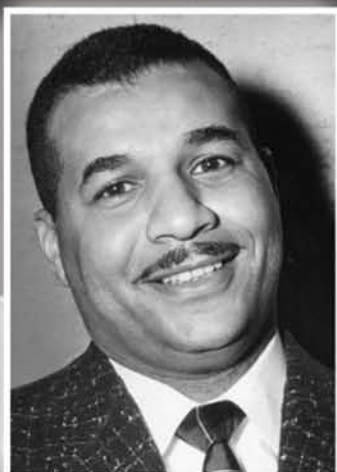
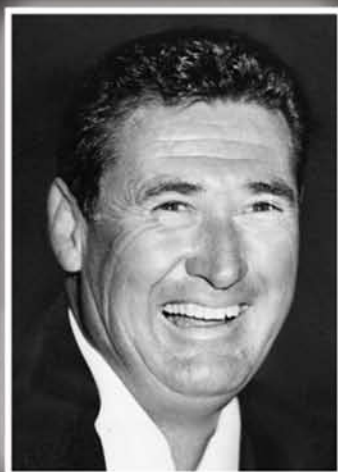


THE Baseball Research JOURNAL



What's my Line?

Iconic TV show featured
baseball figures like Ted Williams,
Joe DiMaggio, and Roy Campanella
in the role of mystery guests.

Fall 2014

THE Baseball Research JOURNAL

**Volume 43
Fall 2014
Number 2**

**Published by
the Society for American Baseball Research**



THE BASEBALL RESEARCH JOURNAL, Volume 43, Number 2

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Front cover: *What's My Line?* (Popperfoto/Getty Images), Player insets of Ted Williams, Joe DiMaggio, and Roy Campanella (National Baseball Hall of Fame Library, Cooperstown, NY). The panel depicted in this 1952 photo from the studio of *What's My Line?* was the first all-female panel on the quiz show. Pictured (L–R): Jill Craigie, Margharita Laski, Joy Adamson, and Elizabeth Allen, with host Eamonn Andrews.

Published by:

The Society for American Baseball Research, Inc.

4455 E. Camelback Road, Ste. D-140

Phoenix, AZ 85018

Phone: (800) 969-7227 or (602) 343-6455

Fax: (602) 595-5690

Web: www.sabr.org

Twitter: @sabr

Facebook: Society for American Baseball Research

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Printed in the United States of America

Distributed by the University of Nebraska Press

ISBN 978-1-933599-67-0 (paperback)

Ebook ISBN 978-1-933599-68-7

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Note from the Editor

I had an extraordinary experience at the end of this baseball season. I attended Derek Jeter's last game at Yankee Stadium. The extraordinary thing wasn't merely Jeter's unbelievable, Hollywood-scripted storybook ending, but that it came at the end of an unbelievable storybook career. All throughout, Jeter has given us moments that have made us in the stands and press box turn and ask each other, "Did you see that?" "Can you believe that?" You literally don't believe it sometimes. "He did what?" But we've been here, bearing witness to these moments, his whole career. We try to leave a written record for the historians who will come in future generations, who didn't see him play, trying to explain what he was like—not "how good" he was or "how bad" he was, but how he was.

Simple, right? No. It's difficult to strive for accuracy when a player continually defies belief. We find ourselves constantly swept into the realm of emotion—of course, because if we didn't care we wouldn't bother to research, analyze, and write about him. But when belief comes into the equation, now we're talking about faith. It was a Tinkerbell moment in the ninth inning at Yankee Stadium on September 25, 2014. The fans were there to say goodbye to their idol regardless of the game's outcome. The Yankees had been eliminated from contention the day before. In the seventh inning we thought we saw the last of Jeter, in a broken-bat, RBI-producing at-bat that gave the Yankees the lead. Kinda clutch. But David Robertson, the closer, coughed up two hairballs in the ninth. Two homers let the Orioles tie the game and let the Yankees bat again in the bottom of the inning. With Jeter due up third.

So here's a piece of history. I saw it. It happened like clockwork: Jose Pirela led off with a hit, was replaced by pinch-runner Antoan Richardson, who was sac-bunted to second by Brett Gardner. Up came Jeter. I call these moments "Tinkerbell" moments because it feels like if the fans clap loud enough, the magic will happen. It doesn't always; sometimes Mighty Casey strikes out. But this time, with his classic inside-out swing, Jeter laced the first pitch into right, for a completely Jeterian walk-off game-winner. What happened in that game is not in question: the world witnessed it. Yes, that really happened.

But we witnessed Jeter's whole career. And yet the debates about him are only getting started. At the very first SABR convention I attended (2002 in Boston), one of the first presentations I attended was about who was the better shortstop: Jeter or Nomar. (Results were inconclusive at the time.) I don't think it's a coincidence that the elements we debate about Jeter-as-player represent the things we debate most hotly in sabermetrics overall. Was he a "good" or "bad" fielder? We're still trying to figure out the best way to answer that question for all players. Advanced defensive metrics—that's the cutting edge. Jeter was often knocked for not being a power hitter. But how much weight to give to power in overall player evaluation metrics like WAR, total player rating, et cetera—that's the stuff that top sabermetricians are tinkering with right now, not just in Internet debates, but in the Decision Sciences departments of MLB front offices. One thing that no one ever knocked about Jeter was his sportsmanship, his demeanor, his "intangibles." Can psychological "intangibles" be made tangible? Can they be measured? I predict that's the frontier in player evaluation and development that will be bushwhacked next.

