The Ledger

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This issue looks at economics and sports – from the bicycle boom of the 1890s to the crash, bang, boom of the XFL today.

The Ledger

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On cover:
Mountain bike racer Missy Giove, a.k.a. "The Missile," earned well over half a million dollars a year in prizes and endorsements during the late 1990s. One hundred years earlier, the bicycle craze of the 1890s had a revolutionary impact on traditional notions of feminine behavior.

AP/Wide World Photos

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The XFL and the WWF: WIN SOME, LOSE SOME

Does the world really need another professional sports league, particularly another pro football league? World Wrestling Federation Chairman Vince McMahon, Jr., and his television partners at NBC decided that it did. Together they put up $100 million to launch the XFL.

It was a short-lived venture — 96 days, to be precise. The first XFL game was played on February 3, 2001, and the league's shutdown was announced on May 10. With many comparable features in the WWF and the XFL, what's behind the spectacular success of the WWF and, in contrast, the quick demise of the XFL?

The "X," according to XFL President Basil DeVito, didn't stand for anything but had been projected by friend and foe to stand for "Xtreme." Given the new league's emphasis on cheerleaders, celebrations, violence, and mayhem, the "X" could easily have stood for Xcess and high Xpectations.

The hype and hyperbole leading up to the XFL's inaugural weekend were vintage Vince McMahon, but the ratings for its television debut on February 3, 2001, lived up to the promotional blitz. The opening contest between the Las Vegas Outlaws and the New York/New Jersey Hitmen drew a 10.3 rating/17 share, which means approximately 11 million households and 17 percent of the televisions that were turned on in the United States between 8:00 and 11:00 p.m. were tuned to NBC and the XFL.

Things cooled off the following week. Ratings fell to 5.1, but even those numbers were still respectable (and higher than the national ratings for the NHL All-Star Game).

By the fourth week, however, ratings had declined to 2.9 with a 5 share, and doubts were beginning to set in. Could the new league succeed where so many others – the USFL, the WFL, the ABA, the WHA, the NASL – had failed? Economics and the entrepreneurial flair of its founder, Vince McMahon, Jr., argued in favor of sucess.

Love him or hate him – and most folks feel one way or the other with no middle ground – McMahon is a marketing mastermind with an impressive track record. His original venture, the colossally successful World Wrestling Federation, provided him with the money, the visibility, the courage, and a model for success in the XFL.

A BRIEF HISTORY OF THE SUCCESS OF THE WWF

Wrestling is hot, and within wrestling circles the WWF is the premier organization. It currently dominates the burgeoning sports/entertainment industry, particularly among males ages 12 to 24, and WWF Entertainment has turned this enormous popularity into dollars.

The WWF's Monday night shows on The National Network (formerly The Nashville Network) consistently pull down ratings in the 5.0 range with 8 percent of televisions tuned in, while its Thursday night "Smackdown" broadcasts on UPN regularly draw a 4.5 rating/7 share. Ultimately, solid numbers like these translate into high TV revenues for McMahon and company because advertisers are willing to pay more for commercial time during WWF programming.

The WWF product makes the old Saturday morning broadcasts from the 1960s, '70s, '80s, and early '90s seem quaint by comparison. Showmanship, state-of-the-art TV production, and savvy

The Rock slams Kurt Angle.

The XFL and the WWF: Win Some, Lose Some

marketing have transformed pro wrestling into a full-blown cultural phenomenon. Names like The Rock, Stone Cold Steve Austin, The Undertaker, and Triple H permeate pop culture, and within the last year it seems that every major news publication or television program has devoted some of its resources to reporting about the WWF in some respect.

The spectacular rise of the WWF dates back to 1980, when Vince McMahon, Jr., bought the circuit from his father and began building an empire. In its earliest days, the WWF was a bare-bones financial operation, with low pay and few fringe benefits for its wrestlers. But about four years after McMahon took over the reins, the WWF made its first leap toward mainstream popularity. Characters like Hulk Hogan, Andre the Giant, and Jesse "The Body" Ventura became household names. (Ventura would later use his popularity as a springboard to the Minnesota governor's mansion.) The physical requirements and acting talent required to be a popular wrestler helped all three make the jump to Hollywood action pictures in the 1980s. Hulk Hogan showed up in *Rocky III* with Sylvester Stallone, Andre the Giant made millions laugh in *The Princess Bride*, and Jesse Ventura shot at aliens in the jungle in *Predator* with Arnold Schwarzenegger.

After this first golden age, there was a lull in enthusiasm for the spectacle of pro wrestling, but the exposure had ingrained the WWF brand name into the heads of most Americans. And around 1996, the WWF rebounded, thanks to increased television exposure, an infusion of new talent, and the heightened news coverage that resulted from explicit story lines. Most people credit the resurgence of wrestling to the shrewd management practices, creativity, and risk-taking of chairman Vince McMahon. But McMahon was not alone in making the WWF what is today. His wife Linda is the company's CEO, and she has played a crucial role in putting together the television deals that have turned the WWF into a global brand name.

Television and live shows are the backbone that allows the WWF's merchandising and licensing operations to flourish. Through the 1980s and early '90s, the WWF was mostly dependent on live shows for revenue, but then it signed a lucrative contract with the USA cable network to air WWF events several times per week. The high ratings on USA paved the way for a new, more lucrative deal with Viacom in May 2000. Viacom, parent company of The National Network and MTV, took over the Sunday and Monday night programming from the USA network. (While USA matched the wrestling portion of the deal, Viacom agreed to promote the other areas of WWF Entertainment that USA could not, including broadcasts of the XFL.)

The near constant availability of WWF programming has also increased interest in its monthly pay-per-view events, which sell for at least $30 per viewing. WWF is easily the world's largest provider of pay-per-view programming, with 6.8 million buys in 1999, and sales that were up 28 percent in 2000. From these 6.8 million buys and the retail sales that go along with pay-per-view events, WWF

minimum WAGE

Two things you didn't find in the XFL: pampered superstars and stratospheric salaries. The league's salary structure looked like a throwback to those "good old days" that everyone is always talking about.

Quarterbacks earned $50,000 for a ten-game season, kickers got $35,000, and all other players made $45,000. In addition to the base salary, players received incentive bonuses – $2500 per victory and $25,000 for being on the active roster of the team that won the league championship. It was a lot different than the NFL, where the minimum salary is $160,000, and the average is close to $1.2 million.

To understand why XFL players earned so much less than their NFL counterparts, just look at the different ownership structures of the two leagues. Each of the NFL's 34 teams is independently owned, and the teams compete against one another for the most talented free agents. By contrast, all eight XFL teams were owned by the league/Vince McMahon, so they weren't bidding against one another for players. And there was no shortage of people willing to sell their talents to the XFL. When the league held tryouts, more than 40,000 hopefuls applied for 380 openings.

Enough said?

Entertainment generated about $150 million in revenue for 1999.

In addition to interest in the pay-per-view events, the television programming generates cash for the WWF in the form of merchandising, licensing, and publishing. Everything from "Layeth the Smacketh Down" T-shirts to biographies of its wrestlers have been a source of revenue for the WWF.

Overall, the WWF generated $379 million in revenues and a profit of about $59 million for the fiscal year ending April 30, 2000. This amounted to about 94 cents per share in earnings.

