IBIS TANDEM

Scot Nicol's fat-tire express points the way to a better tandem design.

By John Derven

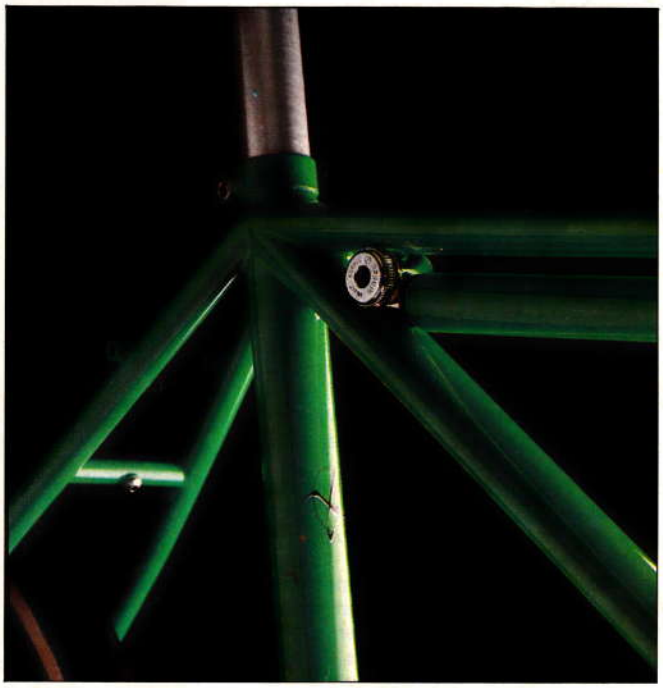
I'm riding down Lower Steve's, a winding stretch of single track that drops through the redwood forests on the north side of Annadel State Park in Santa Rosa, California. Descending behind Scot Nicol, I see him thread his way through several tight turns, as the trunks of saplings lining the trail nearly tag his shoulders. Several days of uncharacteristic summer rain have turned the trail into a slippery ribbon of mud, and Scot's superior bike-handling skills should transport him out of my sight in a matter of seconds. But today I'm able to stay with him, because we're both seated on the same bike—a fat-tire tandem built by Nicol's company, Ibis Cycles.

Filtering through the trees below us we hear whoops, screams, and laughter from the riders of two more Ibis tandems, when one attempts to pass the other on the twisting, narrow trail. Later that day we climb some dry, rough slopes in another part of Annadel, and as we struggle over chunks of sandstone the size of bread loaves, I see why this park inspired the name "Rockhopper." But we don't hop rocks on the tandem—we roll over them, and continue rolling up steep climbs that cause single bikes to sputter to a halt. With the weight of two riders on board, the tandem has nearly unlimited traction.

A few days earlier, we had wrung out the same trio of Ibis tandems with a 50-mile ride on paved roads north of the park. We swapped our off-road knobbies for smooth 1.25-inch Specialized Fat Boys pumped up to 100 psi, and blew through the rolling hills of Sonoma County that skirt along the Russian River Valley, past apple orchards, vineyards and anything powered by human legs. Ibis' production manager, Wes Williams, runs a 60/12 high gear on his tandem, and he likes to spin, which should quell any fears of the Ibis being much slower than a skinny-tired bike. Besides, the fat tires on the Ibis produce a gloriously comfortable ride that no road tandem can match.

Ironically, the Ibis tandem got its start on the pavement, when Scot Nicol and his wife, Ginny Allen, decided to go touring in France last year. Since the two ride at different speeds, a tandem was the obvious choice to keep them together on the road, and Nicol wanted to build the bike himself. The only question was what kind of tandem to build. "It made sense to me to use mountain bike technology for our tandem," recalls Nicol. "Mountain bikes are built to take abuse, and tandems see

Ibis Type II fork allows precise control when the going gets gnarly; massive pivots on Scott Pedersen SE brakes contain self-energizers.



