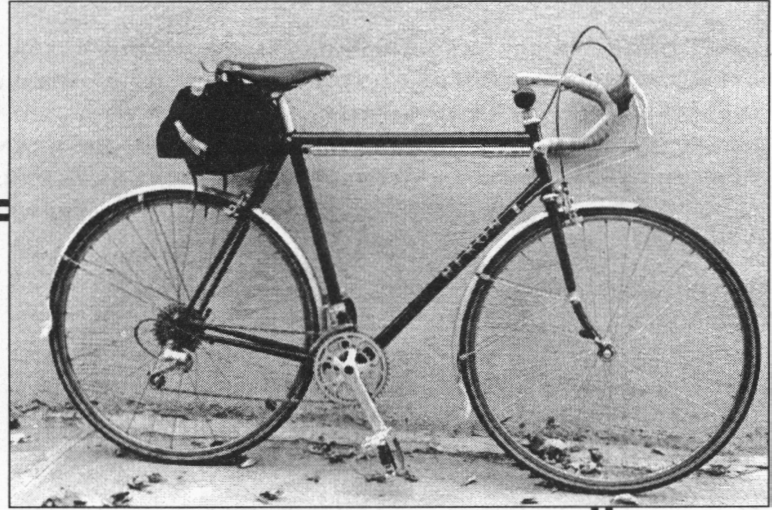
RR: *The current SR/SunTour catalogue is mostly suspension forks and low-end derailleurs. Is the old tooling gone? If so, is there a y hope of making new tooling? Who is calling the shots now?*

SO: Mory Industries has some of the old tooling. Hasidim and Kobayashi, both former bosses at Sakae-Japan (SR) are in charge now. And, as far as they are concerned, the old Suntour products wouldn't get spec'd as original equipment on new bikes, and if that doesn't happen, they can't win. It's especially hard, with a limited marketing budget. Even though so many of the old Suntour products were excellent.

So, even though the components were good, they'd need lots of OE spec to justify new tooling to duplicate them, or to even run them off the old tooling if they had it, which they don't. SunTour AccuShift could not then and cannot now compete against Shimano.

REAL BIKE # 1

RIDER: GRANT PETERSEN



| | |
|------------|---|
| FRAME/FORK | Heron Road 58 Blue |
| HEADSET | Tange-Sekei Rollerball |
| S. POST | Nitto One-bolt |
| SADDLE | B.17 brown/steel |
| STEM | Nitto Aero 10cm |
| BARS | Various. It's a tester bike, too. Shown w/wide DirtDrops |
| TAPE | Cloth. Orange shellacked to Maroon (L); Yellow to Green (R) |
| BR. LEVER | R: 1977 Dura Ace/Gum; L: SunTour Cyclone/Black |
| BRAKES | F: Modolo Speedy silver; R: Modolo Pro Green faded to gold |
| CRANK | TA Zephyr 172.5 50-45-24 |
| BB | Cheaper-than-we-sell Mongrel w/119 spindle (1mm too short) |
| CHAIN | Sachs P.51 |
| FREEWHEEL | Sachs 13 x 32 6-sp |
| PEDALS | L: MKS Sylvan track; R: MKS Sylvan Touring |
| CLIPS | Christophe Steel |
| STRAPS | ALE laminated, one red, one yellow |
| SHIFTERS | Hybrid bar-end: Shimano plugs, SunTour Sup Pro NoLAT shifters |
| F. DER | SunTour Light (\$7) |
| R. DER | SunTour Alpha 5000 long cage |
| F. WHEEL | Campy Chorus 36H hub, MA2 |
| R. WHEEL | Bullseye 36H hub, MA2 |
| TIRES | F: Specialized Armadillo 700x26; R: Avocet 700x32 |

Accessories: Carradice LowSaddle Longflap, ACME wheel reflector on the front, Cat-Eye front flasher light, Reich Bell. Esge fenders, with the high attach-point on the front one. Weight: I don't know. It feels heavy when I pick it up, light when I ride it. Proably 26 lbs with an empty saddlebag, maybe 27.

NOTES:

It rides great, and is keeping me pleny happy (and patient) while I wait for my Rivendell. I put it together as a transition bike from a prototype Heron frame, and didn't expect to like it so much. I designed the frame, it rides as great as I expected it to, but until I actually started piling on the miles I never appreciated it enough.

A Rivendell is still my dream frame, and I want one as much as ever, but no bike can make this one look mediocre. I really like it.

I also ride a 56cm Heron Road and a 57cm Heron Touring, and this 58 is the biggest bike I've ever ridden, but it fits me well the way it's set up. I usually ride the same tires front and rear, but I put this bike together with as much used stuff as I could find, mostly just to try out the new TA cranks. It's a mutt, but it works and fits and rides great. I just need to put a rear flasher light on it, now that it's dark early. I always ride with ACME ankle reflectors, and strap them on the cables when the bike's sitting around. — Grant

REAL BIKE #2

RIDER: TED DURANT



| | |
|---|--|
| FRAME/FORK | Road 55 ..silver with cream head tube, blue window fill |
| HEADSET | .Tange-Sekei Rollerball |
| S. POST | .Nitto Frog (2-bolt) |
| SADDLE | .Brooks B.17-Ti |
| STEM | .Nitto fillet-brazed (sample from Rivendell) |
| BARS | .Nitto Dream 42cm |
| TAPE | Velox 3-way)white/light blue/blue with blue Velox plugs |
| BR. LEVER | Dia-Compe AGC 251 |
| BRAKES | .SunTour Cyclone |
| CRANK..... | Ritchey 172.5 w/51x39 Willow rings |
| BB | Phil (steel) 11mm |
| CHAIN | Sachs P.51 |
| FREEWHEEL | Sachs 13x 21 7sp |
| PEDALS | Varies |
| CLIPS | .none |
| STRAPS | .none |
| SHIFTERS | .SunTour Superbe Pro LAT |
| F. DER | .Shimano Dura-Ace |
| R DER | SunTour Superbe Pro |
| F. WHEEL | various, all tubulars, see notes |
| R WHEEL | various, all tubulars, see notes |
| TIRES | .various |
| Accessories: ACME Tool & Tube Tote, Silca pump, Nitto bottle cages. | |

NOTES:

Looks good, light, strong in all the right places —who could ask for anything more? With a fendered XO-1 and a Heron Road bike for utility, I wanted this to be my “wicked nice” bike over the next **40 or so** years. Someday I’ll carefully ship it back to Walnut Creek and ride it up and down Mt. Diablo until I fall over from fatigue.

I have four sets of wheels for it, all tubulars. With the lightest set (Superbe Pro hubs, Araya Titanium rims—radial front, radial and 2x rear)—it weighs 20lb. even. Usually I ride it with the a **Phil-Ambrosio-Paris-Roubaix** hub-rim-tire combination, with Joe Young-built wheels. **So:** Frame built by Joe S., painted by Joe B., wheels by Joe Y. **A 3-Joe** bike at around 21.2 pounds. —Ted

ROADWORTHINESS: THE FORGOTTEN FACTOR

One of you, please remind me who, sent me a book titled *Seaworthiness: The Forgotten Factor*. The author, C.A. Marchaj, defines seaworthiness as the ability of a boat to “defend herself against the incursion and perils of the sea.” One of the book’s points is that the rush for speed and glory in competition has made boats less seaworthy. It points out that racing sailboats influence non-racing sailboat design, but sailboat racers have helicopters and lifeboats ready to save them when things get rough, and you don’t have that luxury on your trip around Cape Horn, or Cape of Good Hope, or Horn Cape, or the Straights of Magellan.

Naturally I liked the book immediately, because I’ve long believed, contrary to the phrase “racing improves the breed,” that we’ve reached the point where most of racing’s contributions (maybe in boats, certainly in bikes) just make “the breed” freakier, weaker, and in many cases, dangerous.

There are *so* many examples, and here are several:

FRAMES: Most modern road frames lack the clearance and design details that allow higher volume (700x28 or larger) tires and fenders. These bikes are good only for fair weather and smooth roads. The fact that you can ride a convertible top-down in the rain to a campsite doesn’t change the fact that it’s not well-suited to it. Forks suffer the same clearance problems as frames. Racing sells bikes, minimal clearances and skinny tires are associated with racing, and people who are drawn to the racing style features don’t want to be mistaken for non-racers. And, in their defense, they’re just not well educated about these details.

HANDLEBARS: You can buy 200g downhill bars. What for? Road bars (drops) used to weigh in the low 300g area (same as Nitto still does). 3Ttt came out with heat-treated, 275g racing bars, and they were the weight champs for years, and didn’t seem to snap. Now you see handlebar makers with less experience making drop bars that weigh as little as 220g. Where, on a bar that’s already aluminum and thin-of-wall, does the weight reduction come from, and how much margin of safety is in there? Aluminum isn’t like steel, where it’ll creak for a week or two and fail

slowly. Aluminum is good for lots of things, handlebars included, but it fails more quickly than does steel, and without the warning. So, if a crack develops in the morning, the bar might be in two pieces by noon. If Nitto won’t make a 220g drop bar, I don’t think anybody should.

SADDLES: Most saddles do okay here. Rails break, but usually it’s the seat post that causes the breaks. You can’t take a broken seat rail out of context with the seat post, and say “faulty defecto!” That’s like breaking a window with a rock, then running away, and saying “bad glass.”

SEAT POSTS: The support rails should be at least 35mm long, and the edges should be radiused, to there’s no corner there to start trouble.

WHEELS Disc wheels are dangerous in the wind and on high speed descents, because they catch the wind. True, they were intended for flat, windless time trials, but that just makes the point—a specialty racing part is inappropriate and can be dangerous out of its element. This branch of racing technology hasn’t improved the breed for anybody else.

On the other extreme, few-spoke (FS) wheels don’t catch much wind at all, but present other problems. A certain amount of spoke tension is needed to keep the rim relatively centered between the axles, and the fewer spokes there are to share the load, the higher the spoke tension in each one. The higher the spoke tension, the more stress, and the more likely they are to break. When a single spoke in a 36-spoke wheel breaks, the wheel wobbles a little. It wobbles less in a 40-holer, more in a 32-holer. How much it wobbles depends on how many spokes and how high the tension. More spokes and less tension means less wobble. So, in a FS wheel (12 to 20 spokes), if you break a spoke, you have no hope of riding home.

Tri-spoke wheels may seem to split the difference, but there have already been accidents in which a crashed rider’s arm has been broken after it got stuck in the fan. It wouldn’t happen with a regular spoked wheel, and I’ve heard that some tracks ban tri-spokes.

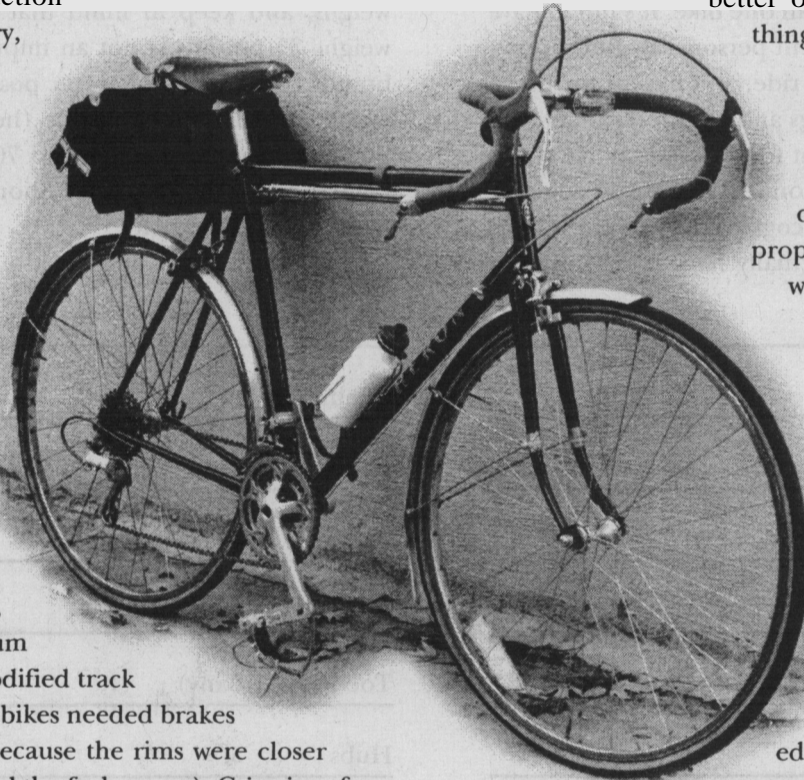
A boring normal wheel isn't as fast as a disc, an FS wheel, or a tri-spoke, but if it takes expensive gear or even a digital watch to measure the difference over the roads you ride daily, then why bother in the first place?