Earnings per share? Yes, in October of 1999, WWF Entertainment launched an initial public offering on the Nasdaq exchange – ten million shares priced at about $17 per share – and in October 2000, its listing moved to the New York Stock Exchange. (The stock peaked at about $22 per share but has been volatile recently because of the mixed reviews and uncertainty surrounding the future of the XFL.) The McMahons retain majority control of the company, and Vince has passed much of the WWF's operations on to his children, Stephanie and Shane, and a cadre of trusted lieutenants, so that he could focus the majority of his attention on the foundering XFL.

In 2000, the WWF showed few signs of slowing down. Television ratings remained high as *Monday Night Raw Is War* remained the number one- or number two-rated show on cable television for much of the year. On top of that, merchandise sales hit an all-time high, two WWF superstars' autobiographies spent weeks in the number one slot on *The New York Times* Best Seller List, and live events continued to sell out in minutes.

PASSION AND PATIENCE

As of early 2001, the major variable in the WWF's financial future was its involvement with the XFL. Unfortunately, the clock ran out before the XFL could show enough success to justify another year. The size of McMahon's initial investment in the XFL was not the main concern. The league's $100 million startup cost pales in comparison with the dollars spent on the NFL, NBA, NHL, and MLB. The real concerns were passion and patience — or, more precisely, the lack of passion and patience.

The XFL started with three big advantages: (1) a national TV contract with NBC, (2) a salary structure that limits top players to $50,000 a year in base pay, and (3) a ready marketing arm thanks to its connection with the WWF. It also enjoyed a relatively strong base of support in its franchise cities – particularly Birmingham, Las Vegas, Memphis, Orlando, and San Francisco. But for the XFL to succeed, it needed to inspire more passion and more enthusiasm among fans outside the franchise cities. It needed to give these fans a stronger reason to sit down in front of their TV sets and really care about the outcome of the games.

"The XFL is God's way of telling America that it has too much leisure time."
-George Will, January 28, 2001

To do this takes time, patience, and some quality football. Unfortunately, the WWF, NBC, and UPN decided they couldn't wait for sufficient passion and enthusiasm to develop. The progress in the first season was not enough.

What does the future hold for WWF Entertainment? Many observers have noted that pro wrestling appears to be a cyclical business, and if its popularity dips, revenues from TV, pay-per-view, marketing, licensing, and publishing will eventually decline as well. Yet, even though the XFL has come up short, don't bet against Vince McMahon's ability to make everything turn out right for the WWF. After all, stranger things have happened – things like a guy nicknamed The Rock making it to the top of *The New York Times* Best Seller List and another guy nicknamed The Body making it to the top of Minnesota politics.

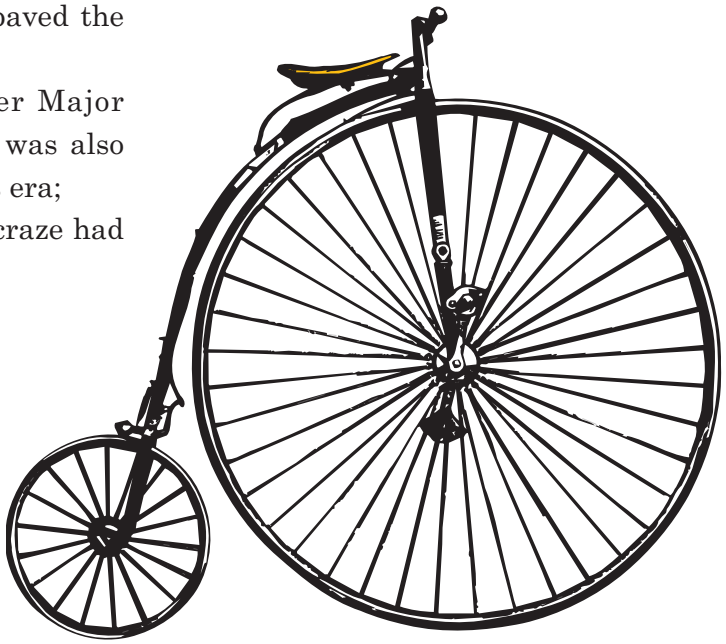
Major Taylor, Colonel Pope, and the General Commotion over Bicycles

Robert Jabaily
Associate Editor, Federal Reserve Bank of Boston

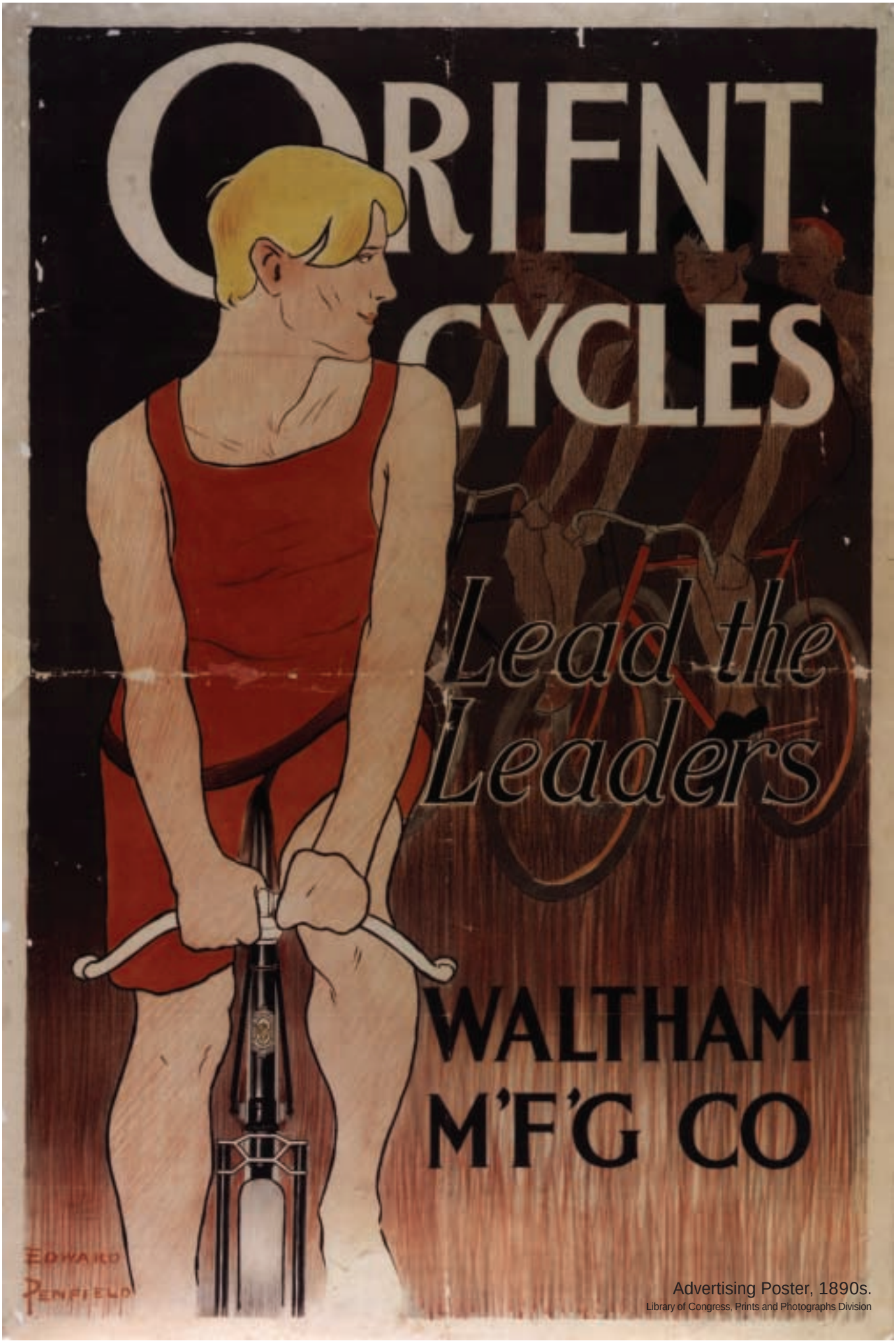
During the 1890s, bicycle mania swept the industrialized world. Although the craze lasted less than a decade, it had a profound impact on everything from manufacturing techniques to gender roles.