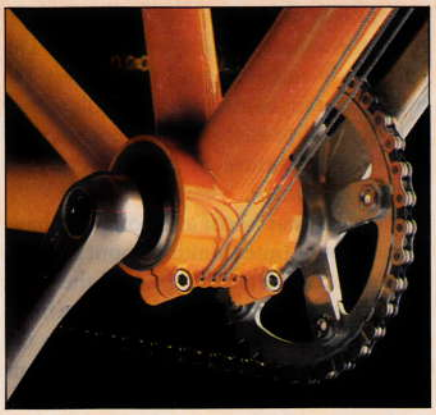
Elliptical Uptube and top tube, and oversize 1¼-inch seat tube converge at the rear cluster; stylized Ibis logo was created by Ginny Allen.

similar types of stresses. From the beginning we've manufactured parts for our mountain bikes, so we could make the special parts we'd need for a tandem," he explains. "Besides, it was another new and exciting project for us."

But Nicol also knew his limitations. He had little experience riding tandems and none building them, and would need help with the design if his first effort was to be a success. He talked with several tandem builders on the subject, and finally consulted Rick Jorgensen of Tango fame.

Jorgensen is well qualified for the role of tandem mentor. An engineer who designs bridges for a living, Jorgensen is also a perceptive framebuilder who is determined to provide an "optimal biomechanical interface" for his customers—a bike that matches the individual's riding style and also *feels* right. He has created a computer modeling program that allows him to analyze frame designs, and explore the way subtle changes in dimensions or materials affect a bike's performance (see "Genetic Engineering for Bicycles," May 1986).

Jorgensen had never designed a fat-tire bike before, but he and Nicol combined their talents and created a custom blueprint for Scot's trip. Nicol welded the bike together in June 1987, and the following month the tandem, carrying a full load of touring gear, was honked over mountain passes and tossed through al-



Front bottom bracket is stiffened by Jorgensen's Uptube design; unused cable guide is for optional rear disc brake.

pine switchbacks in France. When Ginny and Scot returned from their European fling, they were ecstatic about the bike's ride qualities. They convened with Jorgensen and discussed a production version of the tandem.

"Scot's tandem worked, but we made some changes so it could fit more people," says Jorgensen. The changes included increasing the diameter of the seat tubes from 1⅛ to 1¼ inches, and enlarging the seatpost size from 26.4 to 30.0 millimeters. The oversized seatposts allow the seat to be extended farther without hurting the bike's handling or stiffness, and with lengths up to 420 mm, the posts take adjustability to new heights. In conjunction with the three frame sizes Ibis offers, the posts allow the production tandems to fit about 80 percent of the population, according to Jorgensen.

A distinctive feature of the tandem is Jorgensen's trademark Uptube frame design. The Uptube extends from the front bottom bracket to the rear seat cluster, and helps stiffen these two critical areas. Jorgensen's design also includes a marathon tube that runs from the head tube to the middle of the stoker's seat tube. This combination results in a frame that is perceptibly more rigid than typical marathon or direct lateral frame designs, even with Ibis' long 28-inch rear top tube, which is two to three inches longer than most. The bike's stiff, solid feel is further enhanced by the Ibis Type II fork. With an angled WTB tubular crown and straight one-inch blades, it unflinchingly carves through the roughest terrain.

How is a tandem originally designed for the road able to adapt to the dirt? "A tandem is a different beast," says Nicol, "and I don't find any handling penalty in optimizing the design for on-road use and then taking it off-road. Changing the tires from Fat Boys to Ground Controls raises the bottom brackets a half-inch, and this works well for off-road riding. Surprisingly, it doesn't make much difference on a single, but on a tandem you feel it right away." The larger footprint of wide knobby tires also increases the bike's stability when riding in the woods (Jorgen-

PHOTOGRAPHY BY MICHAEL FURMAN

sen refers to this quality as "pneumatic trail"), which helps the Ibis adjust to its double life.

Riding a tandem off-road is a kick, and totally different from any other cycling experience. The concept might seem insane, especially with the tandem's long wheelbase and extra weight, but the rigid fork and upright steering geometry of the Ibis tandem make it quite controllable off-road. The hardest part of handling this stretch-limo in the dirt is gaining the confidence of your stoker, who must keep the power on even when it looks like the ship might be about to sink. With two riders functioning as a team, it's remarkable what this tandem can ride over.

Even if you don't like getting down and dirty, you'll still appreciate the Ibis tandem's road manners—this bike feels *great* on blacktop. Shod with 26 x 1.25 slicks, it's more sure-footed and comfortable than a road-only bike, and the large air volume of the fat tires make perfect sense for a tandem's size and weight. The stiff frame and fork, and the modest 1⅝ inches of trail, contribute to handling that is lively and precise; the Ibis has none of the sluggish nature of an off-road bike out of its element.