BRAKES: The issue here is standard reach brakes, which offer plenty of clearance for fat tires (up to 700x38 in some cases) and fenders (with tires up to 700x32); and short reach brakes, which, in order to fit fenders and fat tires (up to 700x32), raise the requirement for good design and precision manufacture to the point where it's impractical for production

makers to even try, because if they miss by two millimeters, the bike won't work. Anyway, the racing influence is to blame for the scarcity of the older "standard reach" sidepull brake. Here's how I think it happened. It's mostly a guess, but there's supporting evidence, and I think it's correct: Back in the late '70s and early '80s, some very good criterium racers started riding modified track bikes in crits, and these bikes needed brakes with shorter reaches (because the rims were closer to the seatstay bridge and the fork crown). Criterium-frenzy was sweeping the U.S. cycling world, and the U.S. at the time was a young and potentially huge market, so frame and brakemakers started making criterium-style road bikes. The frames had less clearance, and the brakes had less reach. Eventually racing bikes were being snatched up by non-racers, and that was okay, because the "sport-touring" bikes still had the good clearances (and "standard reach" brakes) of the pre-criterium-style racing bikes. Then the mountain bike killed the sport-tourers, and these days the market for standard reach sidepulls is 98 percent dead.

The requirement for short-reach brakes makes any bike less versatile. We go to great pains to work around their

limitations in both Rivendell and Heron road frames, and for all practical purposes we've gained back 90 percent of what other bikes have lost, but our relatively small volume doesn't do anything for riders who wander into a bike shops looking for a road bikes they can ride in comfort on bad roads and in foul weather. We (Rivendell) feel sort of secure, knowing that we've got something others don't; but on the other hand it's a shame that the design details that make our bikes better in this way aren't the norm. Maybe there'd be less incentive to buy from us if that were the case, but road bikes in general would be better off, and that counts for something.



SHIFTERS: Many of you ride indexed-only bikes, and I've read many letters in their defense. When set up right and properly maintained they do work well, indexed-only shifting works fine, sort of like a mechanical pencil that takes 0.3 lead. But when something goes wrong, or when you need to replace an original-equipment part with something you find in your old parts box, it might not work. An indexed-only bike might make sense on fully supported tours or even self-supported tours across America, but only a gambler would ride an indexed-only bike on a tour without a safety net. You're better off then with a piece of charcoal.

TIRES: Small volume tires require higher pressure. Higher pressure means less comfort and more stress on the wheels, so you're more likely to break a spoke. The trend to skinnier tires has led to skinnier rims, which are weaker. A skinny tire has a narrow range of rideable pressure, and if you get a slow leak, the tire's flat in a hurry. If you have a slow leak and no tube or patch kit (it happens), a higher volume tire will at least allow you to pump furiously for a minute or two, hop on the bike, and get farther down the road.

SUPPOSE YOU HAD JUST ONE BIKE TO RIDE...

If a seaworthy boat is one that can “defend herself against the incursion and perils of the sea,” then a roadworthy bike is one that can handle bumps and bad weather. I’d add to that “and is fixable without part numbers,” which is to say that within reason, you should be able to replace original equipment with parts from other makers and vintages. For example, inch-and-a-quarter headset might be stronger, but they’re too hard to get.

Most enthusiasts have more than one bike. It’s fun to have a few bikes, each with a different personality. But supposing you had just **ONE** bike to ride, and except for brake shoes and cables and chainrings and cogs and rubber, you couldn’t replace anything on it for a decade. What would it be, and what would you put on it? What if you couldn’t replace even the chainrings or cogs? Write up your toughy bike and send it in. If you actually have it now, send a

Frame

Fork

Headset

Stem

Bars

Seat Post

Saddle

Bar tape

Brake lever

Brake caliper

Brake shoes

Front derailleur

Rear derailleur

Shifters

photo. We’ll publish some examples in a future issue. If you’re a pro bike mechanic, as many of you are, then there’s no harm in saying that your choices are based on what you’ve seen and fixed. In all cases, no matter who you are, this should be a bike you’d actually like to ride, too, *so* don’t get too survivalistic on us (no solid rubber tires and solid steel cranks), and don’t suck up to our catalogue unless it’s sincere. If you’re actually riding your cockroach bike, tell us what size it is and how much it weighs, and keep in mind that a cockroachy bike that weighs **35** pounds is not an impressive submission. Use brands and models wherever possible, and list only parts which are currently available (here or otherwise). We’ll list both 26-inch wheelers and 700c wheelers. Fill in the blanks. Be specific and brief. Short, four to six word explanations are acceptable

Crank

Chainrings

Bottom bracket

Pedals

Toe clips (if any)

Toe straps (if any)

Hubs

Rims

Spokes (number, gauge)

Tires

**MAIL OR FAX TO:
THE RIVENDELL READER**

1561-B Third Avenue
Walnut Creek, CA 94596

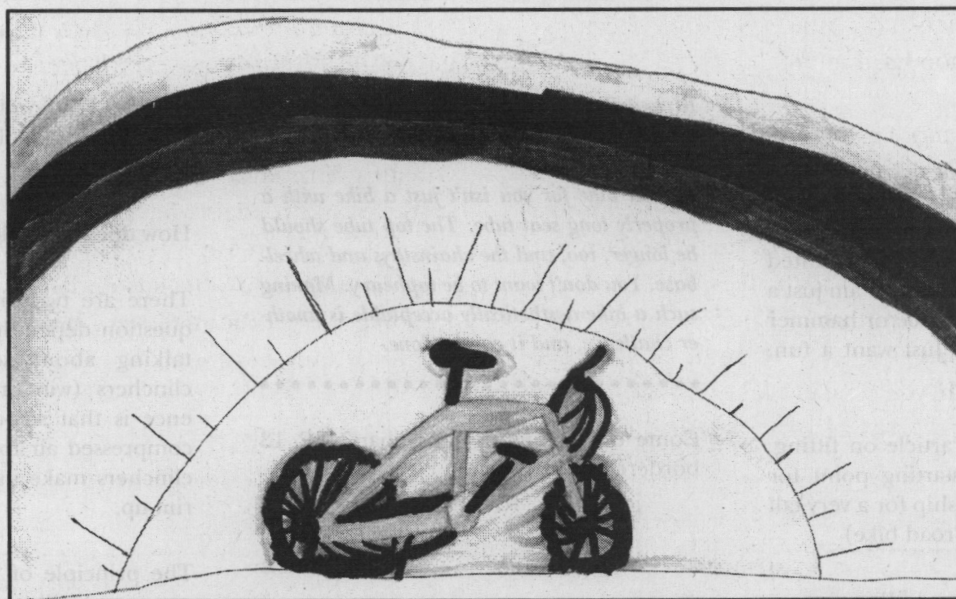
Fax: (925) 933-7305



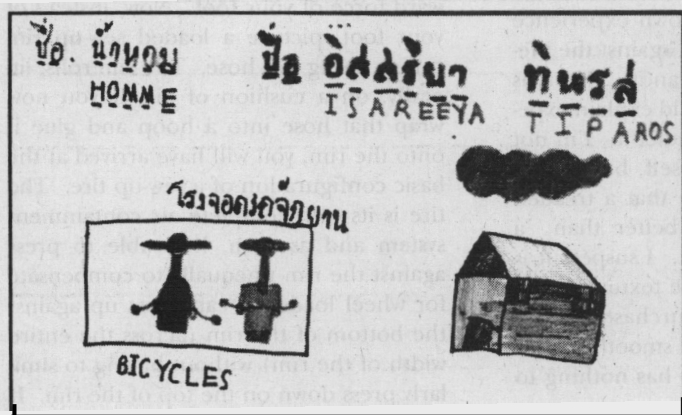
CHILDREN'S PAGE



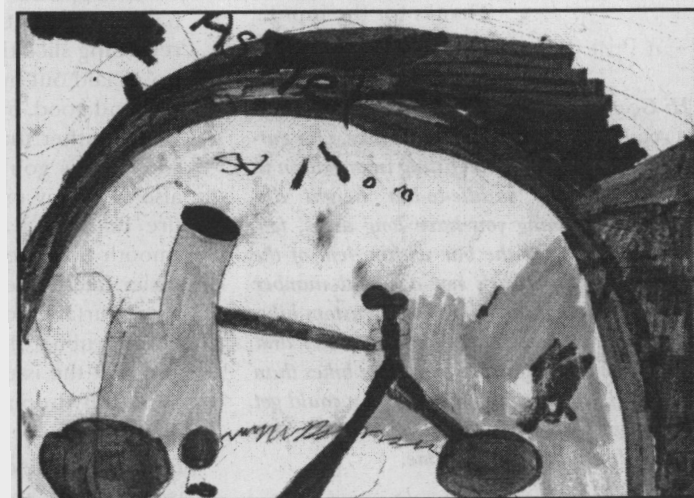
This is the third “children’s page” in a row. It’s not as popular as I thought it would be. The idea is to feature children’s art or writing. The author/artists should be between **6** and **12**, and parents can’t help. We can’t print all submissions, so don’t guarantee your child the instant fame that will result if we do. But all submissions are acknowledged!



Murphy Kate Montee, age 7, Sturgeon Bay, WI.



Isareeya Tiparos, Thailand



Ashley Kluth, age 7, Sturgeon Bay, WI.

LETTERS

WE CAN'T PRINT ALL LETTERS OR ALL CONTRIBUTIONS, AND BUT IF YOU SEND IN A STORY AND IT DOESN'T FIT IN THE READER TEMPLATE, WE MAY RUN IT IN THE LETTERS COLUMN. I WANT OUR LETTERS COLUMN TO BE INTERESTING AND VARIED, AND THE LETTERS DON'T HAVE TO PERTAIN TO ANYTHING IN PARTICULAR. — GRANT

Editor:

Hello, have you built a dealer network or could you recommend a shop in Portland Oregon that shares your views on the fit process? I too have become disenchanted with the "racer-x" fit mentality. I am just a normal guy who dosen't race or hammer all day in a pace line. Just want a fun, comfy, sporty road bike.

Also, was reading your article on fitting. Recommendation for starting point for handle bar seat relationship for a very tall rider (I am 6' 8"). (for road bike)

Any recommendations on adding suspension to my Bridgestone MB-5. The sweetest riding bike I have owned. Put a manitou suspension fork on it and it completely ruined the ride. Yuk!!

Thanks for the input...
Regards, Geoff

Hi Geoff,

A good fit will require a custom bike. Our current catalogue has good fitting information in it. As for the saddle-to-bar height distance.....assuming you have long arms, too, I'd say try to get the bar within 4cm of the saddle height. That's not a useful number until you accept that you need a custom bike, and there is more variation in quality and design and manufacture in custom bikes than there is in production bikes. So, you could get a custom bike that costs a lot and fits you badly. It happens all the time.

I don't know which shops share our views on fit. Most of the time, even well-intentioned and knowledgeable employees are faced with trying to fit people on bikes that aren't designed all that well. Our approach to fitting isn't accommodated by production bikes. I'm not saying this to get you to order a

Rivendell custom, because nobody makes a production bike to fit really tall guys.