The following collection of articles looks at:

- the life and times of Colonel Albert Pope, who brought the bicycle craze to America and ultimately paved the way for the automotive age;
- the extraordinary career of bicycle racer Major Taylor, a nineteenth century superstar, who was also one of the wealthiest African-Americans of his era;
- the economic and social impact the bicycle craze had on the lives of women.



Notes, web sites, and books related to this collection of articles are found on page 19.



Advertising Poster, 1890s.
Library of Congress, Prints and Photographs Division

Major Taylor, Colonel Pope, and the General Commotion over Bicycles

Colonel Pope and the Bicycle Craze

The bicycle was a marvel of the industrial age. Machinists, assemblers, and mechanics created a machine that was the culmination of nineteenth century ingenuity and technological progress.

America's fascination with the bicycle began in 1876, when Colonel Albert Pope fell head-over-heels in love with an English high-wheeler on display at the Centennial Exhibition in Philadelphia.[1] Convinced that he had glimpsed the future, Pope immediately headed across the Atlantic to tour English bicycle factories.

Upon returning to his Boston home in 1877, Pope began the transition that would take him from being a moderately prosperous merchant in the footwear industry to a spectacularly successful manufacturer of bicycles. He began by setting himself up as an importer and seller of English high-wheelers. Then, in 1878, he contracted with the Weed Sewing Machine Company of Hartford,Connecticut to produce the first American-built "Columbia" brand cycles, 60-inch high-wheelers that sold for $95 apiece.[2]

Why did Pope choose a sewing machine company in Hartford, Connecticut to build his bicycles? The answer is "guns."

"At the most basic level," writes economic historian David Hounshell, "production of the Pope Columbia bicycle was rooted firmly within the New England tradition of manufacturing firearms and sewing machines."[3]

The connection is straightforward:

• In 1794, the United States government established a national armory in Springfield, Massachusetts – approximately 25 miles north of Hartford. The armory pioneered and perfected techniques for using interchangeable parts to manufacture small arms.

• Mechanics, designers, and gunsmiths from the armory carried those techniques with them when they left to start ventures of their own or when they went to work for one of the rapidly multiplying number of private firearms manufacturers in New England's Connecticut River Valley.

• Later in the nineteenth century, sewing machine manufacturers adapted armory techniques and used interchangeable parts to cut their costs and produce lower-priced sewing machines for the mass market. Many of them set up shop in the Connecticut River Valley in order to take advantage of its manufacturing infrastructure and its pool of skilled labor.

• Pope chose a sewing machine company to build his bicycles because he was committed to the concept of using machine-made interchangeable parts. And he chose Weed Sewing Machine Company in particular because its Hartford factory had excess manufacturing capacity.

Labor-saving machinery, standardized parts, and better organization made it possible for Pope and other nineteenth century manufacturers to increase their output and achieve savings – or "economies of scale." And nineteenth century consumers almost always reaped the benefits in the form of lower prices and a wider selection of products.

Pope's experience offers some insight. His first high-wheeler was hand-built in 1877 at a cost of $313. By contrast, his first 50 production models in 1878 were built by the Weed Sewing Machine Company at a cost of $95 each. Three years later, production levels approached 50 cycles per day, and Pope's catalog featured a variety of models that started at $55 for a Youth's Mustang and went all the way up to $250 for a Triocycle.[4]

Yet, even though production techniques continued to improve, the price of a Columbia bicycle didn't drop as far as it might have because Pope was able to thwart competitors by acquiring key patents and vigorously enforcing his patent rights.[5] Anyone who wanted to manufacture or import a bicycle that used one of Pope's patents had to pay him a license fee of $10 to $25 *per bike*.[6] (As the patents began to expire during the mid 1880s, more competitors were able to enter the market.)

Colonel Pope – who had actually attained the rank of captain in the Union Army during the Civil War but later "promoted" himself to "colonel" – also had a flair for promoting his own business. Some of his more notable efforts included:

• sponsoring poster contests and funding national magazines devoted

to cycling and highway improvement;

• offering prizes to doctors who published articles touting the health benefits of cycling;

• establishing the League of American Wheelmen in 1880 to "promote the general interests of bicycling" (now known as the League of American Bicyclists);

• underwriting the legal effort to give cyclists complete access to public roads and parks (most notably New York's Central Park);

• lobbying for better roads and helping to establish a highway engineering program at the Massachusetts Institute of Technology.

SAFETY BICYCLES AND "CYCLE MANIA"

There was one obstacle that even Pope's promotional savvy could not overcome: High-wheelers were dangerous. The following excerpt from *A Quick History of Bicycles* describes the perils of balancing atop a 60-inch wheel:

Because the rider sat so high above the center of gravity, if the front wheel was stopped by a stone or rut in the road, or the sudden emergence of a dog, the entire apparatus rotated forward on its front axle, and the rider, with his legs trapped under the handlebars, was dropped unceremoniously on his head. Thus the term "taking a header" came into being.[7]

If cycling was ever going to become more than just a fad for athletic young males, someone would have to invent a bike the average person could ride without undue risk to life and limb.

Englishman J. K. Starley solved the problem in 1884 when he introduced the "safety" bicycle. Similar in design to modern bikes, safety models featured wheels of equal size – usually 26 to 30 inches – powered by a chain-drive.

In 1887, A. H. Overman began production of an American safety model in Chicopee, Massachusetts (located in the Connecticut River Valley, not far from Springfield Armory). And shortly after that, the cycling craze began in earnest.

The number of American bicycle manufacturing firms jumped from fewer than 30 in 1890 to more than 300 in 1896.[9] And approximately one-third of all patents registered in the United States during the 1890s were bicycle-related.[10]

A euphoric account in the July 20, 1895, issue of *Scientific American* reported that there seemed to be "three times as many wheelers as there were last summer," and they weren't necessarily "young fellows of sporting proclivities. . . . Very many of them are gray-haired men. Very many of them also are women, young and old." (See **Women on Wheels,** page 15.)

In 1896, at the height of the craze – and just 20 years after Albert Pope had seen his first high-wheeler at the

Something for All You Gearheads

The Pope Manufacturing Company used forged parts for its bicycles. Western Wheel Works used parts that were stamped from sheet metal. For those of you with inquiring minds, here is the difference between the two.

Forged parts were fashioned in three basic steps: (1) the rough shape was formed in a large machine tool known as a drop forge, (2) excess metal was trimmed or ground away, and (3) the part was drilled or bored so that it could accept screws, bolts, or other fittings.

Stamped and pressed metal parts were: (1) banged or punched out of flat metal sheets, (2) rolled into a tubular shape, if necessary, and (3) joined at the seam, either by brazing or electric resistance welding. There was little need for trimming, grinding, or boring.

