THE LONG RIDE

How did Lance Armstrong manage the greatest comeback in sports history?

BY MICHAEL SPECTER

A couple of weeks ago, on a sweltering Saturday afternoon, I found myself in the passenger seat of a small Volkswagen, careering so rapidly around the hairpin turns of the French Alps that I could smell the tires burning. Johan Bruyneel, the suave, unflappable director of the United States Postal Service Pro Cycling Team, was behind the wheel. Driving at ninety kilometres an hour occupied half his attention. The rest was devoted to fiddling with a small television mounted in the dashboard, examining a set of complicated topographical maps, and talking into one of two radio transmitters in the car. The first connected Bruyneel to the team's support vehicle, laden with extra bicycles, water bottles, power bars, and other tools and equipment. The second fed into the earpieces of the eight U.S. Postal Service cyclists who were racing along the switchbacks ahead of us. The entire team could hear every word that Bruyneel said, but most of the time he was talking to just one man: Lance Armstrong.

We had been on the road for about three hours and Armstrong was a kilometre in front of us, pedalling so fast that it was hard to keep up. It was the sixth day of the Dauphiné Libéré, a weeklong race that is run in daily stages. Armstrong doesn't enter races like the Dauphiné to win (though often enough he does); he enters to test his legs in preparation for a greater goal—the Tour de France. Since 1998, when he returned to cycling after almost losing his life to testicular cancer, Armstrong has focussed exclusively on dominating the thirty-five-hundred-kilometre, nearly month-long Tour, which, in the world of cycling, matters more than all other races combined. This week, he begins a quest to become the fourth person in the hundred-year-history of the Tour—the world's most gruelling test of human endurance—to win four times in a row. (In 1995, the Spanish cyclist Miguel Indurain became the first to win five consecutively—a record that is clearly on Armstrong's mind.)

The cyclists had covered a hundred and eight kilometres, much of it over mountain passes still capped with snow, despite temperatures edging into the nineties. Now the *peloton*—the term is French for "platoon," and it describes the pack of riders who make up the main group in every race—was about to start one of the most agonizing climbs in Europe, the pass between Mont Blanc and Lake Geneva, which is known as the Col de Joux Plane. In cycling, climbs are rated according to how long and steep they are: the easiest is category four, the hardest category one. The seventeen-hundred-metre Joux Plane has a special rating, known as *hors categorie*, or beyond category; for nearly twelve kilometres, it rises so sharply that it seems a man could get to the top only by helicopter.

"We start the Joux Plane with a lot of respect for this mountain," Bruyneel said quietly into his radio. "It is long, it is hard. Take it easy. If people are breaking away, let them go. Do you hear me, Lance?"

"Yes, Johan," Armstrong replied flatly. "I remember the mountain."

With only a few days remaining in the 2000 Tour de France, Armstrong had what most observers agreed was an insurmountable lead when he headed toward this pass. He was riding with his two main rivals of that year: Marco Pantani, the best-known Italian cyclist, and Jan Ullrich, the twenty-eight-year-old German who won the Tour in 1997, and who in the world of cycling plays the role of Joe Frazier to Armstrong's Ali. As they started to climb, Armstrong seemed invincible. Halfway up, though, he slumped over his handlebars, looking as if he had suffered a stroke, and Ullrich blew right by him.

"I bonked," Armstrong said later, using a cyclist's term for running out of fuel. A professional cyclist consumes so much energy—up to ten thousand calories during a two-hundred-kilometre mountain stage—that, unless some of it is replaced, his body will run through all the glycogen (the principal short-term supply of carbohydrates the body uses for power) stored in his muscles. Armstrong hadn't eaten properly that morning; then he found himself cut off from his *domestiques*—the teammates who, among other things, are responsible for bringing him supplies of food and water during the race. "That was the hardest day of my life on a bike," Armstrong said later. He was lucky to finish the day's stage, and even luckier to hold on and win the race.

"This isn't just a stage in a race for Lance," Bruyneel said now, as Armstrong approached the bottom of the slope. "He needs to defeat this mountain to feel ready for the Tour." This time, Bruyneel made sure that the *domestiques* ferried water, carbohydrate drinks, and extra power bars to Armstrong throughout the day. They periodically drifted back to our car and performed a kind of high-speed docking maneuver so that Bruyneel could thrust water bottles, five or six at a time, into their outstretched arms.

Last year, Armstrong won the Tour, for the third time in a row, by covering 3,462 kilometres at an average speed of more than forty kilometres an hour—the third-fastest time in the history of the event. In all, during those three weeks in July, Armstrong spent eighty-six hours, seventeen minutes, and twenty-eight seconds on the bike. "Lance almost killed himself training for the last Tour," Bruyneel told me. "This year, he is in even better shape. But the press still wants to talk about drugs."

It is, of course, hard to write about cycling and *not* discuss performance-

CORBIS SABA

Armstrong's heart is almost a third larger than an average man's; his body seems built for cycling. Photograph by Martin Schoeller.

enhancing drugs, because at times so many of the leading competitors seem to have used them. Strict testing measures have been in force since 1998, when the Tour was nearly cancelled after an assistant for the Festina team was caught with hundreds of vials of erythropoietin, or EPO, a hormone that can increase the oxygen supply to the blood. But the changes have brought only limited success: just this May, Stefano Garzelli and Gilberto Simoni, two of Europe's leading cyclists, were forced to withdraw from the Giro d'Italia, Italy's most important race.

Because Armstrong is the best cyclist in the world, there is an assumption among some of those who follow the sport that he, too, must use drugs. Armstrong has never failed a drug test, however, and he may well be the most frequently examined athlete in the history of sports. Whenever he wins a day's stage, or finishes as one of the top cyclists in a longer race, he is required to provide a urine sample. Like other professionals, Armstrong is also tested randomly throughout the year. (The World Anti-Doping Agency, which regularly tests athletes, has even appeared at his home, in Austin, Texas, at dawn, to demand a urine sample.) Nobody questions Armstrong's excellence. And yet doubts remain: is he really so gifted that, like Secretariat, he easily dominates even his most talented competitors?