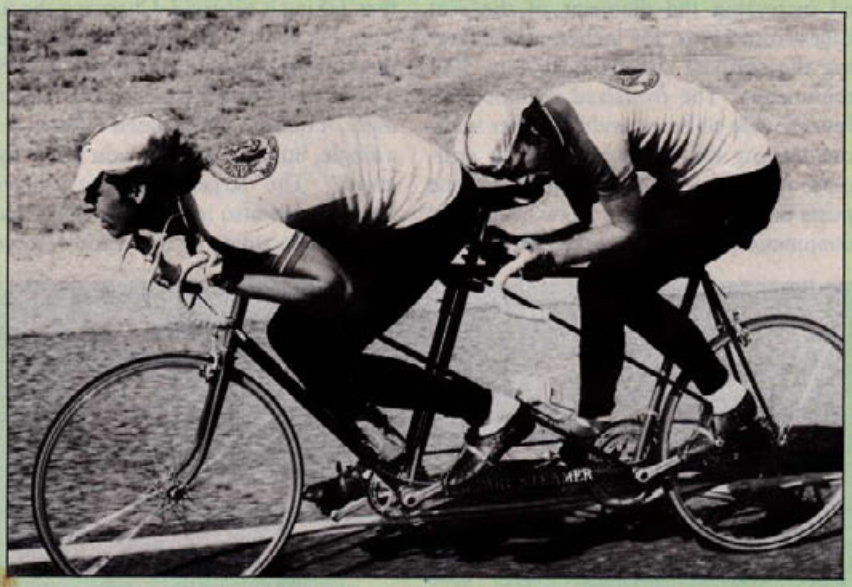
It's clear that Nicol and company have spent a lot of time thinking about the tandem as a complete concept, and the parts of our test bike work together beautifully. Both stems are made by Ibis, and like the seatposts, serve more as direct extensions of the frame than as bolted-on hardware. In the captain's quarters, the stem clamps to a nub of steerer tube. This arrangement is stiffer than a conventional stem, weighs slightly less, and enhances the tandem's positive feel. The stoker's stem is adjustable, and thus provides a convenient means of fine-tuning the stoker's reach.

Other component choices are equally well thought out. The Scott Pedersen SE brakes are unusual in that they are self-energizing—that is, they automatically increase braking power when they contact the rim by means of a helical mechanism located in the pivots. This reduces the amount of lever force needed for braking, which makes stopping the tandem less work for the captain.

Nicol's personal tandem has a braking option he recommends if the bike will be used extensively off-road: a Phil Wood disc brake hooked to a thumbshifter on the handlebars. The set-up allows him to drag a brake on descents without tiring his hands, and helps keep the rims from overheating. All Ibis tandem frames are equipped with the appropriate braze-ons for the disc.

Other touches include Wilderness Trail Bikes Grease Guard hubs, which have lubrication ports for easy maintenance, and custom-drilled 40-hole Specialized GX-

THE TRUTH ABOUT TANDEMS: SMALLER AIN'T FASTER



WENDE CRAGG/COURTESY OF JOE BREEZE

Big things aren't supposed to be fast. An 18-wheeler couldn't beat a sports car in a drag race. Nor could a defensive lineman outsprint a wide receiver on the football field. Smaller is faster, right?

Some cyclists turn this logic on tandems, dismissing them as slow beasts. These are the same people who are most fun to blow past on a tandem. Their jaws drop all the way to their silk tubulars as they confront the truth: Tandems are fast.

How fast? Fast enough to carry Joe Breeze and Otis Guy to five straight "wins" in the Davis (California) Double Century, from 1975 to 1979.

Breeze recalls the duo's uncertainty before and during their first Davis ride. "We were really worried after hearing all those stories about how slow tandems are. So we went off the front out of Davis, and the field, which included George Mount and all these Category I NoCal riders, just let us go and figured they would catch us on the hills. That's what we were thinking would happen, too. We hammered as fast as we could, and when we got to the top of the first big hill, they were ten minutes back, and when we got to the bottom of the hill, we were 20 minutes to a half-hour ahead.