David Hounshell contrasts the methods for making a bicycle's crank hanger:

The crank hanger is that part of a safety bicycle through which the pedal axle runs and from which the tubing radiates to the steering head, the rear wheel, and the seat. In a sense, the crank hanger is the heart of the bicycle. Manufacturers such as Pope argued that drop-forging provided critical strength. Yet a drop-forged crank hanger required a tremendous amount of machining – mostly boring or drilling – to hollow out the holes of the axle, axle bearing, and tubes. About 80 percent of the metal from the solid forging was removed by cutting operations. The Western technique started with sheet steel. Through a series of punching and pressing operations, carried out in power presses, with periodic annealing (softening of the steel) in between, the crank hanger was formed. The process usually entailed brazing or electric resistance welding where the ends of the sheets met.[8]

Stamping and pressing eventually won out over forging – mainly because stamped parts were lighter, cheaper, and durable enough for most commercial uses. And when the bicycle boom ended, stamping and pressing techniques were widely used in the auto industry to mass-produce parts such as fenders and door panels.

Centennial Exhibition – total U. S. bicycle production topped one million. Pope Manufacturing Company alone averaged 5000 cycles per month in 1896,[11] a far cry from its first-year output of 50 cycles for all of 1878. And Pope's production facility, which once nestled in a corner of the Weed Sewing Machine Company, now occupied more than 17 acres of floor space under one roof and stretched for more than a mile along the tracks of the New York, New Haven & Hartford Railway.[12]

Yet, as big as Pope's company had become, it was no longer the undisputed industry leader. During the 1890s, a Chicago company called Western Wheel Works began using a new technology to produce bicycles more efficiently and at a lower cost. Instead of forging most of its parts, Western Wheel Works (and many of the other Chicago bicycle manufacturers) used sheet metal pressing and stamping techniques to produce everything from wheel hubs to handlebars. The parts were punched from a flat sheet of metal, rolled or pressed into shape by power presses, and brazed or electrically welded along their joints.[13]

While pressed parts were not always as strong as Pope's drop-forged components, they were strong enough for most uses. And since they didn't require as much machining and finishing, they were cheaper to produce. In fact, stamping and pressing technology worked so well that Western Wheel Works was able to produce 70,000 bikes in 1896 – 10,000 more than Pope Manufacturing Company.

CYCLING TAKES A FALL

The way things were going, bicycle manufacturers must have thought the good times would last forever. But of course nothing lasts forever.

Demand for bicycles collapsed in 1897. No one is exactly sure why. Historians cite a number of possible explanations: an oversaturated market; a fickle public; complacent manufacturers; expanded trolley and subway networks; a new infatuation with the "horseless carriage."

One thing is certain. The number of American bicycle manufacturers plummeted from 312 in 1900 to 101 in 1905.[14]

Then, during the early 1900s, the United States entered the automotive age, and bicycles were relegated to the status of children's toys. But in the span of a generation, the bicycle had triggered revolutionary changes in personal transportation, industrial productivity, and individual freedom – changes that would have far-reaching effects on the U.S. economy and standard of living.

Major Taylor: Nineteenth Century Superstar

During the late 1890s and early 1900s, fans packed Madison Square Garden and dozens of other big-name bicycle racing tracks in North America, Europe, and Australia to cheer the exploits of Marshall W. "Major" Taylor. Amid the applause and excitement, few of them could have guessed that their hero would die broke, alone, and virtually forgotten.

As the nineteenth century gave way to the twentieth, no sport was hotter than bicycle racing. Other pastimes – boxing, horse racing, baseball – drew large crowds, but bicycle racing truly embodied the spirit of the times: the fascination with speed, the belief in no-holds-barred competition, and the unbridled enthusiasm for modern technology.

Professional bicycle racers were the ultimate sports heroes of their day. Fast and fearless, they traveled the national racing circuit in pursuit of fame and fortune. Fans marveled at their skill and daring. And no rider was more celebrated than Marshall W. "Major" Taylor. This is his story.

1878 Born in rural Indiana, nothing in Marshall Taylor's family background marks him for future fame as a world champion cyclist. His father is a Civil War veteran who fought for the Union as a member of an all-black regiment and then returned to buy a small farm outside Indianapolis, Indiana.

Years later, when Taylor writes his autobiography, the opening sentence will read: "A freak of fate started me on what was destined to be my racing career."

1886 "Fate" steps in when Marshall Taylor is eight and his father is working as a coachman for a wealthy Indianapolis

family named Southard:

Occasionally my father would take me to work with him when the horses needed exercising, and in time I became acquainted with the rich young son Daniel, who was just my age.

We soon became the best of friends, so much so in fact, that I was eventually employed as his playmate and companion. My clothing was furnished and we were kept dressed just alike all the time.[15]

The two boys live under the same roof, study with the same tutor, share the same toys, and play with the same friends:

The rest of Dan's playmates were of wealthy families . . .and I was not in the neighborhood long before I learned to ride a bicycle just as they did. All the boys owned bicycles excepting myself, but Dan saw to it that I had one too.[16]

1892 Marshall's fortunes take another turn when the Southards move to Chicago, and he drops "from the happy life of a 'millionaire kid' to that of a common errand boy." His one consolation is that he gets to keep the bicycle they had given him.

Since there is no one left for him to ride with, he works on developing his skills as a trick rider, and that is when "fate" steps in again:

I went to the bicycle store owned by Hay & Willits in Indianapolis, to get a minor repair made on my machine. After the repair had been made, I made a fancy mount on my bicycle in the middle of the store and immediately drew the attention of Mr. Hay. . . . He ordered the store cleared to a certain extent and I did a number of my homemade tricks for him and his guests of the occasion that made them fairly gasp.[17]

Hay offers him a job on the spot – $6.00 a week and a $35.00 bicycle in exchange for keeping the shop clean, running errands, and most important of all, drumming up business with a daily exhibition of trick riding. The job will have two lasting impacts on Taylor's life: (1) the ornate military uniform he wears during his afternoon riding exhibitions will earn him the nickname "Major," and (2) he notches his first cycling victory in a ten-mile road race sponsored by Hay & Willits.

1893 Taylor moves to a new job at Hearsey's bicycle shop, a favorite gathering place for most of the top bike racers

Major Taylor

in Indianapolis. One of them, Louis "Birdie" Munger, will become his mentor and have a profound impact on his future. (Years later the dedication to Taylor's autobiography will read: "To my true friend and advisor, Louis D. 'Birdie' Munger.")

In 1893, when their paths first cross, Munger's racing career has peaked, and he is involved in a venture to build bicycles of his own design. Impressed with Taylor's character and quick intelligence, Munger offers him a job as housekeeper and factory helper. But since Munger is also a good judge of talent, he soon recognizes Taylor's

Major Taylor, Colonel Pope, and the General Commotion over Bicycles

racing potential and tells a friend, "I am going to make a champion out of that boy some day." The friend – Arthur Augustus Zimmerman, America's most renowned bicycle racer – does not disagree.

1894 Taylor begins to attract local attention as an amateur racer, but his rising celebrity has a downside. The more races he wins, the more of an issue his color becomes. Local whites are vexed that a black teenager is outperforming established white competitors, and there is mounting displeasure – even in "Birdie" Munger's own bicycle manufacturing firm – over the fact that Munger, a white man, is taking such an active role in advancing Taylor's career.