"It's terribly unfair," Bruyneel told me as we drove through the mountains. "He is already winning, and is extremely fit. Still, people always ask that one question: How can he do this without drugs? I understand why people ask, because our sport has been tainted. But Lance has a different trick, and I have watched him do it now for four years: he just works harder than anyone else alive."

Lance Armstrong's heart is almost a third larger than that of an average man. During those rare moments when he is at rest, it beats about thirty-two times a minute—slowly enough so that a doctor who knew nothing about him would call a hospital as soon as he heard it. (When Armstrong is exerting himself, his heart rate can edge up above two hundred beats a minute.) Physically, he was a prodigy. Born in 1971, Armstrong was raised by his mother in Plano, a drab suburb of Dallas that he quickly came to despise. He never knew his father, and refers to him as "the DNA donor." He has written that "the main thing you need to know about my childhood is that I never had a real father, but I never sat around wishing for one, either. . . . I've never had a single conversation with my mother about him."

He was a willful child and didn't like to listen to advice. "I have loved him every minute of his life, but, God, there were times when it was a struggle," his mother, Linda, told me. She is a demure woman with the kind of big blond hair once favored by wives of astronauts. "He has always wanted to test the boundaries," she said. Armstrong admits that he was never an easy child. In his autobiography, "It's Not About the Bike," which was written with the journalist Sally Jenkins, he said, "When I was a boy I invented a game called fireball, which entailed soaking a tennis ball in kerosene, lighting it on fire, and playing catch with it."

Armstrong was an outstanding young swimmer, and as an adolescent he began to enter triathlons. By 1987, when he was sixteen, he was also winning bicycle races. That year, he was invited to the Cooper Institute, in Dallas, which was one of the first centers to recognize the relationship between fitness and aerobic conditioning. Everyone uses oxygen to break down food into the components that provide energy; the more oxygen you are able to use, the more energy you will produce, and the faster you can run, ride, or swim. Armstrong was given a test called the VO_2 Max, which is commonly used to assess an athlete's aerobic ability: it measures the maximum amount of oxygen the lungs can consume during exercise. His levels were the highest ever recorded at the clinic. (Currently, they are about eighty-five millilitres per kilogram of body weight; a healthy man might have a VO_2 Max of forty.)

Chris Carmichael, who became his coach when Armstrong was still a teenager, told me that even then Armstrong was among the most remarkable athletes he had ever seen. Not only has his cardiovascular strength always been exceptional; his body seems specially constructed for cycling. His thigh bones are unusually long, for example, which permits him to apply just the right amount of torque to the pedals.

Although Armstrong was talented, he wasn't very disciplined. He acted as if he had nothing to learn. "I had never met him when I took over as his coach," Carmichael told me. "I called him up and we talked on the phone. He was kind of rude. Not kind of rude. He was completely rude. He was, like, 'So you are the new coach—what are you going to teach me?' He just thought he was King Shit. I would tell him to wait till the end of a race before making a break. He just couldn't do that. He would get out in front and set the pace. He would

"You forget what the sand smells like, then you remember and swear you'll never leave, then you get bored."

burn up the field, and when other riders came alive he would be done, spent." Still, Armstrong did well in one-day races, in which bursts of energy count as much as patience or tactical precision. In 1991, after several years of increasingly impressive performances, he became the U.S. amateur champion, and the next year he turned pro. In 1993, he became the youngest man ever to win a stage in the Tour de France; he won the World Road Championships the same year.

In 1996, Armstrong signed a contract with the French cycling team Cofidis, for a salary of more than two million dollars over two years. He had a beautiful new home in Austin, and a Porsche that he liked to drive fast. Then, in September, he became unusually weak and felt soreness in one of his testicles. Since soreness is a part of any cyclist's life, he didn't give it much thought. One night later that month, however, several days after his twenty-fifth birthday, he felt something metallic in his throat while he was talking on the phone. He put his friend on hold, and ran into the bathroom. "I coughed into the sink," he later wrote. "It splattered with blood. I coughed again, and spit up another stream of red. I couldn't believe the mass of blood and clotted matter had come from my own body."

Within a week, Armstrong had surgery to remove the cancerous testicle. By then, the disease had spread to his lungs, abdomen, and brain. He needed brain surgery and the most aggressive type of chemotherapy. "At that point, he had a minority chance of living another year," Craig Nichols, who was Armstrong's principal oncologist, told me. "We cure at most a third of the people in situations like that." A professor at Oregon Health Sciences University who specializes in testicular cancer, Nichols has remained a friend and is an adviser to the Lance Armstrong Foundation, which supports cancer research. Nichols described Armstrong as the "most willful person I have ever met." And, he said, "he wasn't willing to die." Armstrong underwent four rounds of chemotherapy so powerful that the chemicals destroyed his musculature and caused permanent kidney damage; in the final treatments, the chemicals

left burns on his skin from the inside out. Cofidis, convinced that Armstrong's career (and perhaps his life) was over, told his agent while he was still in the hospital that it wanted to reconsider the terms of his contract. That may have turned out to be the worst bet in the history of sports.

Armstrong did recover, but his first attempts to return to competition ended in exhaustion and depression. "In an odd way, having cancer was easier than recovery—at least in chemo I was *doing* something, instead of just waiting for it to come back," he wrote. In 1998, he decided to make a more serious effort to return to racing. Again, he couldn't stick with it. "The comeback was still amazingly risky," Carmichael told me. "There wasn't a doctor on this earth who could say that Lance Armstrong's lungs weren't fucked up, the cancer wasn't going to come back. Nobody said, 'You will be successful and, by the way, you will win the Tour.' He was afraid, so he just quit. I was shocked. He beats cancer. Goes to hell and back. Goes to Europe. Trains his ass off. Trained harder than ever. In the Ruta del Sol"—a five-day race held each year in Spain—"he was fourteenth. He had never done better, even before cancer, and all indications were that he was on the verge of the greatest comeback in sports, and he said, 'Hey, I'm quitting.' My coaching side just wanted to scream."