A good bike for you isn't just a bike with a properly long seat tube. The top tube should be longer, too, and the chainstays and wheelbase. You don't want to be topheavy. Making such a bike aesthetically acceptable is another challenge, and it can be done.

.....

Come on! Stringing handlebars? RR 13 bordered on parody.

Sincerely,
Brian Daniels

Dear Rivendell Reader,

I was happy to see in RR #13 that Grant had enough faith in his own experience regarding slick tires to go against the theory as laid out by Jobst Brandt. Theory is well and good, but it should explain experience rather than contradict it. I'm not sure what's going on myself, but it has also been my experience that a treaded tire does seem to grip better than a smooth tire when it's wet. I suspect it is easier for the peaks in the texture of the road surface to find purchase in wet bumpy rubber than in wet smooth rubber and that the issue of grip has nothing to do with hydroplaning.

I too am of the opinion that Jobst Brandt is very smart and proficient in his field, but I also think some of his explanations are incorrect. (Given the very large number of them he has provided over the years, that is hardly surprising.) As an example of one area where I think he ran off track (on another aspect of tires), I'm including a submission I made to the

internet FAQ on bicycles which disagrees with Brandt's submission on the same topic.

How does a bicycle tire support the rim?

There are two different answers to this question depending on whether you are talking about sew-ups (tubulars) or clinchers (wire-ons). The basic difference is that sew-ups make use of their compressed air to push the rim up, and clinchers make use of theirs to pull the rim up.

The principle of the sew-up is easier to grasp, so I will start there. Picture, if you will, a pressurized hose laid out along the ground. When you step on it, the air presses up through the hose wall against the bottom of your foot and it is this upward pressure which resists the downward force of your foot. Now, instead of your foot, picture a loaded sew-up rim rolling along this hose. The rim rolls, literally, on a cushion of air. If you now wrap that hose into a hoop and glue it onto the rim, you will have arrived at the basic configuration of a sew-up tire. The tire is its own complete air containment system and as such, it is able to press against the rim unequally to compensate for wheel loads. It can press up against the bottom of the rim (across the entire width of the rim) without having to similarly press down on the top of the rim. If you had a slightly oversized sew-up such that there was a gap between the tire and the top of the rim, it would still support the weight of a loaded rim once pressurized.

Ah, but what happens when you glue the tire to the rim? Doesn't that make it an integral part of the system, just like clinchers? This is certainly the popular

conception, aided in no small part by a well-known author who writes elsewhere in this FAQ:

"The visualization maybe simpler if a tubular tire is considered. It makes no difference whether the tire is held on by glue or is otherwise attached to the rim such as a clincher is. Either way the tire is attached to the rim, a relatively rigid structure."

However, had he paid a bit more attention when he wrote:

"As was mentioned in another item, tubular tires, although having lower tire losses, performed worse than equivalent clincher tires because the tubular's rim glue absorbs a constant amount of energy regardless of inflation pressure. Only (hard) track glue absolves tubulars of this deficit and should always be used in timed record events."

He would have realized that the glue is absorbing energy because it is undergoing continuous loading and unloading (something which cannot happen in clinchers). The presence or absence of glue is irrelevant to how a sew-up tire supports the rim. It is just there to keep the tire from rolling off, and the rim presses down right through the glue just the same as if it weren't there. The only way a sew-up could function like a clincher is if the sew-up were so tight that when inflated, it pressed in at all points around the rim, and across the entire width of the rim, with at least the pressure the tire was inflated to. To be able to compress a rim like that, a sew up at 100psi would have to experience a longitudinal stretching force of over half a ton. Sew-ups can't grip the rim with anything like that much force, and that's why they have to be glued on. The popular conception is mistaken. Sew-ups do not support the rim in the same manner as clinchers.

There is one last bit to explain about sew-ups before moving on to clinchers, but first I need to make a detour to talk about something that will, for now, seem quite irrelevant to bicycle tires: a chained spring. Picture a stout helical compression spring stood up on end. Imagine it is being compressed between two end-plates, and it is being held in compression

by two chains connecting the two plates (one chain on either side of the spring). Let's arbitrarily say the pre-load on this spring is 100 lbs. Now, observe what happens when you place a 50 lb. weight on the top plate. What holds the weight up? Obviously, it has to be the spring. What changes in the spring? Nothing. It is under exactly the same compression after you placed the weight on top as before. The reason the spring is able to support the weight at exactly the same compression as before is because the tension in the chains has dropped and they now pull down on the top plate with a total of 50 lbs. less force. This also means that they pull up on the bottom plate with 50 lbs. less force so there is a 50 lb. net increase in downforce on the bottom plate, and that is how this contraption conveys the load to the ground.

This is a very rough analogy of what happens when you load a sew-up. The compressed air is basically a spring and it puts the casing under tension. When the rim presses down on the tire, the air experiences no appreciable increase in compression, but the tension in the casing slacks due to the tire being squeezed between the rim and the ground, and as this tension drops, there is a net increase in upforce against the bottom of the rim and an equivalent increase in downforce against the ground.

Okay, on to clinchers. The primary difference between sew-ups and clinchers is that with clinchers, the rim forms part of the air containment system. This means that the air presses in almost uniformly around the rim. (I'll explain the "almost" later.) The air in the sew-up can press unequally against the rim to counteract loads, but air cannot do this in a clincher system. So if the clincher rim does not rest on a cushion of air, what holds it up? The tire experiences that same reduction in casing girth tension at the bottom that we had in sew ups because the tire is still being squeezed between the rim and the ground, but in this case, reducing the sidewall tension does not allow the air to press up harder against the bottom of the rim than it presses down on the top. Instead, it allows the casing tension in the top of the tire to pull the bead up with greater force than the casing tension in the bottom pulls the bead down. In effect, the clincher rim is pulled up

rather than pushed up because it hangs in the tire (in the two hoops that form the beads). This doesn't seem intuitive to most people because if it is going to hang, it needs to hang from something, but what it is hanging from here is basically a springy pillar of air which goes from the ground up to the top of the tire. It doesn't seem like a pillar because it arrives at the top indirectly, but air doesn't care about the shape of the containment vessel. It might be easier to imagine what's going on if we go back to our chained spring, except this time, instead of placing a 50 lb. weight on top, let's hang two 25 lb. weights midway up each chain. What holds each weight up? The top leg of each chain. What changed in the upper legs when you hung the weights on? Nothing. The tension is exactly the same after hanging the weights on as before. What changed is the tension in the lower legs. They each now pull down with 25 pounds less force which, as before, also means they pull up against the bottom plate with 25 pounds less force, and thus the weight is again conveyed to the ground. The clincher is similar in that the air is the spring; the upper casing, like the upper legs of the chains, pulls up to support loads with no change in tension, and it is only the reduction of tension on the bottom that makes this possible.

While I'm on the subject of this tension reduction, I should probably address another misconception. Going back to pick on our popular author, he explains this reduction like this:

"Under load, in the ground contact zone, the tire bulges so that two effects reduce the downward pull (increase the net upward force) of the casing. First, the most obvious one is that the casing pulls more to the sides than downward (than it did in its unloaded condition); the second is that the side wall tension is reduced. The reduction arises from the relationship that unit casing tension is equivalent to inflation pressure times the radius of curvature divided by pi. As the curvature reduces when the tire bulges out, the casing tension decreases correspondingly. The inflated tire supports the rim primarily by these two effects."

I don't know what that pi is doing in there, but anyway, this isn't right, and

some real-world measurements would have quickly shown this bulge effect produces hardly any lift. There is usually some deformation, yes, but it is simply the squeezing between rim and ground that is responsible for the reduction in tire casing tension, and whatever deformation there may be is just a symptom of that. A tire may deform strongly when resting on a stick or hardly at all when in soft sand, and yet still impart the same lift to the rim in both cases. It is true that when a tire is deformed strongly, it pulls down less effectively because of the change in the angle at which it pulls down, but this effect only generates a few pounds lift and is far from being a primary effect.

There are two main effects in clincher tires serving to reduce the net downward tension of the lower casing. The first, as I mentioned, is the same drop in girth tension that sew-ups experience when squeezed between rim and ground, and the second is a drop in longitudinal tension in the part of the casing that the tread is bonded to. This drop is due to the flat spot caused by the ground contact patch which locally reduces the circumference of the tire. The longitudinal tension in this part of the tire is a function of how fat the tire is and the amount of air pressure. The larger the cross section and the higher the pressure, the greater the tension here and the more lift this effect can generate. What happens is that the local reduction in circumference causes the casing behind the tread to pull up away from the flat spot with more force than it pulls down toward it. This imbalance generates a shear load pulling away from the lowest part of the tire which wraps around the sidewalls to the bead (and becomes visible as diagonal ripples in the sidewall when the tire pressure is too low). And the further up from the ground this imbalance can propagate, the more this effect can contribute lift by pulling up on the lower part of the bead. Although high pressure improves propagation up from the flat spot, this is still a small effect on skinny, large diameter, road tires when compared to girth tension reduction. As the tire becomes fatter in relation to the overall wheel diameter, this effect becomes more significant, and on an ATV tires it is a major lift component.

Okay, so the possible sources of lift for a clincher rim are, in reducing order of importance:

- 1) reduction in casing girth tension between the rim and the ground
- 2) flat spot shear propagation (more important in small fat tires)
- 3) the change in the angle at which the tire casing meets the rim at the bottom, and
- 4) rim flotation. Say what? Okay, remember I said the air in a clincher presses in *almost* uniformly around the rim? The reason it is not uniform is that air, like any fluid, has mass, and so it presses up against the bottom of the rim with slightly more pressure than it presses down on the top. This is a trivial effect, but in case you're curious exactly how big an effect this is, here's how you calculate it. Figure the volume the rim displaces—that being a waferlike cylinder with the same diameter and width as the rim. Figure how much air pressurized to the same pressure as in the tire would weigh if it filled that cylinder and deduct the weight of unpressurized air which fills the same cylinder. (Unpressurized air is usually less than 15 psi and weighs about a gram per liter.) The result is the lift. On a road bike at 110 psi, you'd get about fifty grams lift per wheel due to rim flotation (a little over three ounces for both wheels). On a fat tired bike at 60 psi you'd probably get about 35 grams. As I said, a trivial effect.

There is one other possible source of significant lift for clinchers, but I am not aware of any design which makes use of it. This would be a hybrid design borrowing, in part, the principle of sew-ups. If the sidewalls of a clincher rim were large (presumably hollow) and curved out to follow the contour of the tire from the bead, then tire deformation at the bottom would allow the air behind the casing sidewalls to press up against the rim without there being a corresponding downward push on the top of the rim. Implications: Because clincher rims hang in a sling rather than being pushed up at the bottom like sew-ups, radial loads don't unload the very bottom spokes as readily and the magnitude of the fluctuation in spoke tension through a revolu-

tion is less than in a sew-up rim. To compensate, sew-up rims need to be stiffer.

As the load on a clincher tire increases, the tire casing tension becomes increasingly imbalanced. Casing tension drops across the bottom but remains the same across the top. If the bead is not a secure fit in the rim, this imbalance can cause the tire to shift upward relative to the rim and thus blowouts across the top become more likely under a heavy load.

Clincher rims experience far more atmospheric compression than do sew-up rims. And for a given tire pressure, the wider the clincher rim, the greater atmospheric compression it will experience. Going from 25 to 35 mm width on a 26" balloon rim, for example, would raise the rim compression load from 1100 to 1500 pounds at 100 psi. For every pound increase in rim compression, there must be a corresponding increase in net bead tension, so blowouts are more likely on wider rims unless the pressure is reduced to compensate. Increasing the rim compression also reduces spoke tension, so wheels with wider rims have to be laced tighter unless, again, pressure is reduced to compensate.

The same effect means that larger diameter clincher rims also will experience more atmospheric compression, more tire bead tension, and more spoke tension reduction than smaller rims of the same width under equal inflation pressures.