"But then we broke a spoke. By the time we got to the top of the next hill, our front wheel had detensioned so much that we couldn't stand up. It was pouring rain and almost snowing at the top. Not only that, but our support vehicle never got started in Davis, and since we were way ahead of previous schedules, the food stands hadn't been set up yet, so we were running out of food. We started to bonk, and all those guys caught up to us at the halfway point."

By this point, Breeze and Guy were ready to give up, as even their formidable horsepower couldn't overcome such improbable obstacles. But a succession of good fortune, in the form of a feed zone, a spare wheel and an upswing in the temperature, sent them onward to the first of their five Davis victories.

"After the weather cleared up," Breeze recounts, "we headed out over these hills back to the Sacramento Valley. And there were three sets of downhills where we were going 60 to 65 miles an hour. We just hammered and beat everybody by 20 minutes. We averaged well over 25 miles an hour over the last 100 miles."

Did their associates' attitudes toward tandems change after their win? Well, sort of, Breeze says.

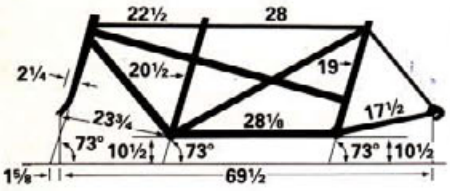
"People said that tandems would never do well on that course. So we did it, and we won it—we beat everybody by 20 minutes. And then their comment was, 'Well, of course, you were on a tandem.' I couldn't stand it," he laughs. —*Keith Mills*

26 rims that produce robust but relatively lightweight wheels.

If Nicol was naïve about tandems when this project started, he's certainly not anymore. The first prototype was ridden about 10,000 miles last year, and he and Ginny (along with the rest of the Ibis staff) are totally hooked. Obviously, one lure of this fat-tire twofer is its versatility. "Think of all the things you can do with this tandem," says Nicol. "You can do a fast road ride, or ride in Annadel, or load it with panniers and go touring in France." Like its long fade paint job, this bike's talents run the full spectrum, and it performs extremely well in every area. It's fast, comfortable, and fun—and that's what cycling is all about. □

IBIS TANDEM

$3500 (price may vary)
Sizes available: 19 x 17, 20½ x 16, 20½ x 19 inches (center to top)
Size tested: 20½ x 19 in



Total weight: 44 lbs, 14 oz
Frame without fork: 14 lbs, 10 oz with eccentric
Fork only: 2 lbs, 8 oz
Front wheel only: 3 lbs, 8 oz
Rear wheel only: 5 lbs, 1 oz
Frame: TIG welded chrome-moly tubing throughout; Ibis Type II chrome-moly fork with WTB offset fork crown, forged dropouts. Brazed-on bosses for eight water bottles, cantilever bosses front and U-brake bosses rear, cable stops and guides for front and rear derailleurs, front and rear rim brakes and rear hub brake, additional stop and pulley boss for stoker control of hub brake, pump peg. Specialized sealed cup and cone headset.
Cranks: Specialized Tandem ST-2, 170-mm arms, Specialized bottom brackets, 36-tooth crossover rings
Derailleurs: Shimano Deore XT front and rear, rear modified with SunTour sealed bearing jockey pulley, SunTour BarCon handlebar-end shift levers
Freewheel: SunTour Winner Pro narrow 7-speed
Chains: Shimano Uniglide
Gearing in inches:

**	30	44	54
12	65	95	117
14	56	82	100
16	49	72	88
18	43	64	78
21	37	54	67
26	30	44	54
32	24	36	44

Rims: Specialized GX-26, custom-drilled 40 hole
Spokes: 40 Wheelsmith spokes, 14 gauge stainless steel, laced three-cross
Hubs: Wilderness Trail Bikes sealed bearing with Grease Guard, medium flange front, high flange rear threaded for hub brake, quick-release front and rear
Tires: Specialized Fat Boy, 26 x 1.25, 100 psi
Saddles: Selle Italia Turbo, nylon base with foam padding and suede cover
Seatposts: Ibis custom centerless ground aluminum with SunTour XC head, 370 mm front, 420 mm rear, 30-mm diameter
Brakes: Scott Pedersen SE cantilevers front, Scott Pedersen SE U-brake rear, with AGC 251 aero levers
Pedals: Specialized racing with Cateye nylon toe clips and Christophe nylon straps
Handlebars: Ibis heat-treated aluminum by Nitto, 46-cm wide front; Specialized I, 44-cm wide rear; Ibis roller stem front, 12.5-cm extension; Ibis adjustable stem rear; cloth handlebar tape over foam grips
Manufactured by: Ibis Cycles, P.O. Box 275, Sebastopol, CA 95473; 707-829-5615.