Carmichael and Bill Stapleton, Armstrong's close friend and agent, helped persuade him that this wasn't the way to end his career. "We said, 'You will look back on this and be disappointed—you are going out as a quitter,' " Carmichael told me. Armstrong agreed to prepare for one last race, in the United States. He, Carmichael, and a friend went to Boone, a small town in North Carolina where Armstrong liked to train. "Early April," Carmichael recalled. "The first day was nice. Then the weather turned ugly. I would follow behind in the car as they trained. One day, we were to finish at the top of Beech Mountain. It was a long ride, a hundred-plus miles, then the ride to the top. Something happened on that mountain. He just dropped his partner and he went for it. He was racing. It was weird. I was following behind him in the car. This cold rain was now a wet snow. And I rolled down the window and I was honking the horn and yelling, 'Go, Lance, go!' He was attacking and cranking away as though we were in the Tour. Nobody was around. No human being. Not even a cow. He got up to the top of that mountain and I said, 'O.K., I'll load the bike on the car and we can go home.' He said, 'Give

me my rain jacket—I'm riding back.' Another thirty miles. That was all he said. It was like throwing on a light switch."

Armstrong now says that cancer was the best thing that ever happened to him. Before becoming ill, he didn't care about strategy or tactics or teamwork—and nobody (no matter what his abilities) becomes a great cyclist without mastering those aspects of the sport. Despite Armstrong's brilliant early start in the 1993 Tour, for example, he didn't even finish the race; he dropped out when the teams entered the most difficult mountain phase, in the Alps. (He also failed to finish in 1994 and 1996.)

As Carmichael pointed out to me, Armstrong had always been gifted, but "genetically he is not alone. He is near the top but not at the top. I have seen people better than Lance that never go anywhere. Before Lance had cancer, we argued all the time. He never trained right. He just relied on his gift. He would do what you asked for two weeks, then flake off and do his own thing for a month or two. And then a big race would be coming up and he would call me up, all tense, telling me, 'God, I have got to start training, and you guys better start sending me some programs.' I would say, 'Lance, you don't just start preparing things four weeks before a race. This is a long process.' "

Cycling is, above all, a team sport, and the tactics involved are as complicated as those of baseball or basketball. "Ever try to explain the infield-fly rule to somebody?" Armstrong asked me when we were in Texas, where he lives when he is not racing or training in Europe. "You have to watch it to get it. As soon as you pay some attention to the tactics, cycling makes a lot of sense."

Riding through the French mountains with Bruyneel, a genial thirty-seven-year-old who has been with U.S. Postal since 1999, soon after Armstrong joined the team, I saw what he meant. (Armstrong's athletic advisers complement each other: Carmichael is the physical strategist, and Bruyneel the tactician.) "It looks like Victor is good today, so let's save him a bit longer for the Colombiere," Bruyneel radioed to Armstrong about halfway through the day's ride. "Sounds like a good idea," Armstrong replied. In other words, Victor Hugo Peña, a promising young Colombian climber on the team, seemed strong enough to lead Armstrong over one of the big peaks that the racers would encounter before the Col de Joux Plane. Riders like Hugo Peña "work" for Armstrong; they are not attempting to win the race themselves but, rather, focussing on preventing another team from defeating Armstrong. Their job is to patrol the *peloton*. If a competing star tries to escape from the pack in a breakaway, they must be ready to chase him down, in order to tire him out and make him less of a threat later in the race.

Until it is time to sprint, climb, or attempt a breakaway, there is usually at least one team rider positioned in front of his leader. Riding directly behind another man—which is called drafting—can save a skilled cyclist as much as forty per cent of his energy. Asker Jeukendrup, a physiologist who directs the Human Performance Laboratory at the University of Birmingham, has carried out extensive studies of the energy expended by cyclists when they race. Several years ago, Jeukendrup attached power meters to the bicycles of several Tour participants during critical stages. A power meter records a rider's heart rate, his pedal cadence, his speed, and, most important, the watts that he generates with every turn of the wheels. (Watts provide the most accurate measurement of the intensity of exercise; heart rates vary and so does speed. The amount of work needed to climb a hill remains the same no matter how fast you ride.)

Jeukendrup recorded the effort expended by a cyclist riding for six hours at forty kilometres an hour in the middle of the *peloton*, shielded from the wind. He compared this figure with the power needed to propel that same man riding alone. In the pack, the cyclist used an average of ninety-eight watts—which would never tire a well-trained professional. On his own, however, the cyclist expended an average of two hundred and seventy-five watts—nearly three times the power—to maintain the same speed. It is easy to see what this means: in any race, the guy out front is often suffering in his attempt to lead the *peloton*, while somebody like Armstrong, safely tucked into a cocoon of teammates, can cruise just a few yards behind the leader and be "pulled" at essentially the same speed, conserving energy for later.

The *peloton* can cover up to two hundred and fifty kilometres a day without stopping, like a rolling army; there is a "feed zone" about halfway through each stage, where cyclists slow down enough to be draped with a cloth pouch, called a musette, which is filled with fruit, power bars, and other high-carbohydrate snacks. The team members take turns "working," or pulling, at the front to give each other a rest. (Even competitors, when they ride together, take turns out front, sharing the advantages of drafting.) In some ways, cycling retains an odd chivalry that is more readily associated with the trenches of the First World War. During last year's Tour, for instance, at a crucial moment in the Pyrenees, Jan Ullrich veered off the road and into a ditch; Armstrong waited for him to get back on his bike and catch up. Ullrich almost certainly would have done the same for him. When a leader needs to urinate, the whole pack slows down. It is an unspoken but very clear element of the etiquette of professional cycling that nobody is permitted to benefit by breaking away while an opponent urinates (or, worse yet, when part of the *peloton* is caught at a train crossing). Anyone who did would be unlikely to finish the race. After all, it takes little to knock a man off a bicycle, particularly at high speeds; this is called flicking, from the German *ficken*—which means "to fuck."