Nicholas Wren, N-Gear
ngea@gvtc.com

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Editor:

Slick tires: I wonder whether the experiments and studies on this have taken into account that the road rarely just is wet, but usually muddy or slimy. Maybe the tread of the tires cuts through the mud and slime better than the slick ones. My observation is similar to yours (slicks are great, but a little tread is better), with one addition: slicks have the greatest disadvantage after the first rain, before the roads are washed clean. I can ride slicks

in the winter here in Seattle, **as** it rains all the time, and the roads are washed clean for the most parts (but considering the black gunk accumulating on my bike, the roads can't be too clean).

—Jan Heine, Seattle

Editor:

I decided to experiment with mudflap technology. I started with a cut-out of a shampoo bottle, but when I held it up to the bottom of the front fender it yelled out to me, saying "I am merely a chunk of a shampoo bottle!" **So** I tried a non-petroleum-based material: leather. It has a more traditional look and is easier than plastic to manipulate. I cut a mudflap from an old black belt, 2-inches wide, and now I have a swell mudflap. It bends gently in the wind and keeps my feet dry even in the most treacherous puddles.

—Kevin Spicher,
San Francisco, CA

Editor:

A question about my Brooks saddle and a suggestion for an item.

I'm in the process of breaking in my Brooks, no big deal, hardly the torture I was prepared for. I'm hoping to use it for a ride next year, riding the continental divide.

Given that the conditions of the **CD** trail are up to mother nature with rain and snow and anything else, is this saddle up to the task? I'm not concerned **so** much about performance (comfort) **as** I am its ability to handle the moisture and daily rides (while wet) for the two months from Montana to New Mexico.

I used Proofhide when I got the saddle, but in the recent rain I've noticed that the saddle definitely soaked up some water. **So** I committed sacrilege and used some Natur Seal. It ain't that natural but it does seem to do a better job.

The reason I'm concerned is that you have mentioned a number of times to avoid "soakings" and riding it when it's wet or something like that.

Given the certainty of rain, snow, sleet, heat and wildlife (**I** have heard of deer eating bike saddles) do you think the Brooks can take it?

Oh and what the heck is in Proofhide? When **I** was putting it on the saddle, my dog went bonkers, sniffing and huffing and puffing. He definitely acted like he wanted to sample it.

And I had **a** thought or suggestion for a non-bike related item to carry or maybe write about.

I remember a number of years ago, **L.L.** Bean had a Hamilton watch in their catalog. It was an automatic, mechanical watch, not quartz. I always thought about getting it but always hesitated because I was not fond of the **LL** Bean logo on the watch face.

The watch was priced reasonably (**for** a mechanical watch) if I remember correctly but I never got it. Now **L.L.** Bean doesn't carry it and sometimes I wish that I had bought it.

So I thought that perhaps a nice simple mechanical watch (except for the

logo this Hamilton was nice) might be in line with a lot of your philosophy. They may not be as accurate as quartz, but the second hand makes such a graceful sweep, not the harsh clickclick steps like on a quartz watch, and they last long enough to pass them on to your children.

Just a thought, thanks for a great company and catalog.

—Tony Tapay

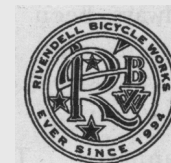
P.S. You guys mentioned that you carry Mavic and Bontrager rims because they come up to your standards. I suggest, as a wheel builder and former bike shop mechanic, that you guys give the WTB Powerbeams a try. They have a non-machined sidewall version. They are bomber. They build up great and I've

seen them go through hell and stay true with no problem.

Tony,
a saddle cover, such as a plastic bag secured with duct tape, or a Carradice saddle bonnet will protect it from water better than any goop. That's a good concern, ~~though~~ ~~As for~~ the deer, I believe you can get anti-deer concoctions that you spray. I'm not sure how they affect leather. Maybe wait until the first few nibbles before doing anything drastic. Even the hungriest deer probably won't eat even half of it overnight, and they'll probably start at the edges, where they can get the best purchase, and where they'll do the least damage. Maybe the saddle cover would just make them say the heck with it altogether.

*I had two of the watches you mention, and I lost them both. Now I have a Hamilton (branded) one, sans L.L. Bean logo (which I didn't mind, but I know what you mean), but it's quartz, and I'm not sure if Hammy still makes the mechanical ~~one~~. There's a **Bemrus** mechanical watch, too, and The **V** Country Store, whose catalogue we encouraged everybody to get in RR11, still offers a **Timex** mechanical.*

I'm glad to hear you like the PowerBeams. I've heard lots of good things about them, and nothing bad, and the WTB people are ~~sure~~, so I believe the rims are good. We got hooked up with Sun early in the game, they did us some favors, the CR18 rim has been perfect, strong, consistent, and problem-free too, so we're sticking with it for now. One thing I like about WTB rims in general: They all have parallel sidewalls and none are too skinny (which suggests a stance against dumb rims, even though there's a market for them). That's pretty unusual. Sometimes, when you ask a maker who has a really good smart selection of something why they also include some ~~really~~ bad variations, they'll say "well, different strokes..." or "there's a market for that, too..."", and that always makes you feel a little different about them. WTB seems to have a consistent design ethic.



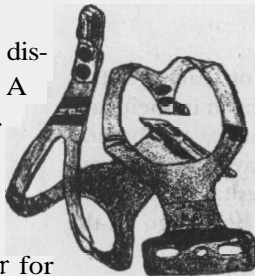
PROJECT UPDATES

NITTO RACKS.

We're getting 25 in the middle of December, most are spoken for, we have plans to get more, but it's sinking in that these will never be abundant, and we're somberly considering giving them up altogether, or just not saying anything more about them until we have some to sell. Probably the latter, since they'r *so* nice. In the meantime, look into Jaanndd racks (good racks at half the price), Bruce Gordons (great racks at about the same price) or Bob Beckman's racks (great racks, not sure about the price).

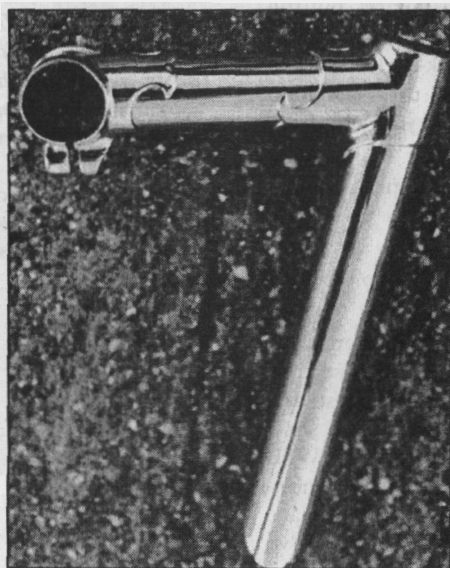
ALE TOE CLIPS

We got word yesterday that ALE has discontinued its stainless steel toe clips. A shock in some ways, definitely disappointing and nervous-making, but think about it—who else was buying them? Nobody in America, and the Europeans are in many ways wackier for new stuff than we are. Christophe is still in business, *so* we'll probably start phasing these in. Too bad, though. Of all our suppliers, domestic or international, ALE was the most reliable, consistent, fast, accurate...and they don't even speak English.



LUGGEDSTEM

We have castings and semi-prototypes. Reynolds is working on the final tubes, which will be specially formed 853. Match will make them, and they'll be nickel plated somewhere up in Washington. Nitto and Ross Schafer have agreed to test them ("create no parapalegics" *has* always been our no. 1 rule), and we hope to be selling them by January. That means March. Price as yet unde-



terminated, but it'll be somewhere around \$150. It's not cheap. Quill length, 160mm. Extensions, 80 to 130 or *so*. Angle: 73.5 degrees. Weight: It won't be heavy, it won't float away. Probably around 320g in a 110.

TOURING SHOES

We're getting samples of SIDIs. When we figure out the sizing on them, we'll put a blurb in here and take orders. They'll cost MORE than the English shoes you have to mail away to England for, and the wait may be longer, and they won't be *as* hand-made...but all that aside, they are terrific shoes that will make you happy, and are well worth the \$125 they'll cost.

MATCH-BUILT ALL-ROUNDERS

Starting early 1999. We have to get our new lugs finished, and that may be a couple months. But all A/R orders received from now on will be made by Match. For several months now we've been working closely with Tim Isaac and his crew-of-seven, and these frames will be outstanding—just what we expect, just what you should expect from any frame we design and call a Rivendell. Going to Match for All-Rounders is a wonderful move that gives us the quality we need, and shortens delivery on all the frames. Joe was getting overwhelmed, we were backlogged 11 months, and our deal with Match will solve many problems at once. We'll profile Match in the next issue, but in the meantime, if it's an All-Rounder you want, order up a Match built Rivendell.

WEB PAGE

Peter's been doing this, and it's going slow but good. By the time you read this, he will have actually had a class in web paging. The goal is timely updates, complete information, easy access to colors where they matter, and secure ordering. Rivendellbicycles.com. See also the Heron page: Heronbicycles.com. You can click to it from the Rivendell page, and probably vice versa.

BAR-END SHIFTER CONVERSION WIDGET

Remember in RR13, where we showed how to use a Shimano barend mount to turn SunTour and other downtube shifters into deluxe barend shifters? We complained then that we just need to find a source for those

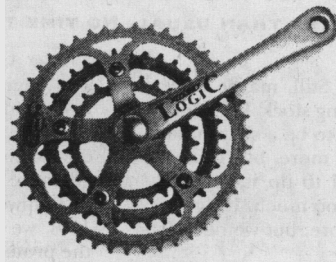
mounts. Dia-Compe is working on it for us, and if they come through, we should have something by June. Then we'll have an eight-year supply of Power Ratchet bar-end shifters, and there could be worse things than that.

HERON REVIEWS

In a near future issue of both *Bicycling* and *Adventure Cycling*, there will be reviews of the Heron bikes.

RITCHEY CRANKS, 170MM TRIPLES IN GENERAL.

Ritchey is no longer ordering up the Logic 110/74 bcd silver triple in 170, so we're hunting for substitutes. TA is a likely source, but the price will go up. Still, it has a relatively low Q (low 150s), and is the best-finished crank we've seen in years, possibly ever. French.



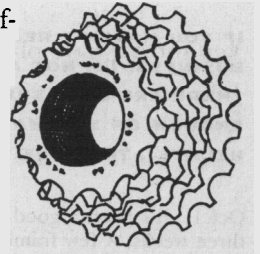
NEW SEAT POUCH.

There's an ultra-French seat pouch (big enough for 2 1/2 apples) made by Gilles Berthout, except that Gilles Berthout no longer makes it. So we're copying the best features of it, adding another, and with a little luck and

lots of prodding/poking, we're hoping to convince Duluth Tent and Awning to make it for us. They've had J.Bayley's sample for six months now, and promise a sample soon. Then, so long as they don't require 1,000 minimums, we'll be in business.

SIX-SPEED REGINA FREEWHEELS!

We have them again! In good, half-stepping ratios! Regina! Silver! Nothing wrong with these at all! See the flyer. We expect this to be a regular item now, but you ne'er kno. Ratios: 12-26, or 12-28.



SUNRACE CHAINS AND FREEWHEELS?

Maybe. They have a local warehouse, so they're actually available. They actually return our calls and process our orders, and so long as the freewheels don't blow up, why the heck not? Yes, Taiwan, but everyone else is giving up on freewheels, so let's put our support where it's warranted (we say...). So far, our severe hillclimb tests have proven them worthy. See the flyer, and don't you dare squawk about Taiwan chains and freewheels. Consider the alternatives, if you can find them.

Continued from page 1

remember shooting trap with him at the same range 34 years ago), and that's the last time I'm going to say anything about it that has any hint of justification. Anyway, the best shotgun grips are checkered. Checkering is done by hand, slowly, with a tiny, inverted V-shaped cutter. The lines are cross-hatched in such a way that you end up with a checkered handle that looks good and offers a grip. If the checkering is good, swirls and grain features that stand out in the unchecked portion flow uninterrupted and clearly visible through the checkered grip.