1895 "Birdie" Munger moves to Worcester, Massachusetts, where he opens a bicycle factory. Major Taylor accompanies him. Years later, Taylor will write, "I was inadvertently the cause of Mr. Munger's severing relations with the firm and his decision to establish a bicycle factory in Worcester, Massachusetts." But in all likelihood Munger's decision to relocate from Indianapolis to Worcester was influenced more by economics. The Northeast was at the center of the bicycle boom, and places like New York, Hartford, Boston, Springfield, and Worcester offered bicycle entrepreneurs an ideal blend of conditions – advanced manufacturing technology, skilled labor, and proximity to markets where the demand for well-built bicycles was strong.

Taylor's connection to the central Massachusetts manufacturing city will become the source of yet another nickname: "The Worcester Whirlwind."

Major Taylor

1896 Major Taylor adds to his reputation as a top amateur racer, winning victories in road races and sprints throughout the Northeast. In August, he returns to Indianapolis for a meet sponsored by one of the city's most prestigious cycling clubs, and in a memorable sprint he shatters the one-mile record recently set by Walter Sanger, a white pro rider. The crowd cheers his performance, but the city's white establishment is less than thrilled to see a black amateur rider perform so well against white professionals.

In December, Taylor turns pro at New York's Madison Square Garden, where he wins $200 in a half-mile sprint (and immediately wires the prize money to his mother). He is still only 18 years old.

1897 Taylor continues to win professional races, dominating the one-mile sprint events. But as he will later note, "I was not able to make a fight for the championship [in 1897] because the [racing] circuit extended into the South and my entry had been refused by all southern promoters. They claimed it would be folly for me to compete with white riders in that section of the country."[18]

1898 With 21 first-place finishes and seven world records to his credit, Maj-or Taylor is in line to win his first national championship, but racial prejudice and the politics of professional bicycling throw the title into dispute.

1899 Taylor travels to Montreal where he wins the World Championship in the one-mile sprint. The victory makes him the second African-American to win

continued on page 15

"That Dreadful Monster Prejudice"

Major Taylor possessed extraordinary athletic ability, an unsurpassed work ethic, and the heart of a champion. Had he been born in 1978 instead of 1878, he would have been on a par with Tiger Woods or Michael Jordan (you remember Michael Jordan).

Sadly, the prime of Taylor's career coincided with a period in U. S. history when racial prejudice was going from bad to worse. The post-Civil War gains made by African-Americans had begun to erode during the mid 1870s, and in 1896, the same year Taylor turned pro, the United States Supreme Court handed down a ruling that would serve as the legal underpinning for continued racial segregation. (The Court's decision in *Plessy* v. *Ferguson* held that "separate but equal" accommodations and facilities did not violate the U. S. Constitution.) And for the next 50 to 60 years, a combination of law and custom denied African-Americans the right to participate fully in most aspects of mainstream American life, including pro sports.

Racism forced Major Taylor to pay a higher price for what he accomplished – a surcharge over and above the physical and emotional toll that sports exact from anyone who aspires to be the best. The real wonder is that Taylor was able to maintain his focus in the face of often hostile treatment – like the time another rider choked him into unconsciousness or the time a spectator doused him with a bucket of ice water as he was racing towards a first-place finish. And then there were the daily indignities of being excluded from hotels and restaurants while on tour.

Today, of course, there's so much money at stake that sports promoters and pro athletes wouldn't be foolish enough to let bigotry stand in the way of a big payday. Prejudice now carries too high a price – at least at the top levels of the pro sports market. (Which is something to keep in mind the next time someone starts grumbling about how "big money" is ruining sports.)

But for anyone who might still be feeling nostalgic, here are a few excerpts from Major Taylor's autobiography. His words might serve as a reminder that the "good old days" were not always as good as we'd sometimes like to think.

On encountering racial prejudice after returning from an Australian tour with his wife, baby daughter, and Australian racing champion Don Walker:

Upon our arrival in San Francisco we decided to rest up for a few days before starting the long trip to my home town [Worcester, MA]. However, we encountered a new epidemic of Colorphobia which made me completely revamp my plans and leave California at the earliest possible moment....

We made the rounds of the city, [San Francisco] only to be refused shelter and in many cases to be actually insulted. After having been refused service in one of the largest cafes in the city we drove vainly for hours to the different restaurants, and it was late in the afternoon before we could get any lunch. Walker was still game, however, ("as only bicycle riders can be,") and positively refused to eat unless we could all dine together.[19]

On the added strain of coping with prejudice:

Little did [my friends] realize the great physical strain I labored under while I was competing in these sixteen years of trying campaigns. Nor did they seem to realize the great mental strain that beset me in those races, and the utter exhaustion which I felt on the many occasions after I had battled under bitter odds against the monster prejudice, both on and off the track.[20]

A letter sent to Major Taylor during a training visit to Savannah, Georgia:

Mister Taylor,
If you do not leave here before forty-eight hours you will be sorry. We mean business. Clear out if you value your life.
Signed,
White Riders. [21]

On getting an even break:

Judging by the manner in which colored athletes have repeatedly demonstrated their skill and prowess in the athletic world, it is quite obvious what might well be accomplished on a whole as a race in other pursuits of life if granted a square deal and a fair deal. We ask no special favor or advantage over other groups in the great game of life; we only ask for an even break.[22]

Final note: In 1894, the League of American Wheelmen held its national meeting in Louisville, Kentucky, and voted to exclude African-Americans from membership. The League, which Colonel Albert Pope had helped establish in 1880 to promote cycling, was also the governing body for bicycle racing during the 1890s.

More than a century later, in 1999, the renamed League of American Bicyclists returned to Louisville and formally adopted a resolution to rescind its 1894 ban. The driving force behind the action was League president Earl Jones, an African-American and Louisville resident.

BLACK vs. WHITE, the advertising pin,
is from the personal collection of John J. Schuller.

Automobile Calendar for 1906

By
EDWARD
PENFIELD

Published by
Moffat, Yard & Co.
NEW YORK

a world championship. (Boxer George Dixon became the first when he won the bantamweight world title in 1891.)

1900 After a stellar season of racing, Taylor becomes the undisputed – and undeniable – sprint champion of America. He is not yet 22.

1901 During a triumphal European tour, Taylor competes against many of the world's greatest riders – the champions of Belgium, Denmark, England, France, Germany, Italy, and Switzerland. His incredible performances make him an international celebrity.

1903 Taylor sails to Australia, where fans give him a warm and enthusiastic reception. During the extended tour, he competes against Australia's champion racers and earns substantial prize money.

1904 After a second Australian tour, Taylor returns to his home in Worcester. Traveling, training, racing, and years of coping with racism have taken their toll. Exhausted, he tells a reporter, "I don't know whether I'll ever race again."

1907 An attempted comeback falls short. Taylor enjoys modest success but never really regains his old form.

1910 A few months shy of his thirty-second birthday, Taylor retires from competitive bicycle racing. During the next 20 years, he will fail in business, battle illness, lose his house, and become estranged from his wife and daughter. The only real bright spot is the publication of his autobiography in 1928.

1932 Broke and alone, Major Taylor dies in the charity ward of a Chicago hospital at age 53. For the next 16 years, his body will lie in an unmarked grave in Mount Glenwood Cemetery outside Chicago.

1948 Taylor's remains are moved to Mount Glenwood Cemetery's garden section and his gravesite is marked with a bronze plaque. Money to pay for the reburial and plaque comes from Frank Schwinn, owner of Schwinn Bicycle Company. He makes the donation at the request of former pro racers, who had launched a campaign to honor Major Taylor's life and accomplishments.