Apart from the Olympics and World Cup soccer, the Tour is the most popular sporting event in Europe. In France, July is a carnival, complete with thousands of cars, buses, motorcycles, and helicopters following the Tour, and daily television coverage. This year, at least fifteen million people—a quarter of the country's population—are expected to line the highways to watch the cyclists whiz by in a blurred instant. Every morning, kids mass outside the team buses, begging for autographs. If a spectator is lucky, someone in the *peloton* will toss a used water bottle his way; it is the cycling world's version of a foul ball.

The Tour de France is exactly what its name suggests: a tour of France. The race takes place over the course of three

weeks, with a day or two of rest, and the course is altered slightly each year, so that it passes through different villages. Each day, there is a new stage; when all the stages have been completed, the man with the fastest cumulative time wins. (This year's Tour will be the shortest in its history; some people believe this is an attempt to reduce Armstrong's advantage.) As a commercial and logistical endeavor, the Tour could be compared to a Presidential campaign or the Super Bowl. Its budget is in the tens of millions of dollars, and the winner receives close to four hundred thousand dollars. The money comes from location fees, paid by towns that host a stage, and from advertising revenues and broadcast licenses. The Tour is treated as if it were its own sovereign state within France: it has a police force and a travelling bank (the only one in the country open on Bastille Day). The entourage includes riders, mechanics, masseurs, managers, doctors, cooks, journalists, and race officials. Each team starts the race with nine riders (though it is common for as many as half to drop out), who usually work to further the goals of their leader, like Armstrong or Ullrich—who injured his knee earlier this year and will not compete.

Since individual excellence can get one only so far in a race of this magnitude, it is also crucial to have the right team, to provide organization, finances, and experience. U.S. Postal has all that; it is, in its way, pro cycling's Yankees—with climbing specialists, sprinters, and a powerful bench. This is why so many cyclists agree to work as *domestiques*, putting their success second to Armstrong's. "You work for a teammate who is older and more experienced," Victor Hugo Peña told me late one day between stages of the Dauphiné.

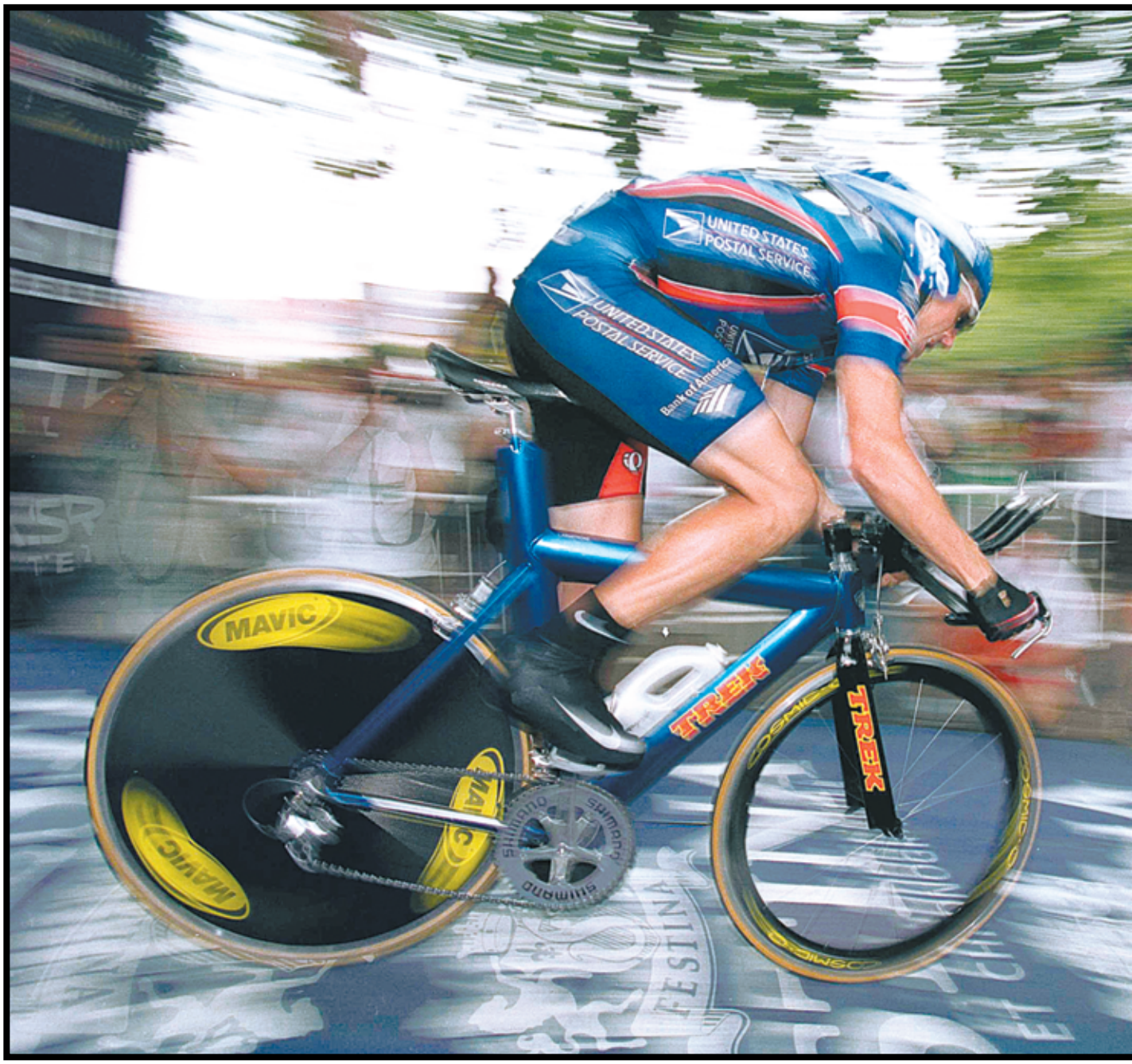
I was curious why a talented cyclist would agree to play such a role. "It is an apprenticeship—you have to learn the business," Hugo Peña said. "If you get respect, work well, and are good, you move up." Armstrong himself worked as a *domestique* when he was starting out. He told me that he finds the system reassuring. Bruyneel, who was a successful professional, and won two stages in the Tour, agreed. "What does a man gain from riding for himself and coming in fiftieth?" he said. "If you see your job as helping your team win, you will get more out of that than simply riding and losing. It's fun to be part of a winning team." And it is also profitable; even a journeyman cyclist can make a hundred thousand dollars a year. (This is nothing like what the winners make, of course; between his salary and the endorsements, Armstrong earned about fifteen million dollars last year.) Still, there comes a point when a talented cyclist no longer wants to occupy a supporting role and tries to establish himself as a potential leader. For several years, Armstrong's deputy on the U.S. Postal team was his friend Tyler Hamilton. This year, with Armstrong's encouragement, Hamilton began riding for a Danish competitor, CSC Tiscali, and, as one of its leaders, he placed second in the Giro d'Italia.