Around 1968 or so, they figured out a way to shortcut the hand-checkering. They branded a checker-looking pattern into the wood, using a hot iron and a two seconds of firm pressure. The diamonds then were negative recesses, as opposed to the positive points that checkering gave, and the whole area was dark and burnt, so there was no hope of seeing the wood through it. At first it was used on guns that otherwise would have had plain, unchecked grips (cheaper but no big deal). Over time it's crept upward, and my dad hated that from the start. He didn't dwell on it like I tend to do, but he hated it just the same.

He also hated foam grips on fly rods and red-handled knives. I hate the foam, and it's probably why I don't like it on handlebars, too. I can handle Swiss Army knives, but you have to have some real ones, too.

He wasn't a snob, but he thought I was, mainly because I don't fish with flies tied with synthetic materials, and don't use strike indicators. He'd fish with any flies, but even he held out on the strike indicators.

For the last 19 years of his life, he traveled every summer to Montana to fish the same stretch of the same river. So, that's where I said I'd spread his ashes, probably next Father's Day. The best way to die for the dier is suddenly, of a heart attack, and that's how he wanted it and got it. It's harder on the survivors, though, especially if they have regrets. No time to make amends, to say the things you need to say. During the past few years, whenever I couldn't think of a present for my dad, I wrote him letters, telling him why I loved him and recalling things from the past that he did, or we did together, that meant so much to me and were so influential. You do what you want to, I don't mean to preach just because my dad died. —Grant

PROGRESS REPORT

IF YOU HAVEN'T READ THIS BEFORE: THE PROGRESS REPORT IS MY PERSONAL JOURNAL OF STARTING AND MAINTAINING THIS BUSINESS. I'M NOT A GOOD BUSINESSMAN, I GET FRUSTRATED, THINGS DON'T ALWAYS WORK OUT THE WAY I'D LIKE THEM TO, THERE ARE UGLY SURPRISES, AND SOMETIMES I JUST NEED TO VENT. YOU DON'T HAVE TO READ IT, BUT I HAVE TO WRITE IT, AND ENOUGH OF YOU HAVE TOLD ME YOU ENJOY READING IT (MANY OF YOU HAVE SMALL BUSINESSES OF YOUR OWN, AND CAN RELATE), THAT I'VE DECIDED TO KEEP IT PUBLIC. THIS ONE IS SHORTER THAN USUAL. NO TIME TO WRITE.—GRANT

Oct 1. It's been a good three weeks, the last three weeks. A few frames have been coming in, *so as* people pay off the balances and order parts for them, we do pretty well. A few days ago the deposit *was* more than \$5,000, but that included two Herons, and we don't actually make money on them...but most people who buy Herons buy parts, too, *so* that helps. Our average daily deposit is around \$2,400 or *so*, and our bills aren't *so* bad, but we're still recovering from the printing one.

Partwise, we have many problems and concerns. We're out of the SunTour bar-end shifters, and are trying to find someone to make a fake Shimano plug, or any kind of adapter, *so* we can *use* the Sprint downtube shifters *as* bar-ends. Dia-Tech, which is Dia-Compe's Taiwan company, is looking at it.

There won't be any more Ritchey Logic 170 triples in silver, *so* we need another 170mm crank. TA's a possibility, but actually getting them is turning out to be a soap opera, amazingly enough, and prices are *so* high. No wonder TA does *so* crappily in this country. Our cost on the cranks is \$175+ dollars, *so* they'd have to sell for at least \$250, and that takes a lot of the fun out of it. They're good cranks, though. Another possibility, just *for* 170s, is Sugino AT, the first ever mountain bike specific crank, made in 1985 or *so*. We have a source, and I've ordered up some samples. I know the crank, and it's the same quality *as* a Ritchey, and it looks great, and I think the Q is in the low to mid 150s, just like TA...*so* we ordered a sample and we'll measure it and see which Phil bb it goes best with.

Mostly, we have to get the Match frames going. We need finished lug designs, and money to buy the tooling and order up the production *of* lugs, and then tubing. What we need is \$25,000, *so* we have to be tightwads in the parts-buying department, and that's hot *so* easy. There are some nice caches of good old new parts out there, and it's really tempting to buy it all. Buying existing parts is a lot cheaper than designing new ones and paying mold charges and production charges for huge minimums. Ultimately we have to become independent, but independence costs money. I keep thinking "sell more stock," but I don't want to get in the habit of selling stock to raise money. It's better in the long run, and a good habit, to raise money by not spending it and

operating a good business. Still, maybe if we could just raise \$20K by selling stock, DB might buy some, and I'd like him to be a shareholder, anyway. BHA might buy more, but I don't want him to feel pressured to do it, and he already has come through too much. If I get a good tax return, I'll buy more, but we need it before tax time.

We're going to get a digital camera to help with the web page. We've gotten a few memberships from it, from the online form, and that's kind of exciting. The potential seems so great, and Peter's getting educated about it and is doing a good job with it.

I've been riding a lot, and yesterday I rode in the morning with Peter (so I got in late) and in the evening with Jeff (so I left early), and that makes me feel guilty. But I finally feel sort of in shape, and winter's coming, so I won't get as much chance to ride then. Money money money, and we need more, and if things can continue this way, we'll be okay. Nitto racks—yikes, they're taking forever. The Carradice Boxy bag hasn't yet arrived (after the prototype, which is great), and we're out of several items, including Brooks saddles again, but everything but the Nitto racks should be in by mid October.

I'm going to try to get this out by Thanksgiving. Frank is contributing many pages about SunTour, and that'll help a lot. We got a frame back from the Lars Anderson bike show back east, and it has a nasty scrap in it. That'll cost \$150 to fix. Frames are way behind, but they sure are good when they get here, *so* it's hard to complain. We have about 120 in the cue, *so* Joe's going to be busy for a while. He's requesting weeks of 3-3-3-2 frame per week (by the month), with a week of no building, every quarter. That's fine, he can do whatever he likes, and we'd be thrilled to actually get those 3-3-3-2, since it's been more like 0-2-1-2 lately. Joe, if you read this, you KNOW it's not a complaint. We're going to send out a note to all frame orderers, and maybe with a small gift certificate, begging for more patience. ⁹

Oct 7, a big day. Carradice came in, and the Boxy Bags finally arrived, and they look terrific, way better than the prototype. Carradice made some neat last minute changes, just little details, and the bags are perfect, and they're going out now.

The Sugino AT crank we got a sample of last week and had such high hopes for is turning out to be so super cool. It needs a 130mm spindle, so we may not get them. We're trying to get more Ritchey cranks, but there are all kinds of semiweird politics with that one. We need 170s, we have plenty of the others. Yesterday the prototype lugged stem arrived, and it looks great. Reynolds has agreed to do the tubing for it, and if Allotec can make the small tooling changes, we can make some more correct prototypes and maybe actually deliver some stems before 1999. It's theoretically possible, but these things always take forever. Anyway, we're all excited about that.

Dang. The Boxy Bags don't fit the rack. Crap. The production bags are off from the prototype. The best solution would be to have Nitto modify the rack, but Nitto rack modifications are famous for taking forever, and in the meantime we've shipped out half a dozen already, so we'll have to get them back. Maybe I can figure *'out*a way to modify them using standard hardware store stuff. Then we'll offer a discount if the customers want to keep them. Man, I hate this stuff. We've got to get it all down perfect. I'll fax Nitto and ask if they can rush us some new racks, with support rods 30mm longer.

The batch today was \$2,300, which is pretty good. The Reader, number 13, is at the printer and should be in the mail next week. We got a digital camera, an Olympus 340L or something, and I'm trying to figure it out. The Flashpath adapter thing we got for it is for PCs, not MACs, *so* I sent that back for a Mac version. We're getting a couple to three new members a day directly from the Web page. Peter's doing a good job on it, and I think he likes doing it. Man, those Boxy Bag problems really bum me out. It's just another thing.

We're out of All-Rounder seat lugs, but Joe figured out a way to modify the road lugs *so* they're a good match, and that'll save us loads *of* grief. Today a guy who cancelled a frame months ago, I just found out he ordered again a few days ago. That makes me *so* happy. Those dumb Boxy Bags. They're *so* perfect, otherwise. I just wish, this one time, that Nitto could turn something around fast, just FOR FUN.

I need to figure out a way to modify the others. I haven't been on my bike for 3 days, except to

commute. Tomorrow morning, a ride. Peter said maybe, but I'm going for sure.

Oct 8. I think I figured out a way to make the Boxy Bag work with the existing rack, but it'll look "figured out," and I don't know if people will go for it. I would, but I'm a slob in those ways. We just need an inch or so of similar-diameter tubing and a longer metric bolt. I think it's M8 thread, but maybe M6. I'll try to get some at the hardware store today, and as for the tubing, I think an aluminum arrow shaft would work. Nitto could send us short sections of tubing, and they could also supply us longer bolts, and that'll get us through this first batch.

Last night I opened a box that had been at the foot of my desk for a few days, and it was a modified road seat lug that Joe carved up to match the All-Rounder seat lug, which we're out of now. It looks great, and what a relief that is. Now we don't have to spend \$2,800 on a new tool and buy 400 pieces that we won't use because eventually Match will be making the frames.

I took some pix with the digital camera today. Brooks should arrive today, and the new T-shirts. Yesterday I got a quote on cycling caps, and they're \$5.37 each, which means they ought to sell for \$8 or so, which explains why that's what they do sell for in stores, but I can't get used to an \$8 cycling cap, and since they're a Rivendell thing, I feel funny about selling them for so much. After we raise prices on the frames, we'll supply a hat and t-shirt with each frame, sort of a scaled down variation of what Gios used to do, with a musette, a hat, and an embroidered wool jersey. Maybe we'll throw in a couple water bottles, too, since they cost us just \$1.20 each or so. So \$2.40 + 5.37 + \$10 for the t-shirt, and that's \$17.77, but the frames are going to have to go up at least another \$125 anyway.

Oct 14. I've been talking with Tim I. at Match a lot lately, mostly about stem and frame lugs and the project, and it's been making me think more (even more) about the Match hook-up. I don't know exactly what to do about the frames, mostly how they will either complement or compete with the Joe-built. The main thing is, we don't want them to be perceived as second best Rivendells, or substandard in any way, and on the surface, with the limited sizes and fewer options and lower price and shorter wait, that's not going to be easy. It's not a matter of tricks or marketing or anything like that. I think it's just a matter of education. The best way to sell Match-built frames is to run every potential customer through the Match shop and see how they're mitered and fit together and brazed, and see how immaculate the shop is, and talk to the builders, and understand that the builders are former builders at other fancy frame shops and to listen to Tim talk about his history with lugged frames, and hear his obvious total dedication to steel and lugs, and stuff like that...but that's not possible. The Joebuilts will go up to \$1500 at least—they have to. If the Matchbuilts are \$1200, but come in fewer sizes and no color options (we'd have

a color change every year), then would the \$300 difference and the more immediate (maybe completely immediate) delivery be enough to sell them? Even to get them down that low, we'll have to build them in production runs, and there'd be no customized tubing according to rider weight and so forth. So that's another thing—are people going to figure "well, for \$300, I'll wait longer and get a Joe-built...since I'm up to \$1200 already, what's another \$300?", and it would be a disaster if that happened.