1998 Nearly 100 years after Major Taylor won the one-mile world bicycle racing championship, the Major Taylor Association launches a drive to commemorate the longtime Worcester, Massachusetts resident with a statue outside the Worcester Public Library. In March 2000, the group commissions sculptor Toby Mendez to create the monument. (You can view the design online at http://www.majortaylorassociation.org.)

Women on Wheels

The bicycle craze may not have lasted long, but it had a profound impact on traditional notions of feminine behavior:

Doubt as to the propriety of bicycle riding has passed away, for fashion has set its stamp of approval on the practice and supplied conspicuous examples of it which have released the feminine mind from fear of conventionality by mounting a bicycle. (Scientific American, July 20, 1895*)*

The restrictive corsets and long skirts that had encumbered women for most of the nineteenth century gave way to more practical attire. A "female medical practitioner" told the *Journal of the American Medical Association* in 1896:

I frequently shop in my bicycle costume, and, while much staring and often audible comment greet me, yet I think if the costume were universally adopted it would soon cease to be noticeable. As to its merits there can be no doubt, and no woman who has experienced the freedom and comfort of the short, light skirt will willingly return to the long, heavily lined skirt which fashion now prescribes.

The bicycle craze has done more for the emancipation of women than anything else in the world.

Susan B. Anthony, 1896

Perhaps even more important, bicycles helped to make women more of a factor in the rapidly expanding market for consumer goods. A quick glance at bicy-

Illustration:
During the early 1900s the United States entered the automotive age, and bicycles were relegated to the staus of children's toys.
Library of Congress, Prints and Photographs Division

Major Taylor, Colonel Pope, and the General Commotion over Bicycles

cle ads in newspapers and magazines from the mid 1890s shows that marketers and manufacturers were beginning to appreciate the growing economic clout of women consumers. "There is no good reason why a woman as well as a man should not have a bicycle of the highest efficiency – no good reason why a woman should not have a Columbia Chainless," declared a Pope Manufacturing Company advertisement in the November 6, 1897 issue of *Scientific American*.

And under the front page headline "MORE BIKES THAN EVER – SUPPLY OF WOMEN'S WHEELS FAR BEHIND DEMAND" the *Worcester Telegram* (October 14, 1895) quoted a bicycle sales representative who believed the "great impetus to the trade was caused by women taking up cycling." He estimated that women had purchased one-fourth of the bicycles sold in the U. S. during 1895.

All these factors combined to give women a new sense of freedom – freedom to travel independently (without the need of a male driver or the added financial expense of keeping horses), freedom to participate in activities that were once closed to them, and freedom to express thoughts they might once have kept to themselves.

In its front page coverage of the Telegram Trophy Race, the *Worcester Sunday Telegram* (May 9, 1896) reported:

The lady bicycle riders were up to a thing or two in the racing line, and it is suggested that many of them have the genuine sporting element in their blood. It was edifying to hear them talk of wind and staying power, and sprockets and ball-bearings, wheels and things like that, until you would think all some of them needed to be bicycles themselves would be a set of handlebars.

And in *A Social History of the Bicycle*, Robert A. Smith quotes Ann Strong, a woman whose comments to the *Minneapolis Tribune* (August 17, 1895) left little doubt as to how big an impact the bicycle was having:

I can't see but that a wheel [bicycle] is just as good company as most husbands. . . . I'd rather imagine a sympathetic response in a bright and shining handlebar than know it doesn't exist in a frowning man, who yawns or starts when I ask him a question. …

Another great superiority of the bicycle lies in the fact that you can always get rid of them when you wish. You can roll it in and stand it up in a corner, and there it stays. It will neither follow you around or insist on receiving attention at inconvenient moments. When it gets shabby or old, you can dispose of it and get you a new one without shocking the entire community.[23]

Life would never be the same.

One hundred years after Susan B. Anthony's famous pronouncement, mountain biker Missy Giove – a.k.a. "The Missile" – was on her way to winning the women's World Cup Downhill Championship. An Associated Press article describes how Giove earns her living:

Her specialty, the downhill, is like the Tour de France hosted on the moon. Downhillers storm out of the summit gates like demented skiers, peddle furiously on adrenalin-fueled machines at teeth-shattering speeds approaching 60 mph, and then catapult through gravity with their rears in the air.

Misjudge an angle and they somersault over the bike's aluminum frame and tumble down a dusty, rocky gorge like a rag doll tossed from a speeding car.[24]

The article goes on to note that Giove has broken dozens of bones, "including four compound fractures of her pelvis, a broken hip and a smashed collarbone." And that was only as of 1996.

But she loves what she does, and she rakes in well over half a million dollars a year in prizes and endorsements.

No way she could have done all that in a corset and long skirt.

ROAD TEST

Your Chance to Show What You Know

1. Any major economic or technological change will have a positive impact on some people and a negative impact on others. The bicycle boom created thousands of new jobs for mechanics, assemblers, and sales people. But at the same time it threatened the livelihood of blacksmiths, livery stable owners, and _____.

A. saloonkeepers
B. piano sellers
C. barbers
D. all of the above

2. In the mid 1890s, Major Taylor moved to the northern industrial city of Worcester, Massachusetts. Twenty years later, hundreds of thousands of African-Americans began leaving the rural south for cities in the north and the west. This extraordinary demographic shift would later be known as:

A. Reconstruction
B. The Emancipation Proclamation
C. The Great Divide
D. The Great Migration

3. Technical advances in _____ led to the invention of the safety bicycle.

A. alchemy
B. metallurgy
C. carpentry
D. quantum physics

4. Colonel Albert Pope managed to thwart competitors by _____.

A. spreading nasty rumors about them
B. cutting his prices to the point where he was able to drive them out of business
C. lobbying for a protective tariff
D. buying up a number of important patents

5. Which of the following bicycle innovations carried over into automobile production?

A. ball bearings
B. inflatable tires
C. sheet metal stamping
D. all of the above

6. Colonel Pope was determined to build his bicycle using _____.

A. low-cost foreign labor
B. sheet metal stamping technology
C. machine-made interchangeable parts
D. individually forged parts

7. Which of the following factors helps to explain why so many bicycle manufacturers set up shop in New England's Connecticut River Valley?

A. The national armory in Springfield, Massachusetts had pioneered and perfected techniques for using interchangeable parts.
B. Labor was cheaper in places like Worcester, Massachusetts and Hartford, Connecticut.
C. There were fewer hills so cycling was easier.
D. The mild climate made for good year-round cycling

8. Labor-saving machinery, standardized parts, and efficient organization made it possible for Colonel Pope and other nineteenth century manufacturers to increase their output and _____ that almost always resulted in lower prices and a wider selection of products for consumers.

A. reap windfall profits
B. achieve savings or "economies of scale"
C. play a zero-sum game
D. none of the above

9. Major Taylor was a superstar during the late 1890s and early 1900s, yet hardly anyone remembers him today. Babe Ruth was a superstar during the 1920s and early 1930s – also a long time ago – yet he's still something of a legend. Why was Taylor virtually forgotten, while Ruth is still very much remembered?