The physical demands on competitive cyclists are immense. One day, they will have to ride two hundred kilometres through the mountains; the next day there might be a long, flat sprint lasting seven hours. Because cyclists have such a low percentage of body fat, they are more susceptible to infections than other people. (At the beginning of the Tour, Armstrong's body fat is around four or five per cent; this season, Shaquille O'Neal, the most powerful player in the N.B.A., boasted that his body-fat level was sixteen per cent.)

The Tour de France has been described as the equivalent of running twenty marathons in twenty days. During the nineteen-eighties and nineties, Wim H. M. Saris, a professor of nutrition at the University of Maastricht, conducted a study of human endurance by following participants in the Tour. "It is without any doubt the most demanding athletic event," he told me. "For one day, two days—sure, you may find something that expends more energy. But for three weeks? Never."

Looking at a wide range of physical activities, Saris and his colleagues measured the metabolic demands made on people engaged in each of them. "On average, the cyclists expend sixty-five hundred calories a day for three weeks, with peak days of ten thousand calories," he said. "If you are sedentary, you are burning perhaps twenty-five hundred calories a day. Active people might

"When I was your age, I was fifteen."



"I have seen people better than Lance that never go anywhere," his coach said. "Before Lance had cancer, we argued all the time. He

burn as many as thirty-five hundred."

Saris compared the metabolic rates of professional cyclists while they were riding with those of a variety of animal species, and he created a kind of energy index—dividing daily expenditure of energy by resting metabolic rate. This figure turned out to range from one to seven. An active male rates about two on Saris's index and an average professional cyclist four and a half. Almost no species can survive with a number that is greater than five. For example, the effort made by birds foraging for food sometimes kills them, and they scored a little more than five. In fact, only four species are known to have higher rates on Saris's energy index than the professional cyclists in his study: a small Australian possum, a macaroni penguin, a large seabird called a gannet, and one species of marsupial mouse.

This spring, Armstrong, who doesn't relax much to begin with, was spending up to thirty-five hours a week on his bicycle. When I met him, in April, he had just flown to Austin from Europe, where he had been racing, for a forty-eight-hour "drop-in," in order to raise money for the Lance Armstrong Foundation. This required him to take the Concorde from Paris to New York, change planes, and, once he'd landed in Austin, drive to an afternoon photo shoot. Then he signed books, cycling jerseys, and posters for cancer survivors and sponsors of the foundation. After that, he went to a fund-raising dinner. A few hours later, the foundation's annual charity weekend, the Ride for the Roses, would officially begin, with an outdoor rock concert at the Austin Auditorium Shores arena. But Armstrong was feeling restless; he hadn't been on his bicycle

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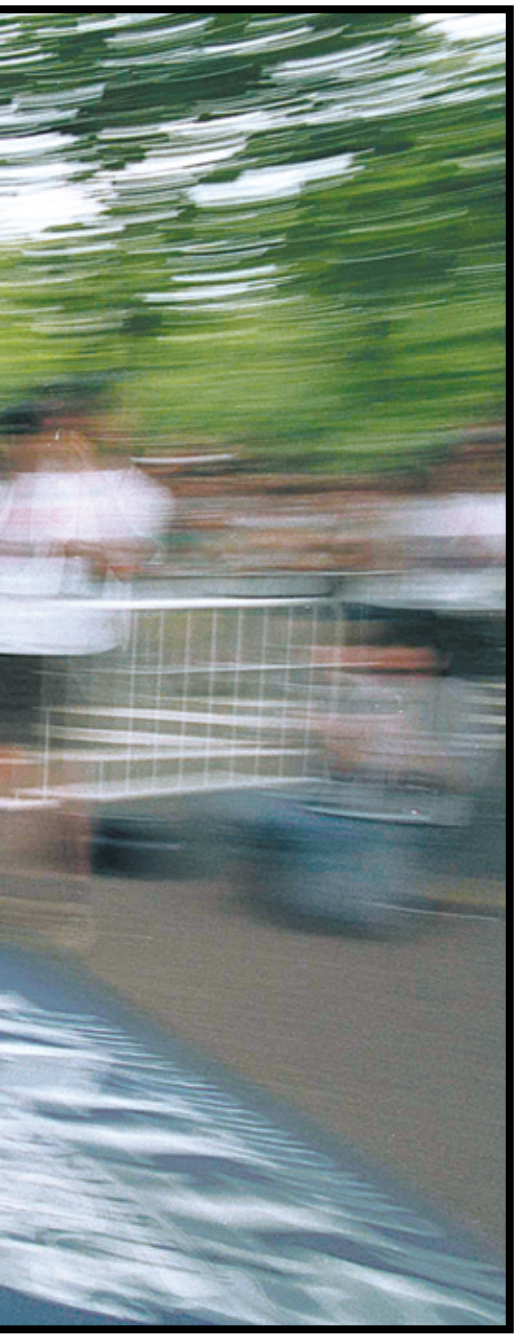

never trained right. He just relied on his gift."

for nearly a day. So he changed, and went for a thirty-five-mile spin. At eight-thirty that evening, he was standing backstage at the benefit concert, which featured Cake and the Stone Temple Pilots. I met up with him there; Armstrong, who is surprisingly slight, wore jeans, sandals, and a Nike golf cap. He didn't seem a bit tired.