I think the lugs will be key. They have to be spectacular. They'll be different from the current ones, but they can't be any less pretty. Also, since Match is already building with 853, the main frames will be that, and Tim's sure Reynolds will do us up some custom tubes. I'll have to look over the standard 853 tubes and see if that's necessary. It might be easier to market "custom 853" tubes, but if there's no benefit to custom and we're doing it just for the custom label, that's a dumb and bad thing. I don't want to develop that habit, that's for sure. I have one idea for the downtube and top tube, and I doubt Reynolds is doing them so far. One is a 0.7mm plain gauge top tube. That goes against all the stuff we've heard about butting so far, but it makes sense in a top tube. The 0.7 at the ends is thick enough to braze, and then you get the 0.7 in the middle, for good dent-resistance. Most tubes get stressed at the ends more, but top tubes so often get whacked by handlebars and poles and furniture, and the 0.7 in the belly makes sense. And, in 853, it ought to be pretty tough. Anyway, probably the Matchbuilts will have 853 main triangles, and I don't know what for the other tubes. Right now we're using lots of Reynolds 725 chainstays and seat stays, and 531 fork blades, but that's with main triangles of Vitus and Columbus, and Reynolds 753—so we get at least 3 brands in there. I like the idea of different tubing brands in a frame, although if Reynolds can supply all the tubes, it doesn't make much difference. None, functionally, but at some level it makes a more interesting frame to have tubes from Italy, France, and England in there. The thing is, Columbus doesn't make any super duper seat stays, and the last batch of Columbus chainstays we got in didn't measure what they were supposed to, so we sent them back. Vitus needs to make longer chainstays, and they can do that. Vitus has some good seat stays in 16x0.8mm (good for All-Rounders and LongLows with cantis), and some really nice superlight ones for small light frames, but Reynolds has the best all-around selection. But I'd rather use non-Reynolds seat stays, all things alike, because the Reynolds custom-length 531 fork blades we're getting have a lock on the forks, and so on. So...and then there's color. I've always liked the idea of just ONE COLOR, NO CHOICES, but I'd hate to kill these terrific frames with a no-options deal like that. One thing all this makes me think about is the possibility of opening dealers for the Matchbuilts. That would help us get the volume we need, and we'd reach more people, for sure, but the thought of disinterested downhillers talking to good people about our frames drives me nuts. "OH, it's a retro-sorta

thing, man. Traditional, old-school, and all that. Pretty cool, huh?" I can hear it now. To make it work with dealers, we need dealers we select, and educate, and can count on, and we can't offer 30-day terms. We'll sell at very little markup to them just to get the volume where we need it, and we'd still sell direct ourselves. So maybe 20 to 25 dealers nationwide, hand-picked, and they'd have to buy a certain minimum and pay by cash or credit card (let the bank worry about collecting, since we don't have a credit department). I don't know how to go about finding those dealers. We used to have a list of interested dealers, but it got lost in the move a couple years ago. Some of our customers are dealers, but there's a difference between being emotionally supportive of Rivendell and actually ponying up to several thousand dollarsworth of frames at once. They can buy Treks and get 5 months to pay for them, and there's no time involved in educating the customer about them. They aren't as good, but people have heard of them, at least. To sell Rivendells through a shop, you have to know a lot and be enthusiastic, and be able to pay for them. Usually the shops who COULD pay up front WON'T, and they don't have the knowledge, anyway. But among 6,300 bike shops in this country, can we find 25 who will sell 10 frames per year, and buy half of them up front? Maybe if we have only one color, it would help that. Then at least they won't fear being out of stock of the wrong color. I think I'll put the word out in the next RR (in this one). I have a few shops in mind already. Vance should be able to do it. Wheelsmith, too? They're sort of in the same territory, so will that create a conflict? Assuming either is even interested. Hiroshi could. The Gallery, but they already do Serrotta. I'm going to think about this. Maybe take out an ad in Bike Retailer and VeloBusiness.

We got three Joeframe in this week, all perfect as usual. Our days are good—around \$2,000 to \$2,800, and we've got to sock some away to get the Matchbuilts off the ground, buy lugs and stuff.

Oct 15. I got some prices from Tim yesterday, and I don't think there's going to be room for a dealer in there. We'd have to sell at no profit at all, or so little as to not make it worth it. So, maybe we could get bike club addresses and sell direct to members there. We have to do something to get the volume up, and I'm not sure how else to do it. We don't have to sell tons outside our normal group, but just if we could get maybe at least 60 frames a year per model, that would help a lot. We'll start off with A/Rs only, and maybe that will be enough for a while. For the first time ever I'm feeling that pressure to expand, and it's not a healthy-happy feeling, but we aren't talking about huge growth, just enough to satisfy the demand. Maybe, instead of Match making just 5/6 sizes for us, it should do the whole range, and Joe wouldn't do ANY A/Rs. That might be best. I need to talk to Tim about that, about how it would work.

Oct 16. I just got off the phone with David from Carradice, asking about our latest and

rather big and sort of late order, and he said the problem is the fabric. British Millerain, who waxes the cotton (and also does Barbour jackets and probably all or at least most of the British waxed or oiled cotton), got in some new machinery which isn't compatible with the heavy duck, so they don't want to do the cotton anymore. David's quite sad about that, and frustrated, because BM has been Carradice's only source for the fabric for the last 15 years, and there's no terrific alternative. David said they're trying out a local waxer, and the result is good functionally, but it's not as stiff as the BM stuff, and he knows we like them extra stiff, so he's concerned about that. He's also investigating waxing in India, where he says they have quite high standards in that way. In the meantime, we have lots of backordered bags, but David says he has some dark green fabric (which we've seen and got some samples of), and we could use that. I've been reluctant to use green before, since it's not the traditional color (reason #1) and mostly because it creates inventory problems, and if someone has some black rear bags and wants matching fronts, and all we have are greenies, well, that could get frustrating, and so on. Or, if we started to carry greenies, maybe customers would call back and say "I have a black, can I exchange it? It's hardly used..." Yipes. But anyway, I asked him to fill the current order with the greenies, and he said fine, and that it would probably be the last of the greens, since offering the option has created for them the same kinds of problems we've been avoiding by offering only black. Probably in May '99 someone will read this and ask "Do you have any of the green bags in stock?" As it is, we'll have to get OKs from the people who've ordered bags, so that'll be a lot of phone calls, and each explanation will be 5 minutes or so.

David's going to send a sample of the new fabric, and he'll try to get the wax heavier on it, and we'll test it with a hose alongside the old blackies. Or, we'll test it alongside the old blackies with a hose. Or, with a hose alongside the old blackies, we'll test it. Or, hosewise and old blackywise, we'll test it alongside with a hose. I'll just double up the hose and wack it a lot.

RR13 got here yesterday. I said "horizontal" where I meant "vertical," and that's about the worst kind (my least favorite) of typo/mistake. I'm not as happy with the issue as I thought I'd be. I hope it gets us some orders, though, because it has been slow lately.

This computer has been making a loud, grinding noise lately, for about a month, and everyone who hears it for the first time, even non-computer people, say "what's THAT?!" But it has just mysteriously stopped.

Oct 29. It's been a good week moneywise. The Reader has hit and we're getting orders, and except for Carradice and Nitto, we have most of it in stock. Carradice should be here in a week, and Nitto by mid November, but the rear racks again won't make it. Beautiful racks, but not worth the hassle. I think if we were to focus just on racks, we could actually make a business

out of it, but as part of this whole thing they're just time-magnets and frustration sources. Patchen and Jennifer made it back finally, from their 2+ year around the world trip, and their racks held up fine, and frames, too, and that's good. Carter and Brad are on their trip from Alaska to the tip of South America, and I like knowing their with our stuff, too. We sent them a care package today, and I hope it gets to New Mexico before they reach Mexico.

About 8 frame orders are delayed even longer because we can't get the baseball bat tubes. Supposedly they're in, supposedly they were shipped last Friday from New York, but I have my doubts, and I don't know what to do otherwise. It wouldn't be an issue if we had a 31.8 lower head lug to match the other road lugs, and that's probably where we should go with it.

The goal, every week from now through January, is to put away \$2,000 either in the bank or toward our line of credit. We need to come up with about \$25K to kick off the Match project. One customer suggested lifetime memberships, and said he'd pay \$200 for one. I've thought of it before, but we were younger then, and it seemed even more presumptuous. Maybe \$150. If we could get a hundred customers to do that, we'd have \$15,000, and that would give us a good start. Tim says he'll be finished with the lug drawings (for the toolmaker) in ten days. Match is excited about the frames, and we're excited to go there. I think Joe's a hair concerned about it, but he knows we have to do it, and has even volunteered to bend the A/R forks for them, since he has the experience with it, and the wooden blocks.

The 1998 frame brochure is dragging along, but with the Match thing so imminent but still not locked in, I'm not sure how to handle that in there. We're going to do it, that's for sure. Prices have to go up. I think the frames Joe builds will be around \$1500 or \$1600, and the All-Rounders will be around \$1,400. I'm still concerned about how that'll look and what people will think, but it'll look how it looks and they'll think what they will, and that's all there is, I guess. Colors on the Match bikes are still up in the air. I'd like to simplify our colors in general, and I'd like a lot, to drop the extra expensive ones that we don't charge any more for, like the light blue metallic and the pearl orange. JB's paintjobs are going up next year, they have to and they're worth it, but between that and Joe's increase and our need to make a decent markup on the frames, they really ought to be \$1600. I'm just scared that if we do that, we'll lose sales, Joe will lose work, and then what? Richard charges and gets \$2,000, Peter W. gets \$1,650... these are in that class, and here I am quivering at the same prices. But I don't want to have to sweat about selling them, either. I don't want to sweat about giving Joe enough work for him to not have to sweat, either. There are too many other parts of the business to deal with daily, and if I had to worry about selling two frames per week every week, it would take a lot out of me. The frame brochure might help, but we can barely afford to print a thousand of them. A good review in a magazine would help, but mags are reluctant

to review bikes that take half a year or more to get, because their readers get mad at that. We just got a LongLow frame that was supposed to be for Tony A. at Bicycling, but I don't think they'll want to review it, given the lead time. We had it painted a non-standard color, too, just to try out a possible color for next year, and that might be too weird for a review. Maybe we'll build it up as a bike for the SF bike show, a couple months long starting in a week or so, and then sell it as a complete bike, or keep it as a showroom model.

The radiator shop across the driveway is going out of business after ten years, because nobody fixes radiators anymore because new cars have plastic ones, or something like that. It's too bad. Rose says she can split up the space, and if we get the half we want, we'll have an ideal arrangement. Peter really wants to do it, and I want it about 70 percent as much as he does. No more daylight saving time, and that means no more afterwork rides, and I'm getting fat already.

Nov 2. Oh man. We need to pay \$8,000 a year in workers comp. It's not like we actually have it. Found out today. That seems high, but it's the lowest of the estimates we've gotten. Something must be wrong. All we do is sit at computers and talk on the phone and work on bikes and haul stuff up the stairs. Is THAT the problem? We can pay by the month, but still.... The frame brochure is taking forever and by now it's next year's brochure and I don't even know what our plan will be next year. Match for sure, Joe for sure, but colors and prices I'm not sure about. We need a Heron brochure, too, and that's probably more important right now, since we're not doing a good job selling them. In order to get the volume up to acceptable levels (to all concerned) we may have to sell through dealers, and if we do that, it won't be through Rivendell, because we don't have the staff for it. So maybe Wford can handle it, since they already have a bunch of dealers. Eight grand in workers comp. Crud.

The Columbus tubes still aren't here. I doubt they ever left Italy. I'm starting this week bummed out and worried and grumpy.

End of the day, one of the worst in months. Mostly just stress, and a major, real headache that wouldn't go away. I worked on lug drawings some, for the new All-Rounders, and I think they look good. I hope Tim likes them. We're going to need lots of money pretty soon, and I don't know how that'll happen. Lifetime memberships, maybe we'll get 5 buyers at \$200 and that'll be a thousand dollars. Anyway, the lugs again. I like them, and when we eventually run out of the road lugs, these will be good for all the bikes. Then we'll need a new down-tube lug, in 28.6 x 60-degrees, and by then maybe a road bb shell of our own, too. My back has been killing me lately, and that may be a stress thing, too. Tomorrow a guy who cancelled his frame after we'd already built it is coming by for yet another fitting, and the thing is, we still have his original frame. I looked over his fitting numbers, and we'll take them again,

and if they match up (as I think they will), I'll just say "well.....what about buying the frame we already built for you?" But I think he wants to start from scratch.