A. Taylor was black, and Ruth was white.
B. Taylor was a superstar in a sport that lost much of its popularity, while Ruth was a superstar in a sport that became known as America's "National Pastime."
C. Ruth spent much of his career in New York, which was the media capital of the United States. Taylor spent much of his career on the racing circuit in smaller American cities, Europe, and Australia.
D. All of the above

10. Before they proved to the world that humans could fly, the Wright Brothers worked as bicycle mechanics. Which other famous American inventor/industrialist got his start as a bike mechanic?

A) Thomas Edison
B) Isaac Singer
C) Cyrus McCormick
D) Henry Ford

(answers on page 24)

Worth a Thousand Words

Color Wars

Between 1890 and 1896, the number of American bicycle manufacturers soared from fewer than 30 to more than 300. With so many bikes to choose from, how could a consumer possibly decide which one to buy? And how could a company distinguish its bikes from dozens of others that were essentially the same?

The answer to both questions was "advertising." Companies launched ad campaigns featuring color posters that were no less of a technological marvel than the bicycles they advertised.

Up until the Industrial Revolution, color illustrations were a rarity, painstakingly created by artists using methods that dated back to the Middle Ages. High-volume color printing only became a reality after power-driven presses, new printing techniques, and lower-cost paper gave printers the capability to produce quality color work at a price customers could afford.

The posters on these pages are a testament to the powerful impact color printing had on advertising. They were the forerunners of today's glitzy 30-second commercial spots. As you look at them, notice the total absence of hard, factual information. These posters were not making a rational, intellectual appeal. They were going straight for the gut. Their goal was to engage a customer's emotions and create a sense that one bike really was different from another.

Worth a Thousand Words is a regular feature that uses archival photos and prints to focus on economic history. The images in this issue are courtesy of the Library of Congress, Prints and Photographs Division.

Major Taylor, Colonel Pope, and the General Commotion over Bicycles

Resources

Books

The Fastest Bicycle Rider in the World
by Marshall W. Taylor
Abridged reprint
The Stephen Greene Press,
Brattleboro, Vermont, 1972
Not an easy book to find, but it's worth the effort. Taylor speaks directly to you – no ghost writer, no literary mask.

From the American System to Mass Production 1800–1932
by David A. Hounshell
Johns Hopkins University Press, 1984
A scholarly work with a bonus: Hounshell knows how to tell a story.

Major Taylor: The Extraordinary Career of a Champion Bicycle Racer
by Andrew Ritchie
Bicycle Books, Inc., 1988
Not only is this book well-documented – Andrew Ritchie spent ten years on the research – it also packs a punch.

A Social History of the Bicycle
by Robert A. Smith
American Heritage Press, 1972
Lots of fascinating background information on the bicycle boom.

Web Sites

Even if Major Taylor had been able to hand-pick two people to preserve his legacy, he could not have found anyone better than Lynne Tolman (The Major Taylor Association) and John J. Schuller (The Major Taylor Society).

The Major Taylor Association
www.majortaylorassociation.org

The Major Taylor Society
www.majortaylor.com

Credits

The Major Taylor chronology was compiled from several sources:

- The writings of Lynne Tolman, featured on the Major Taylor Association web site, www.majortaylorassociation.org
- John J. Schuller's Web site, The Major Taylor Society, www.majortaylor.com
- *Major Taylor: The Extraordinary Career of a Champion Bicycle Racer*, by Andrew Ritchie, published by Bicycle Books, Inc., 1988
- *The Fastest Bicycle Rider in the World*, by Marshall W. Taylor, 1928

Endnotes

[1] Smith, Robert A. *A Social History of the Bicycle*, p. 8.
[2] Norcliffe, Glen. "Popeism and Fordism: Examining the Roots of Mass Production," *Regional Studies,* Vol. 31.3, April 1997.
[3] Hounshell, David A. *From the American System to Mass Production 1800-1932,* p. 194.
[4] Norcliffe.
[5] Hounshell, p. 200.
[6] Norcliffe.
[7] www.pedalinghistory.com
[8] Hounshell, p. 210.
[9] Hounshell, p. 201, and Norcliffe.
[10] Allen, Henry. "The Bicycle, Sculpture to Go," *Washington Post,* July 14, 2000.
[11] Hounshell, p. 205.
[12] www.columbiamfginc.com
[13] Hounshell. p. 210.
[14] Allen, Henry. "The Bicycle, Sculpture to Go," *Washington Post,* July 14, 2000.
[15] Taylor, Marshall W. "Major." *The Fastest Bicycle Rider in the World,* p. 1.
[16] Taylor, p. 1.
[17] Taylor, p. 2.
[18] Taylor, p. 20.
[19] Taylor, p. 198.
[20] Taylor, p. 206.
[21] Taylor, p. 23.
[22] Taylor, p. X.
[23] Smith, p. 81.
[24] Kennedy, Mark. "She's fast! She's crazy! She's a mountain-bike goddess." The Associated Press, September 26, 1996.

SKIING in New England: An Industry Profile

Michael Stewart
Economic Education Specialist
Federal Reserve Bank of Boston

Getting ready to go skiing definitely takes a purposive effort. You have to find the long johns, put on the ski pants, zip up the parka, don mittens, hat, scarf, and goggles, and force your feet into those clunky ski boots. Then, if you can still move, you are ready to hit the slopes.

Every winter, droves of people – individuals and families alike – flock to Maine, New Hampshire, and Vermont to take part in this Nordic phenomenon. Skiing in northern New England is a $1.5-billion-a-year industry. This impressive figure includes the cost of lift tickets, lodging, food, and skier-related retail sales. If you were to add up all the people that work for ski areas, restaurants, hotels, and retail establishments, you would find that over the course of a typical season the ski industry pro-

vides the regional economy with over 38,000 jobs.

And if you have been a skier for many years, you probably know that the cost of having winter fun is a lot higher than it used to be. Just look at the price of lift tickets. In 1978, an adult could purchase an all-day weekend lift ticket for about $14. Today, the same lift ticket costs about $49. That's an increase of 350 percent! If the cost had increased at the same rate as the consumer price index, the ticket would be around $29 in 2001 dollars. So, even after adjusting for inflation, lift ticket prices have climbed 169 percent since 1978.

What is behind this huge hike in prices? Are ski areas gouging a price-insensitive public? Not really. Rather, ski areas are delivering a different, much-improved product today. Massive snowmaking operations and extensive slope grooming have vastly improved ski conditions and significantly extended the ski season. But all the improvements come at a price. Some of the grooming machines cost upwards of $180,000, and they last only two or three years. New high-capacity lifts can carry many more people to the summit in half the time of older, slower models, but they cost almost twice as much.

Is it all worth the higher prices? Skiers seem to think so. Millions of them are still streaking down the slopes every season, and most of them are smiling all the way.

The following organizations providing information for this article:

- National Ski Areas Association
- Ski Maine
- Ski New Hampshire
- University of Vermont, Department of Community & Applied Economics
- Vermont Tourism Data Center
- Waterville Valley Ski Area

Things to Think About

• In the United States as a whole, there were 2 million more skier visits in 1999 than there were in 1978. That's an average annual visitor increase of 0.18 percent per year for this 22-year period.

The law of supply and demand holds that if prices go up, demand tends to go down. Yet over the past 20 years the cost of going skiing has gone up and the number of people has remained the same. Why do you think skiers have been willing to pay the higher lift ticket prices? Do you think there is a simple economic explanation for this?

• According to the North American Ski Areas Association, what U.S. state is home to the most ski areas?

Answer: New York

Peanuts & Crackerjacks

It's a Hit!