Every ounce of fat, bone, and muscle on Armstrong's body is regularly inventoried, analyzed, and accounted for. I asked him if he felt it was necessary to endure the daily prodding and poking required to provide all this information, and to adhere so rigidly to his training schedules. "Depends whether you want to win," he replied. "I do. The Tour is a two-thousand-mile race, and people sometimes win by one minute. Or less. One minute in nearly a month of suffering isn't that much. So the people who win are the ones willing to suffer the most." Suffering is to cyclists what poll data are to politicians; they rely on it to tell them how well they are doing their job. Like many of his competitors in the *peloton*, Armstrong seems to love pain, and even to crave it.

"Cycling is so hard, the suffering is so intense, that it's absolutely cleansing," he wrote in his autobiography. "The pain is so deep and strong that a curtain descends over your brain. . . . Once, someone asked me what pleasure I took in riding for so long. 'Pleasure?' I said. 'I don't understand the question.' I didn't do it for pleasure. I did it for pain." Armstrong mentioned suffering (favorably) in each of my conversations with him. Even his weekend in Texas, which was ostensibly time off from the grinding spring training schedule, seemed designed to drive him to the brink of exhaustion; there were dozens of meetings with donors, cancer survivors, and friends. On Sunday, he led the foundation's annual ride with his friend Robin Williams, a surprisingly fit and aggressive cyclist. Williams and Armstrong rode at a fairly rapid pace for about two hours, at which point a car suddenly pulled up alongside them on the highway. Armstrong hopped off his bike, climbed in, and was driven to the airport to catch a plane for New York and then Paris. During his forty-eight-hour drop-in, the Lance Armstrong Foundation raised nearly three million dollars.

In Austin, Lance (other than Dubya, he is the only one-name Texan) has a more devoted following than Bush, Lyle Lovett, and the Texas Longhorns football team combined. One night during my weekend in Austin, I drove over to Chuy's, an informal Tex-Mex place that is one of Armstrong's favorite local restaurants. (It was famous locally even before a hardworking bartender carded President Bush's nineteen-year-old daughter Jenna.) Armstrong has a weakness for Chuy's burritos. I asked my waiter what he thought of Armstrong. "When he walks in here, you can feel the buzz coming right off him," he said. "When Lance shows up, people are delirious. They love the guy. His life is like an Alamo-level myth, and everybody loves a myth, particularly in Texas."

Armstrong tries to resist being described as a hero of any kind. "I want my kids to grow up and be normal," he told me, backstage at the concert, as he tentatively ate exactly two Dorito chips. He and his wife, Kristin, have three children: a son, Luke, who is two, and twin girls, Isabelle and Grace, born last year. "I want them to think their father worked hard for what he got, not that it was the result of some kind of magic," Armstrong said.

Three types of riders succeed in long stage races like the Tour de France: those who excel at climbing but are only adequate in time trials, in which a cyclist races alone against the clock; those who can win time trials but struggle in the mountains; and cyclists who are moderately good at both. Now there appears to be a fourth group: Armstrong. He has become the best climber in the world, although he wasn't much of one in his early years. And there is no cyclist better at time trials. He lost nearly twenty pounds when he was sick, but he is no less powerful and is therefore faster. Still, many people have wondered how, so soon after a nearly fatal illness, he managed to take such complete control of the sport.

"After the cancer, Lance got a second chance," Carmichael explained to me. "It was that simple. You get a second chance at something that you took for granted before and all of a sudden you see everything you could have lost. When he came back, he just went into a different zone. He works as if he is possessed. It's a little bit nutty, in fact, what he puts himself through so that he can win the Tour de France each year." As a young man, Carmichael was an Olympic cyclist himself, but he almost died in a freakish skiing accident, in 1986. He returned to competition, but something was gone. While he was trying to figure out what to do next, he took a job coaching the United States national team. He has now been training people for fifteen years. He works with many élite athletes in addition to Armstrong—runners, hockey players, even one Indy driver—

and also with thousands who just want to ride faster every Sunday with their local club. He has a company, Carmichael Training Systems, based in Colorado Springs, that employs more than seventy-five coaches; his clients, including Armstrong, log on to the company Web site to find their latest training instructions.

Carmichael believes that rigorous training is what ultimately turns a talented athlete into a star. "Who hits more practice balls every day than any other golfer?" Carmichael asked. "Guess what? It's Tiger Woods. Well, Lance trains more than his competitors. He was the first to go out and actually ride the important Tour stages in advance. He doesn't just wake up in July and say, 'God, I hope I am ready for this race.' He knows he is ready, because he has whipped himself all year long."

Armstrong describes his bike as his office. "It's my job," he told me. "I love it, and I wouldn't ride if I didn't. But it's incredibly hard work, full of sacrifices. And you have to be able to go out there every single day." In the morning, he rises, eats, and gets on his bike; sometimes, before a particularly long day, he waits to eat again (in order to store up carbohydrates) before taking off. "We schedule his daily workouts to leave late in the morning, so that he can ride for six hours," Carmichael said. "He returns home about five or six o'clock, in time for a quick dinner—a protein-carb smoothie, a little pasta. Then it is time for bed."