Nov 4. Finally all the new A/R lug drawings are finished, and they're spectacular, I think. We were going to use them just for A/Rs, but the upper head and seat lug will work for road bikes, and one of the three lower head lugs will work for big roads, and then we just need a 28.6mm version in 60-degrees for a standard road. It's five lugs, plus two stem lugs, and all it takes is money to get them made. I am *so* happy with these. Tim and I worked on them together, and we're *so* excited. They're fancy, but lugs have to be these days. They're borderline too fancy, and someone will say "too, too," but 1999 lugs have to be. They'll braze well and have no stress risers, and have good elements of French and English lugs, and even an Alex Singer-like spoon, but with a waist that Tim added. Seven lugs, at \$3,300 or *so* for each tool, plus a 500 minimum piece run each at \$5 or *so*...*so* we have to save money somehow.

The frame are stretched out now to August. That's at 2 per week starting January. We're going to try to group frames of identical size/geometry together, *so* Joe can build them more efficiently, and maybe some of the Joe All-Rounder people will go for the new ones.

RR14 is filling up but still needs organizing. I should probably do the shellac story, once and for all. I've been shellacking *lots* of bars lately, and I've got it down pretty good. The the tire story. When am I going to get time to do that test?

One of our suppliers told us today "we can't sell to mail order companies anymore." We didn't buy a lot from them, but I think it's ironic and hypocritical, since they're a mail order company themselves. They have to be for the same reason we have to be—there's not enough local business for the kinds of stuff we/they do. What if they couldn't sell all over? What if we couldn't? We'd both die. *So* that's sort of like traitorship of the worst kind. Like turning on your own kind. What a bunch of hypocritical garbage that is. And what bike shop are we threatening by selling Quick-Glo, anyway? *So* I ordered it from Mel, who we usually get it from anyway. But it'll be a week away from him, and this place was a day away.

Nov 7. A friend sent me a story from Inc. about companies growing and getting too hard to manage without outside help, and I have to admit I'm a little worried about us. Things seem to be going okay, but we have some semi-large projects looming out there, and already we're overwhelmed. The profile of the company in the story seems a lot like us, but bigger, and I think I need to read a book. The book recommended in the story is one I already have (Corporate Lifecycles), because it seemed like a good one to read way back at the start, but I haven't had time to read it. Have I read a complete book since Rivendell started? Man, I don't know. I've read an average of 5 childrens books a day for the past 5 years, *so* I win that one.

In the meantime, I'm constantly thinking about Joe and Match and our future with them, and how we're going to deliver bikes faster without losing the quality. We got a cancellation yesterday from a guy who's frame was just primed, ready for paint. I hope he'll take the frame. I'll talk to him Monday, since today is Saturday. He's waited almost 8 months and was going to buy a complete bike, *so* *lots* of money's at stake, and instead of us looking forward to a \$2,800 sale, we're facing a \$345 refund. I've already talked to him at least 4 hours on the phone, *lots* of back-and-forth about every detail, and it's all for nothing now, and he's angry to boot. I can understand his frustration, but it's frustrating for me because I know how much he'd like his bike, and he's *so* close to it.

Our TA. and Columbus agent is turning out to be less than a thousand percent reliable, credible, believable. We're desperate for some baseball bat tubes, he said he mailed them, he said he had one in his hand *as* he was measuring it, and he promised he'd mail them the next day, but nothing, and it's been two weeks and I've phoned him 15 times and faxed and emailed him, and he's there, but he doesn't even pick up the phone. Why can't he just say "Hey, I lied, sorry, go away!" Then I would.

Nov 10. The fellow who cancelled the A/R reconsidered. He was upset because he thought others were getting cuts, but they aren't, and I explained that, and *so* we're back and his frame will be painted this week. That's very good news.

A couple weeks ago we sent Nitto 100 bars of pine tar soap, since they have 85 employees and Mr. Yoshikawa got a bar earlier and mentioned that he liked it, and we thought it would be fun to supply the whole crew, and they've made us samples free of charge many times, *so* it's not *as* though we didn't owe them. But now we got word that Japanese customs allows only 25 bars of soap per shipment, *so* they (Japanese customs) confiscated 75 of the bars "for testing". *So* we'll send Nitto 3 more shipments, separately, over the next few weeks.

I'm getting anxious about getting RR14 finished. The shellac story has been delayed *so* many times. I need good pics for the SunTour story. My tire roll-off test story, I haven't even started it. We should put something in about Herons again. I'd like to show more pictures of bikes. The Happy Human needs to return. Project Updates happened twice, and it's probably time for another, given that we have lug castings for the stem, and drawings for the new A/R lugs. I'm waiting for the Alex Moulton story, and I've got to find the saddle story and get that retyped in. The Repack story can go in number 14 or 15, but it's long enough for 15 and too long for 14, I think. It needs an introduction.

Nov 13. We found a source for baseball bat downtubes! And we'll have them in a week. A guy has some Dedaccias. That's good news, especially since the Columbus ones will probably never come. Tonight's the opening of the art

center's bike display thing in S.F. We have three bikes there and are expected to show up at 8, but tonight's our Rivendell shareholder's meeting, which by corporation law, we have to have. Me and Peter and Mary and Ted and Spencer and Joe and Darryl will be there, that's all, and we'd probably all rather be at the bike shindig.

Nov 14. A customer crashed his bike and bent some tubes and the repair's really late and he's chewing us out. He has a right to be frustrated and no doubt he feel justified and all that, but it's still just the worst part of work. It's really hard. Frames are backed up 8 months, and we told him a month for the repair, but it's three months, and the communication was not good and he feels lied to, but he was never lied to, "then what do you call it, then?!" and all in all it's a nightmare. You just never know. It's so easy to be soft when things are going swimmingly, but there's no predicting how people will react when there's a few bad predictions and some frustration and *so* on. I think we need to get repairs done locally. Eric or Ed can do them. They're really good, and that way it won't interfere, and that way we'll be Wetter able to keep tabs on them, on where they are, and *so* forth. I think this is why, in big companies, the bosses insulate themselves from the public. It's no win here. You acknowledge his right to be mad. You apologize for things that aren't *as* cut and dried and simple as they seem. Any explanation is an excuse. You listen to the names and accusations, but you can't talk on equal terms, you can't say what you feel, and you can't even act hurt, because you're supposed to be a company, not a person, and this person is paying money for the right to rage. With the internet and all, nothing can even be private. There's always the implied threat of the net, and I think at some level, a whole lot of the lower third of the pyramid wants to see the company fall. Man, this is depressing. I get to have a bad day.

Nov 15. My dad died last night. I saw him yesterday morning, *as* I have every Saturday morning for the past two years. It's been a bad weekend. Our wedding anniversary's tomorrow.



WINTER FLYER

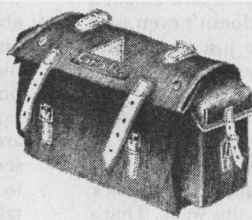
NEW, NORMAL, AND LTD. QTY

Shimano 600 EX sidepulls (short reach) — \$50

Forget the Shimano you know now. Back in the mid-eighties when the Yen was still weak and a dollar bought about ¥250, Japanese parts were at their peak in value. The manufacturers had been at it long enough to have honed their skills in both designing and manufacturing, and in those days, Shimano 600 and SunTour Cydone were fierce competitors in the high volume \$500 to \$700 mad bike market. There are minor differences, we have both and it's really a toss-up, which you get. They're both cold-forged, with the same finish quality. Like the Cydones, these have a micro-adjusting quick-release, a rubber barrel adjuster. The Cydones have nicer brake shoes & holders. Shimano's are engraved Shimano, and SunTours are screened. I think these brakes are from 1985, and as I recall, the 1984 model was even better (it had two-piece brake shoes). Calipers only, no levers, and the rear brake is nutted. You're probably thinking ~~That's not~~ good is an allen front and a nutted rear combo? Well, it's perfectly good. We've thoughtfully included neat little spacers that fit over the rear bolt and into the allen recess, effectively converting your allen bridge to nut-style, and then you just screw on the nut and go. Makes sense, works great, but if you're a pop-in/dick-on kind of rider, maybe no.

Rare Green Carradice!

As you know if you've read the Progress Report, Carradice's longtime fabric waxer pulled the plug on the waxing machines, and the only fabric Carradice had in stock when our last order was in place...was green. Not a weak green. Not a Mr. Greenjeans green, or a Granny Smith green, or a Polartech-teal. Sorry to disappoint you on all those counts, but this green is way better. It will take you back to childhood, playing in the peat bogs of Northumbria and dale country of southern Scotland, where the stewing, rotten vegetation mixes with the black coastal soil and brews up a dark green peat that is to die for. That Green. Do NOT call up in February and request these. They'll be gone by then and won't be back. The fling with green was just that. limited quantities.



LowSaddle Longflap — \$68

Nelson Longflap — \$69

Camper Longflap — \$72

Subterfuge! Hypocrisy! Sacreligiousness!

Plastic Carradice ponchos. — \$60

Well, it's like this: Waxed cotton is good, but the dark green (see above; different fabric, but the same green) is not the motorist's eye-catcher your mom might like it to be, and they don't make yellow waxed cotton. But they do make this screaming neon limey yellow plastic poncho, and if the carfolk don't see you in this, they should be ashamed of their eyesight. So if you like the idea of a poncho, and you don't want to have to re wax it now and then, and you're all for maximum visibility, this is the one to get.

Stocking Stuffers: The Deadly Dozen

(non-major cycling-related things that might even fit into a stocking)

SSI-VAR Saponified Grease — \$9

The whitest a grease has ever been. French, thick, our favorite of all time, and unavailable elsewhere in the United States.

SS2: ACME wheel reflectors — \$5 each

Practicality aside, statistics prove that few self-respecting cyclists ride with wheel reflectors, because most wheel reflectors unbalance the wheels, mess with the spoke tension, and add too much rotating weight. ACME's are our own design, been in constant use for at least 5 years, and are simply perfect. They weigh about 10g each (about 1/3 ounce), go on and off in 4 seconds, and don't change the spoke tension. Not CPSC approved, so it would be impru-

dent of us to suggest you remove your CPSC-approved plastic ones, but if it's these or nothing, get these and be safe. You never know when you'll be caught out at night, and these are light enough to keep on always. Also fits above the rear brake, around the seat stays.

SS3: ALE bottle cage and Rivendell water bottle — \$12

SS4: SmartWool sox — \$9

The best cycling sox we've tried, and four times better than the next best.

SS5: Rivendell Cycling cap — \$8

Kind of pricey, but they cost us \$5.50 and are cash flow killers. These are yellow-orange (the maker calls it "Campy Gold"), with creamy Rivendell on the underside of the bill, and a few RBW logos on the crown. Both are cream-filled and outlined in dark blue. One size fits most, but if you have a 7 3/4 head or larger or an Afro or Simmons, steer clear.

SS6: Rivendell ShortSleeve T — \$14

All cotton, in a fashionable distressed blue-grey color, with a familiar logo on the front and a catchy slogan (as yet undetermined) on the back. S-M-L-XL-XXL.

SS7: ACME Gloves — \$13

Cotton-back leather, with no mean or cheap colors, and no logo of any sort, not even a swoosh. Very nice.

SS8: Le Petite Livre Jaune — \$13

Daniel Rebour's bicycle primer blended with a subtle message to buy VAR tools, and complete with Rebour's own illustrations. You'll notice the word jaundiced comes from this book.

SS9: Inner tubes — \$4

Either 700c (one size) or 26-inch (skinny, to 26 x 1.4); medium (1.25 to 1.9) or fatter (1.75 and bigger).

SS10: Cool Tool — \$21

Something like 13 tools in one. Rare for multi-tools, it also includes both 14mm and 15mm sockets, which is why it's the only one we carry.

SS11: Thin Woolly Undershirts.