Peanuts & Crackerjacks, the Federal Reserve Bank of Boston's new educational unit on the economics of pro sports, is fun, easy to use, and free. Just log onto the Boston Fed's web site at www.bos.frb.org and click on **Peanuts & Crackerjacks**.

Three main pieces cover all the bases:

1. The Game – Set in Boston's historic Fenway Park, The Game is an interactive baseball simulation that gives you a chance to show what you know about economics and sports trivia.
2. The Sports Page – With nine solid innings of economics content, The Sports Page has the scoop on everything from supply-and-demand to salary caps.
3. The Teachers Guide – The online Teachers Guide contains more than 50 activities and discussion exercises geared to a variety of learning styles.

All three pieces are organized around a nine inning format so you can either go through all nine innings in sequence or choose only the innings that best fit your interests. And although **Peanuts & Crackerjacks** was originally designed for students in grades 8 to 12, much of the material can be easily adapted for use in grades 5, 6, and 7.

Not a sports fan? No problem. Sports are the hook, but **Peanuts & Crackerjacks** is really about using economics to gain a better understanding of everyday life.

And don't get the idea that **Peanuts & Crackerjacks** is just for kids. The "economics of sports" theme and the vintage photos will appeal to fans of all ages, and The Game's Fenway Park backdrop will be a big hit with everyone – even diehard Yankees fans.

So, step up to the plate and give **Peanuts & Crackerjacks** a try. Whether you're a student or a crusty veteran of many seasons in the adult world, you won't be disappointed.

Go to www.bos.frb.org and click on **Peanuts & Crackerjacks**.

Nasdaq Teaching Awards: Why Not Apply?

A teaching awards program sponsored by the National Council on Economic Education (NCEE) recognizes and rewards outstanding teachers of high school economics. Backed by a grant from the Nasdaq Educational Foundation, the program recognizes deserving teachers for their originality, creativity, and effectiveness in furthering students' awareness in six areas:

- the financial markets,
- the capital formation process,
- principles of investing,
- personal finance,
- entrepreneurship, and
- the operation of market economies.

The grand national winner receives $25,000, five regional winners each receive $10,000, and 20 regional semi-finalists each receive $1,000.

More than 200 teachers from 41 states and a wide variety of schools and locations competed in the 2000 awards program. Each submission was first judged at one of five regional centers. Composed of finance and economics educators, the regional judging panels chose a winner and four semi-finalists for their region. Each entry was judged against the following criteria:

- innovation and originality,
- how well the entry engaged students,
- use of a variety of appropriate instructional techniques,
- how well the entry met and worked in harmony with the national and state standards in economics (and other subjects as applicable),
- how it fit into the classroom learning environment,
- the ease with which it could be adapted for use by other teachers,
- the effectiveness of the evaluation process, and how well results could be demonstrated.

The Nasdaq Educational Foundation is a nonprofit organization engaged in promoting innovative thinking about the role of capital formation and financial markets in a free enterprise system. Its goals are to ensure new generations of well-informed investors and to promote interest in financial careers. The Foundation is fully funded by the Nasdaq Stock Market, Inc.

More information about the awards program and an application can be found on the NCEE's web site at www.ncee.net or call 1-800-338-1192. The web site offers downloadable copies of previous winning entries. The deadline to enter the 2001 awards program is July 31, 2001.

Economic Education Councils and Centers

The National Council on Economic Education – a nonprofit partnership of leaders in education, business, and labor – has worked to foster economic education since 1949. Its teacher training affiliate, EconomicsAmerica, provides training and support to more than 120,000 teachers a year.

New England currently has five EconomicsAmerica affiliates:

• Connecticut Council on Economic Education
William T. Alpert, Executive Director
Phone: (203) 251-8413
Email: alpert@uconn.edu

• Maine Council on Economic Education
Robert J. Mitchell, President
Phone: (207) 780-5926
Email: econmaine@aol.com
Website: www.economicsamerica.org/maine/index.html

• Massachusetts Council on Economic Education
Julia Stewart, President
Phone: (978) 314-0592
Email: jcdlstewart@worldnet.att.net

• Rhode Island Council on Economic Education
Jeffrey Blais, President
Peter R. Moore, Center Director
Phone: (401) 456-8037
Email: jblais@ric.edu
pmoore@ric.edu

• Vermont Council on Economic Education
Art Woolf, President
Phone: (802) 656-4711
Email: vcee@uvm.edu

For a nationwide listing of state councils and centers, visit the EconomicsAmerica web site:www.economicsamerica.org.

ROAD TEST ANSWERS

1. The correct answer is all of the above. Blacksmiths and livery stable owners were not the only ones to have their livelihood threatened by the bicycle boom. Saloonkeepers, piano sellers, barbers, even theater owners were concerned that cycling's popularity was cutting into their business by encouraging too many people to spend more time outdoors.

2. The Great Migration spanned a period that ran roughly from 1915 to 1960. Approximately 500,000 to a million African-Americans left the rural south between 1915 and 1920 alone. They were motivated by a variety of factors: An insect blight destroyed much of the cotton crop and had a crippling impact on the southern economy, widespread flooding in the Mississippi Valley (1915) caused severe economic dislocation, the racial climate was becoming increasingly hostile, and wages in northern factories had risen sharply as a result of a labor shortage during World War I.

Nearly a million more African-Americans moved north and west during the 1920s, and a wartime labor shortage attracted many more migrants during the 1940s.

3. Advances in metallurgy made it possible to manufacture chains that were strong enough to power safety bicycles.

4. Pope was able to thwart competitors by obtaining a number of important patents and vigorously enforcing his patent rights in court. Any bicycle manufacturer that used one of Pope's patents had to pay him a fee that ranged from $10 to $25 per bike.

5. The correct answer is all of the above. Ball bearings, inflatable tires, and sheet metal stamping were bicycle manufacturing innovations that carried over into automobile production. Shock absorption technology was another.

6. Colonel Pope was determined to build his bicycles with machine-made interchangeable parts.

7. The national armory in Springfield, Massachusetts had pioneered and perfected techniques for using interchangeable parts to manufacture small arms. The armory also stimulated the creation of spin-off industries and technological innovations. Bicycle makers were later drawn to the area by its concentration of sophisticated manufacturing technology and its pool of skilled labor.

8. The correct answer is achieve savings or "economies of scale." Pope's first bicycle was a hand-made prototype that cost more than $300. By the mid 1880s, he was using machine-made interchangeable parts to produce many more bicycles at a much lower average cost.

9. The correct answer is all of the above. (A) In the 1890s, when Taylor was at the peak of his career, the racial climate in the United States was going from bad to worse, and it would not begin to improve for at least another 60 years. (B) The end of Taylor's career coincided with the end of the bicycle boom and the declining popularity of cycle racing, whereas baseball's popularity continued to increase. (C) Babe Ruth spent his prime years in New York, which, during the 1920s was the undisputed media capital of the United States and home to most of the country's top sportswriters. Taylor spent much of his career on the road, in places where the media coverage was not as extensive as it was in New York. And during Taylor's prime, the mass media were not yet as big a factor as they would be by the 1920s.

10. Before he made a fortune with the Model T, Henry Ford was a bicycle mechanic.

Look for our resources issue this fall!

They're out there. Maybe you know some of them, but no one knows them all.
The Fall 2001 issue of *The Ledger* will highlight web sites and lots of other resources for teachers, students, and anyone else interested in economics.