During the cycling season, Armstrong calculates each watt he has burned on his bike and then uses a digital scale to weigh every morsel of food that passes his lips. This way, he knows exactly how many calories he needs to get through the day. When he is racing, his meals are gargantuan. (It took three men to lug the team's rations—boxes full of cereal, bread, yogurt, eggs, fruit, honey, chocolate spread, jam, peanut butter, and other snacks—into the hotel breakfast room during the Dauphiné.) On days when a race begins at noon or later, Armstrong will eat two heaping plates of pasta and perhaps a power bar three hours before the race, after having had a full breakfast.

When I visited Carmichael in Colorado Springs, he showed me Armstrong's training schedule for a few weeks this spring. On April 28th, a Sunday, Armstrong competed in the Amstel Gold, a one-day annual World Cup race in Holland. He finished fourth, covering the two-hundred-and-fifty-four-kilometre course (which included thirty-three climbs) in six hours, forty-nine minutes, and seventeen seconds. His average speed was 37.32 k.p.h., the same as that of the winner, who beat him by about three feet. Carmichael scheduled a rest day and urged Armstrong to stay off his bicycle. "He almost never listens when I tell him to do that," Carmichael said. "But I tell him anyway." Tuesday was an easy day: a two-hour ride, maintaining an approximate heart rate of a hundred and thirty-five beats a minute. The next day was more typical: five hours over rolling terrain, with a heart rate of about a hundred and fifty-five beats a minute and an average effort of three hundred and twenty watts. Friday was a slow ride for two hours. Then, on Saturday, Armstrong rode for four hours with two climbs, each lasting about half an hour, during which he kept a heart rate of a hundred and seventy-five beats a minute with a power expenditure of about four hundred watts. After that, Carmichael had him draft at a fast rate behind a motorcycle for two hours without a break. In addition, Armstrong always stretches for about an hour a day, and during the off-season he spends hours in the gym, improving his core strength. "Nobody else puts himself through this," Carmichael said. "Nobody would dare."

I have been riding a bicycle since I was a boy, and over the years, as the technology improved, I kept trading up, from heavy steel to aluminum, and then to titanium. Only once have I travelled more than a hundred miles in a day; I have never entered a race (or wanted to), and I don't ride particularly fast. Yet, like a lot of middle-aged cycling enthusiasts, I now have a bicycle that is far better than I am and I have become a fetishistic devotee of the sport. I have never quite permitted myself to attend bicycle camp or to take lessons from a bicycle mechanic (though I have considered both). But I have never seen Campagnolo gears, an aerodynamically advanced set of wheels, or a complicated cycle computer that I didn't want to buy. My apartment is littered with catalogues advertising "carbon titanium supercycles," and bicycling magazines with stories about obscure pro races.

Every month or two, Carmichael tests Armstrong's capacity to generate power—or watts—and, when I told him that I rode a lot, he suggested that if he tested me in the same way I might have a better sense of what these measures really meant.

TO ASHES

All the green trees bring
their rings to you
the widening
circles of their years to you
late and soon casting
down their crowns and into
you at once they are gone
not to appear
as themselves again

oh season of your own

from whom now even
the fire has moved on
out of the green voices
and the days of summer
out of the spoken
names and the words between them
the mingled nights the hands
the hope the faces
those circling ages dancing
in flames as we see now
afterward
here before you

oh you with no
beginning that we can conceive of
no end that we can foresee
you of whom
once we were made
before we knew ourselves

in this season of our own

—W. S. Merwin

Our plan was to cruise up into the mountains not far from Carmichael's office, in a converted grain barn in downtown Colorado Springs. The wind was strong enough so that he asked if I wanted to reconsider. The answer was yes, of course, but that's not what I said. We rode for about five miles through the thin air six thousand feet above sea level. Carmichael chatted the whole time—about pedal motion, femur length (the longer the better, since length improves leverage), gearing choices, and the finer details of carbon-fibre technology. I gasped and answered only when I had to. We rode into North Cheyenne Cañon until, finally, it looked as if we had ridden as far as he could ask me to go. Carmichael got off his bike. "Now the test begins," he said. He pointed at the mountain slope—it wasn't as steep as some of the slopes in France, but it looked unconquerable nonetheless—and said, "I want you to ride as fast as you can up that road for ten minutes and then come back."

I was seriously winded within two minutes. My legs were burning within five. I remember watching four men and women climbing a steep rock face and rappelling down. They waved at me, but I was far too light-headed to risk lifting an arm from the handlebars. Finally, I couldn't take it anymore. (I managed to continue for eight minutes and thirty-two seconds. Naïvely, I had asked Carmichael what I should do when I reached the top. "You won't be seeing the top," he had said.) I turned the bike around and met up with Carmichael, and we coasted most of the way back to the office. Then we looked at my data: I had generated an average of two hundred watts on the test, and had climbed exactly one mile. Carmichael told me that a decent pro cyclist would have put out at least four hundred watts, and that the stragglers at the end of the *peloton* (known as the *gruppetto*) would clock in at perhaps three hundred and fifty. Armstrong—in top Tour shape—would have come close to five hundred.

I stared at the graph of my performance, which Carmichael and his colleagues had printed out for me. I had managed to generate four hundred and seventy watts for just ten seconds. That's about average for Armstrong over the course of a four-hour ride.

After that humbling experience, I went across town to see Edmund Burke, a former physiologist for the U.S. Olympic cycling team, who has written several books on training for cyclists (including one with Carmichael). "I think the genius of Chris is that he understands how much small gains matter," Burke said. "In fact, small gains are all you will ever see. People will say, 'You have shown only half a per cent of improvement.' Well, half a per cent is *huge*. I am not talking marketing or sales here. I am talking about élite athletic performance."