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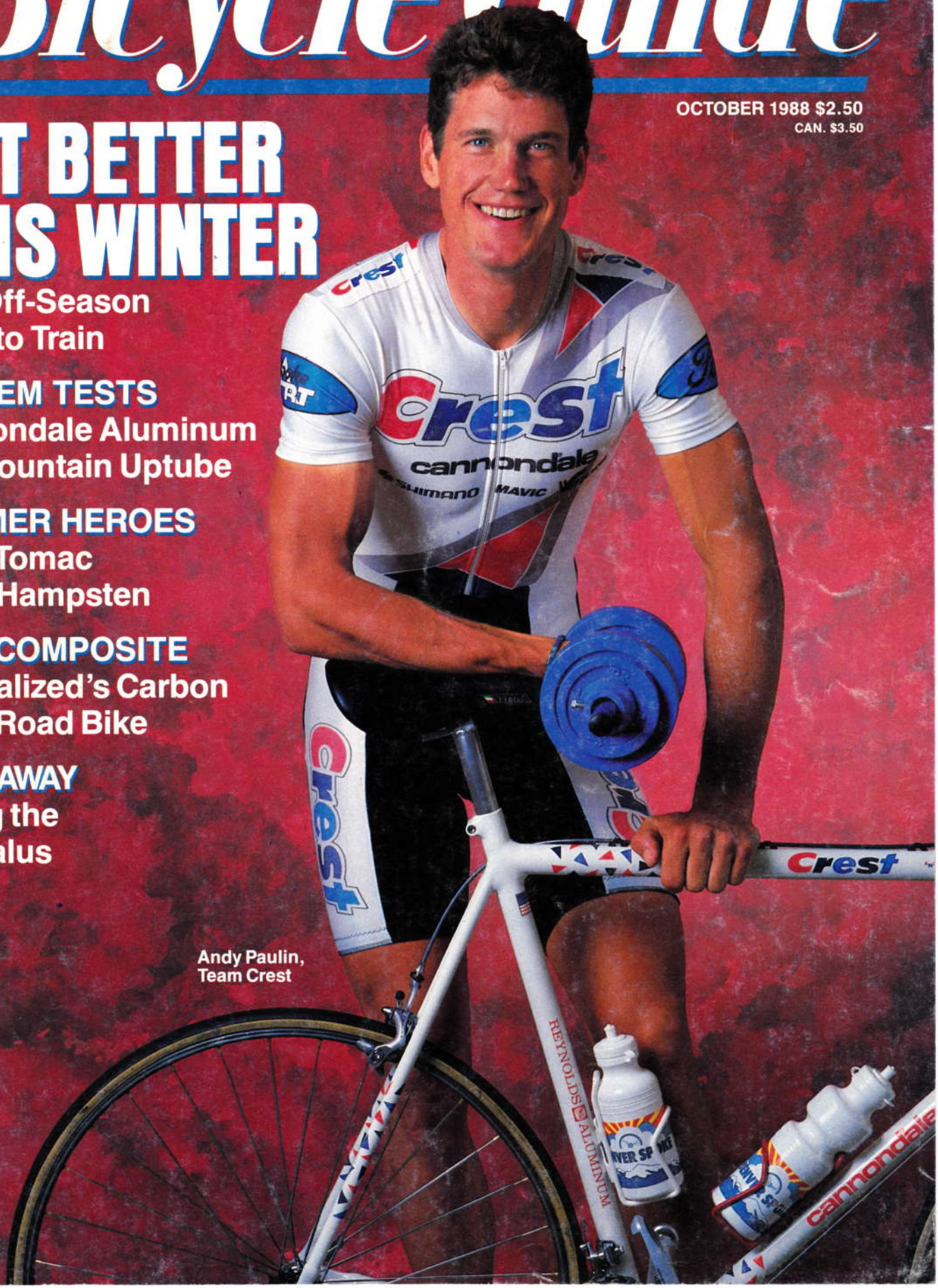

Andy Paulin,
Team Crest