These are quickly becoming our most popular item. Usually someone will order one to try them out, then come back for at least a couple more. Soooooo useful, on and off the bike. Combine all three (sleeveless, short, and long-sleeve) and you've got a super versatile conglomeration of torso-wear, for less than what most single bicycle jerseys sell for.

Sleeveless: \$16

Shortsleeve: \$24

LongSleeve: \$28



SSI 2 ACME Ankle Reflector — \$6

Every cyclist needs an ankle reflector, and this one has manytimes the surface area of any other. It is to other ankle reflectors what Mathauser brake shoes are to felt pads. Made of limey yellow Reflexite. Can also be used to secure your pump, or as an arm reflector, or as a seatpost-wrapfleaor.

Bottom bracket spindle for Sugino AT — \$10

130mm, brownie (it's brown, not silver).

Sugino AT crankarm sets. 170mm only, with all bolts and spacers to make it a triple. —\$30

Sugino's AT was the first pure mountain bike crank ever made, so you know it happened in the early '80s. It came stock on the best mountain bikes of its era, and since its era was the early to mid '80s, you know it was very fine quality. Cold forged, great finish. and just a quirk or two: 1) As a triple, it takes a 130mm bottom bracket, and has a Q of about 158mm—less than a modern Campy triple, but higher than we'd like to see. As a double, you can run it on a 125mm spindle and get it down to 153 or so. These are better made and better finished than most crankarms that come on \$150 cranks. and yet we're selling the armsets alone for \$30. Then pop for the chainrings (10mm bcd outer and middle, 74mm inner) and you're all set. The perfect upgrade for a crummy crank on an otherwise decent bike.

Itchy Wool Sweater/Heavy Underwear —

\$42

Longsleeve, crew neck, heavy ribbed greyish black wool, ideal for cold rides when worn over a thin wooly undershirt. Clings and stretches and you'll feel like a Scottish coal miner in it. Timeless style, in a good (coalminer) way. Pal Jeff----->



Kelly Takeoff Kits —\$75

Better and cheaper than Ergo or STI. Better needs qualifying, so. These are more versatile (you can mount any downtube shifters on them). They're accessible from many hand-positions on the bar. They're independent of the brake levers, and they're not even unattractive. If you buy the kit, you may take \$15 off any downtube shifter we offer, if you buy them together. Not within a month; at the same time.

Brooks B. 17 Saddle Bonnets —\$14

On especially sweaty or rainy rides, it's best to put this on your saddle to protect it. Made exclusively for us, especially for the Brooks B. 17. A snug fit, but it goes on and does the job.

Brooks B.17 —\$68 (brown/steel); \$130 (grey/titanium)

Combines impotence protection with classic good looks and luxurious comfort. The brown ones cost \$68, weight 520g or so. and have black steel rails; the grey ones cost \$130, weigh 420g or so. and have titanium rails.



Shellac KITS! —\$10

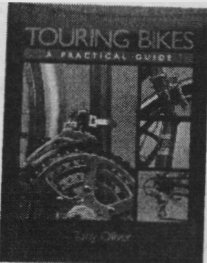
Two types and colors: 1) Seedlac, which is the rawest, crudest, earthiest form of shellac, and is reddish brown; and 2) Blonde DeWaxed, which is as white as they can make it without scientifically artificial means. It's a light golden yellow. Two ounce bags. Comes with a brush, a water bottle, and fantastic directions for foolproof shellac-splattering. All you have to get is the denatured alcohol, which you can pick up at the hardware store for \$3 a pint. This much shellac will do at least 7 handlebars.

Shimano Dura-Ace sidepulls —\$90

From 1990 or so. Single-pivot, and when you get ride down to it and over your Shimano-phobia and can be objective and all that, these may be the best sidepull brakes ever made. The only thing I hate about them is the indexing quick-release, but the detents are small, and functionally there's absolutely no drawback so it's more of a philosophical hatred, and one I could get over if I could even afford these brakes. They're silver and short-reach (49mm maximum, so they fit Rientells and Heron Roads and all other modern road bikes). A good choice if a) you don't have a policy against Shimano; b) even though you appreciate the value of Cydones and Shimano 600 sidepulls, you can't bring yourself to put them on your ultimate dream bike. Imported from Italy. No box, but we'll wrap them nice.

Touring Bikes (a book) —\$40

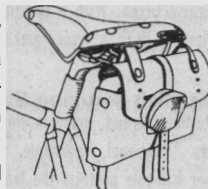
This is the perfect \$40 gift for someone who likes bikes a lot, is interested in frames and frame design, and stuff like that. A sure hit, and not available in bike shops or book stores. Written



by Tony Oliver, and English physicist and framebuilder with a needs-reeling-in phobia of damp-on front derailleurs and horizontal dropouts, and what seems to be a vendetta against twin lateral frame tubes as stiffeners. I think Tom Ritchey, Jobst Brandt, Alex Houlton, and Joe Breeze might argue that one, but his highly opinionated text is fun to read, informative, and makes you think. Chapters on special frames, too—really big, really small, and so forth. If \$40 won't make you cry, this is a deal. Hardcover.

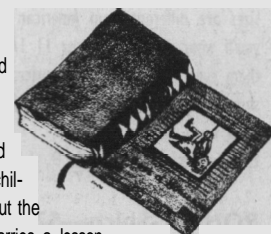
ACME Leather Saddle Pouch —\$40

Made by Rivendell member Steve Jackson. Thick pinkish leather held together with copper rivets. Attaches to the loops of any Brooks saddle, but it fits on handlebars, too. Big enough for a spare tube, tools, money, keys, and a fake Power Bar. with provisions for attaching a dip-on red flasher light, and tying on a Sunday paper, helmet, rain gear, or an extra pair of shoes. Grease it up for total waterproofness and to help it darken and mellow over time. Nice thick leather. A good gift, but make sure the person-rider has a saddle with loops in it.



The Book of Nonsense —\$14

Edward Lear's magnum opus from 1848, fully illustrated by Lear himself. Limericks, botany, short stories, and a wacky alphabet. Hardcover, very nicely bound, even has a sewn-in bookmark. A perennial best-seller here, and we often get repeat orders for it. Good for adults or children. Don't read just the limericks—the short story about the guys who went to sea in a sieve is spectacular, and carries a lesson for us all. Probably the only book in the world—or the solar system, for that matter—that comes with a double-your-moneyback guarantee. But in this case, you get Rivendollars, not real money. Edward Lear began his career as a scientific illustrator, specializing in birds. As his eyesight suffered, he gravitated to landscapes.



Phil Wood Tenacious Oil —\$6

This is the Jackrabbit cross-country ski wax of bike lubricants—ideal for nothing, but works everywhere, and this small bottle will last you five years at least. Threads, cables, brake cable heads, bearings (even if grease is better), seat posts, spindle tapers, freewheels, and all metal brake-spring/caliper arm contacts. Sometimes when you're putting a bike together and just need a touch of lube and don't want to dip a finger into a tub, this lets you do it without getting slimy. You can hold the bottle and unscrew the top and drip a drop and rub it on and replace the top, if not in one motion, at least with one hand.



Willow Triplizer chainrings—\$52

Converts doubles to triples. Read p. 64 of CatNo.4 for instructions. These rings have saved tons of double-cranksets from premature retirement, and they can do the same for yours.

Ritchey Logic Pro Bottom Brackets —\$40

We bought up the last of them cheap, so we lowered the price. 120mm spindles. perfect for the increasingly rare Ritchey cranks, and others that take 120mm spindles. Probably the best-designed cup-and-cone bottom bracket ever.

Long Sleeve Italian Wool Jerseys —\$57

Sergal recently folded after half a century, and this is what we have left of our Sergal jerseys. Sizerwise, the bigger the number, the bigger the jersey. A 6 fits someone who's 6' 3" x 215lb better than it does someone who's 5' 9" x 215. So it's more like an XXtall than XXlarge. An Italian 3 fits someone who's between 5' 4" and 5' 8", 110 to 145 lb. Other sizes are in between. Superwash wool, so it shrinks very little. Best to wash warm (with soap, not detergent, but we break that rule all the time) and dry on a line or on cool setting. Before we get into the specifics, know this: We basically dislike selling cycling jerseys. They're a pain to stock, extremely expensive, and people tend to expect tailor-made fits. In the case of these Sergals, they're sewn good enough most of the time, but sometimes a zipper is slightly crooked, and sometimes, after a year or so, a collar seam needs some needle-

more

work. In other words, it's not like buying a shot put. What you get, though, is an extremely comfortable, classical cycling jersey that, with minimal maintenance and occasional touch-ups, will last you a good 5-to-8 years of regular use. We have around 5 of each color and size, and this is a blowout price.

Here are the styles:

Stripes: Two-inch tall horizontal stripes in blue, another blue, and a limey-olive. The most attractive foggy-weather jersey available that isn't orange.

Sizes: 6, 5, 4, 3.

Grassy Green: With a thin maroon band on both of the cuffs and the one collar.

Maroon: With a grassy green band on the collar and both of the cuffs.

English Touring Shoes—\$100/\$140

Reynolds brand, made in Northampton, which among the English, is known for its shoemakers. Traditional, handmade, all-leather, heeled, English touring shoes. Black no holes, rubber half-sole protects the leather sole. Not to be cleaned. They look like dress shoes and are good enough to wear anywhere. Commute in them to the office and wear them all day long! They slip into toe clips easily, are stiff in the right places, so you won't feel the pedal. English sizes are different from American sizes. So, if you're usually a 12 American (no 12 1/2), you'll wear either an 11 or 11 1/2 English. The lower price is an "I promise not to return them even if they don't fit" price; the higher price allows returns. Some of these have been shipped across the country more than once, and the boxes are tattered, but they have never been worn outside.

English sizes: 8, 8.5, 9, 11, 11 1/2, 12. VERY LIMITED QUANTITIES.

RONA T-Shirts—\$20

This is the last of them. RONA stands for Retro-Grouches of North America, and this is a take-off of the old Campy logo, but with better color. Many of you know the term "retro-grouch" was coined by Bicycling's Fred Zarahdnik. We grabbed it and made these T-shirts. One of the most attractive logos and color combinations out there. Long-sleeve only. White or grey (please list a first and second choice), in these sizes. This is the last of them until next year or the year after. XXL, XL, M in ash grey or white. In L, we have white only.

Shimano CX400 Long cage rear derailleur — \$45

Perfect for triple fronts with up to 28t in the rear. Seven speed indexable if you have the right Shimano 7-speed indexing shiften (we do). A silver, works and looks great.

Shimano 105 Long cage rear derailleur — \$45

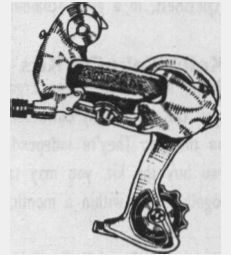
Interchangeable with the CX400. About the same quality (very good), similar look, identical function, same price.

Shimano Dura-Ace 7-speed downtube shifters— \$25

Good match with either of the above derailleurs, if you want indexing. The bad: They're painted that darkish blue-grey color. The good: They're nicely shaped and if you want 7-speed indexable downtube shifters, either for the downtube, or as bar-end shifters (on Shimano mounts), or on Kelly TakeOffs, these are the ones to get. Boxed, with cables. Indexable, with friction option. Seven-speed indexable shifters are on the outs now, so stock up for your heirs.

SunTour XC (mountain/tour) rear derailleur— \$70

This was the best mountain bike derailleur in the world in 1985, and is no crummier today. The thing is, it doesn't index. If you shift friction, rejoice, because this one shifts great, weighs only 246g, and wraps more chain than anything else we have. One of the last derailleurs from SunTour's halcyon days.



SunTour VXGT rear derailleur— \$42

The touring derailleur that proved SunTour was leading the world in cheap good shifting. Almost entirely aluminum, only 211g (a short arm Campy Chorus is 245g), and a true classic for any SunTour fan. I rode across the country with this one. Never missed a shift!

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