Carmichael takes nothing for granted and relies heavily on technology. (He noted with approval, for instance, that Greg LeMond won the Tour by just eight seconds, on the last day of the race, in 1989. He was the first cyclist in the Tour to use aerodynamically tapered handlebars for the final time trial. "It made all the difference," Carmichael said. "Technology might not win you the Tour. But why wouldn't you want to have the best chances possible?") Every few months, Armstrong trains in a wind tunnel, which allows Carmichael to measure his aerodynamic efficiency under a variety of conditions. He will push his seat back a centimetre or his stem up a few millimetres. (Each adjustment is a trade-off between power and speed; when you sit farther back, you can use more of your leg muscles,

but you also expose more of your body to the resistance of the air.)

Carmichael takes the same radical approach to the physical limits of endurance. It had long been assumed, for example, that aerobic power doesn't vary greatly in adults. Carmichael refutes this emphatically. "Look at Lance," he said to me in his office one day. Over the past eight years, through specific programs aimed at building endurance and speed, Armstrong has increased this critical value—his aerobic power—by sixteen per cent. That means he saves almost four minutes in a sixty-kilometre time trial.

In fact, Armstrong is superior to other athletes in two respects: he can rely on his aerobic powers longer, and his anaerobic abilities are unusually high as well. When muscles begin to work beyond their aerobic ability, they produce lactic acid, which eventually accumulates and causes a burning sensation well known to anyone who has ever run too far or too fast. Somehow, though, Armstrong produces less lactic acid than others do, and metabolizes it more effectively. "For whatever physiological reason—and science can't really explain it, because we don't know that much about what is occurring—the effect is clear," Carmichael said. "Lance goes on when others are done."

At the end of last year's Tour, the French sports newspaper *L'Équipe* ran an article with the headline "SHOULD WE BELIEVE IN ARMSTRONG?," suggesting it was time to consider the possibility that, since Armstrong has never been found guilty of doping, he may indeed be innocent.

After I watched Armstrong train and spent time with his coaches, the only way I could be convinced that he uses illegal drugs would be to see him inject them. After all, the doubts about him have always been a function of his excellence. Greg LeMond, America's first Tour de France champion (he has also won three times), put it well, if somewhat uncharitably, after Armstrong won the 2001 Tour: "If Lance is clean, it is the greatest comeback in the history of sport. If he isn't, it would be the greatest fraud." It is impossible to prove a negative, and so Armstrong can do nothing to dispel the doubts. But his frustration is clear; in 2000, he made a television ad for Nike in which he said, "Everybody wants to know what I'm on. What am I on? I'm on my bike, busting my ass six hours a day. What are you on?"

If the French don't approve of Armstrong, it is not only—or even principally—because they suspect him of using drugs. They don't believe that he suffers enough. French intellectuals love the agony displayed on the roads each July in the same way that American writers love to wail over the fate of the Red Sox. Thirty years ago, before much was known about sports nutrition, riders would finish the race—if they could—having lost twenty pounds, their eyes vacant even in victory. Armstrong represents a new kind of athlete. He has been at the forefront of a technological renaissance that has made European cycling purists uncomfortable. Referring to the gulf that now exists between the race and the racers, the French philosopher Robert Redeker has written, "The athletic type represented by Lance Armstrong, unlike Fausto Coppi or Jean Robic"—two cycling heroes from a generation ago—"is coming closer to Lara Croft, the virtually fabricated cyber-heroine. Cycling is becoming a video game; the onetime 'prisoners of the road' have become virtual human beings . . . Robocop on wheels, someone no fan can relate to or identify with."

"It's so funny to hear people talk that way about Lance," Craig Nichols, Armstrong's oncologist, told me. "The fact is that no cyclist can have seen more pain than he has. The hard work and the inconvenience of the Tour just can't scare him, because he has been through so much worse."

Despite Bruyneel's warning not to push himself on the treacherous slope of the Col de Joux Plane, Armstrong was spinning the pedals a hundred times a minute, faster than any other competitor. (This cadence is a technique that he, Carmichael, and Bruyneel have been working on for years.) With just two days to go, Armstrong was in the lead of the Dauphiné Libéré, and there was little doubt that he would go on to win the race. ("There are not so many guys left," Bruyneel said to me with a smile and a shrug. "If he feels good, you have to let him go.") It would have been understandable—maybe even smart—for Armstrong to take it slow just a few weeks before the Tour. Yet clearly he wasn't going to be satisfied unless he also took this stage.

"Good job, Lance!" Bruyneel cheered into the radio. "Go! Go! Go!" Armstrong picked up speed; he was dropping his opponents one by one. "Moreau is done, Lance, he is over!" Bruyneel shouted into the radio as Armstrong whizzed by Christophe Moreau, the lead rider for Crédit Agricole. "Go if you can. But, remember, the mountain is not your friend."

"Kivilev is dropped, Kivilev is dropped!" Bruyneel screamed, as Armstrong began to pedal faster. "Lance, get on Menchov's wheel. He is a great train to the top." Denis Menchov, of the Ibanesto.com team, is a fine climber. Bruyneel had hoped that Armstrong would glide in behind him and conserve energy on the way up. Instead, Armstrong blew past Menchov, and then overtook the last two men between him and the summit. He wove through the fans gathered at the top of the mountain.

Armstrong shifted into a higher gear to descend, and suddenly he was in trouble. His radio stopped working, his leg began to cramp, and Kivilev and Moreau were gaining on him. 'Twenty-seven seconds," Bruyneel said. He was screaming. "Lance, they are gaining!" We could see the little ski resort of Morzine in the near distance. Chalets were built everywhere into the steep slopes of the mountain. The thickening wall of fans suggested that we must be near the end, but we were driving so fast that it was hard to tell.

Incredibly, Bruyneel drove right up beside Armstrong. He was in pain and was massaging his thigh while pedalling as fast as he could. "Six seconds!" Bruyneel shouted out the window at full speed. "*Move!*"

Armstrong barrelled across the finish line, six seconds before his rivals. He got off his bike and hobbled directly into a tent that had been set up for drug testing. When he emerged, he came over to say hello. I congratulated him on winning the stage. "It's always fun to win," he said, smiling broadly. "But, man, I am in such agony." ♦