As historians and sabermetricians, our role is dual: both record and interpret. We don't just write down numbers and names. That doesn't tell the story. We tell the story. Sometimes we re-tell the story in light of new information or new insights. In this issue Bryan Soderholm-Difatte looks back 100 years to how George Stallings eked a championship from the 1914 Braves. David E. Skelton, meanwhile, looks at how the events at the end of the regular season in 1966 might have cost the Dodgers the World Series. At the other end of the spectrum we have several papers on the subject of predictions and probability itself. What were the odds that Douglas Jordan, Stanley Rothman, John A. Richards, and Matt Haechrel would all have their papers ready for publication at the same time? Slim odds. But sometimes that's how things work out.

Sometimes amazing things happen. I'm honored to bear witness.

— Cecilia Tan, Editor



A Ballpark Opens and A Ballplayer Dies

The Converging Fates of Shibe Park and “Doc” Powers

Robert D. Warrington

This story tells the tragic tale of Michael “Doc” Powers, a catcher who played primarily for the Philadelphia Athletics and whose baseball career was cut short by his untimely death. Misconceptions about what caused his demise abound, but can be laid to rest by this article. Ultimately, “Doc Powers Day” was organized by the American League and hosted by the A’s to raise funds for his widow and children, an extraordinary effort for its time.

A REAL DOCTOR

Michael Riley Powers was born in Pittsfield, Massachusetts on September 22, 1870.¹ Unlike the majority of baseball players called “Doc,” he earned the nickname legitimately. After graduating from the College of the Holy Cross in Worcester, Massachusetts, and the University of Notre Dame in South Bend, Indiana, Powers completed his medical studies at Louisville Medical College while playing for the Louisville Colonels. After arriving in Philadelphia, he passed the State Board examination for doctors in Pennsylvania. Powers practiced medicine each offseason at an established medical practice in Jeffersonville—a community located northwest of Philadelphia—where he lived with his wife, Florence, and three children.² Using his medical skills, Powers often treated teammates for minor injuries, also gaining the nickname “Red Cross Mike.”³

BASEBALL CAREER

Powers played college baseball at Holy Cross and Notre Dame.⁴ He made his major league debut on June 12, 1898, with the Louisville Colonels of the National League.⁵ Powers was used sparingly by the Colonels, appearing in just 34 and 49 games, respectively, 1898–99. He was sold to the Washington Senators on September 16, 1899, and played in 14 games for the Senators at the tail end of the season.

In March 1900 the NL jettisoned what it judged to be weaker franchises: Louisville, Baltimore, Cleveland, and Washington.⁶ Like many other players, Powers found himself without a job and migrated to the newly-named American League of Professional Baseball

Clubs—formerly known as the Western League—which was categorized as a minor league circuit at that time.⁷ He became the Indianapolis Hoosiers’ full-time catcher, appearing in 110 games for a team that finished in third place.

During the 1900–01 offseason, American League president Ban Johnson sought equal standing with the NL. Achieving this end meant changing the geographic configuration of the league, again dropping less robust franchises and establishing new ones in the east. AL teams in Chicago, Milwaukee, Detroit, and Cleveland were kept, while Indianapolis, Kansas City, Buffalo, and Minneapolis were replaced by clubs in Boston, Philadelphia, Baltimore, and Washington—cities with populations large enough and locations favorable enough to enable the AL to compete head-to-head with the NL.⁸

“Doc” Powers became a player without a team for a second time. Connie Mack was selected to manage the AL’s Philadelphia club, which chose the nickname Athletics because of its long and honored place in the city’s baseball history.⁹ Mack scrambled to put together a roster in time for the 1901 season, and he signed several players who were still under league control even though their clubs had been eliminated. Powers then stayed on the A’s roster—with one brief interlude—for the rest of his professional baseball career.¹⁰

Powers was a light hitter at the plate and ponderous on the bases, but he had a cannon for an arm and possessed considerable prowess in handling pitchers. David Jordan writes in his history of the Philadelphia Athletics that Powers was “a man who could keep his pitchers’ heads in the game.”¹¹ Sportswriter George Graham, who covered baseball in Philadelphia when Powers played, wrote:

Powers was always a far better catcher than he was credited with being. He wasn’t much of a hitter—one of the poorest in the league, in fact—and he was painfully slow on the bases, but behind the bat he was alert-minded, he handled the mitt well and had a great arm.¹²

In 539 games over nine years with the A's, Powers notched a modest .213 batting average with only three home runs. But Powers brought two assets integral to success as a catcher—a canny baseball mind and savvy baseball instincts. George M. Young, a Philadelphia sportswriter who reported on Powers during his time with the Athletics, observed:

A brainy catcher is the guiding genius of a team... It is usually the catcher who gives the delivery signals to the pitcher and also tips off the pitcher when to throw to bases. Also, it is he who places the men in the field to play for a particular batsman...Such a man was the late "Doc" Powers.¹³

Powers also served another key role as personal catcher to Eddie Plank—one of the greatest left-handed pitchers in baseball history. Mack recognized that when a catcher and pitcher develop a rapport, to maximize the effectiveness and comfort level of the pitcher they should be kept together. He used this formula with the brilliant yet madcap Rube Waddell. Ossee Schrecongost served as Waddell's personal catcher—and roommate—for six years. Like Waddell, Schrecongost was an oddball with great fondness for alcohol.¹⁴

Powers caught 205 of Plank's 282 starts, 1901–09.¹⁵ Plank presented challenges for any catcher, and the ability to handle him was a primary reason Powers remained with the team despite his anemic hitting.¹⁶ Sportswriter Stephen O. Gauley described the difficulties with Plank:

Perhaps Connie Mack and the rest of the Athletic rooters figured Powers's greatest value to the team was in the fact that he was the only catcher who could successfully hold Eddie Plank's puzzling delivery... "Doc" handled everything Plank could use without any apparent extra effort or trouble. Plank is not the easiest pitcher in the business to handle, as many a catcher who has tried it will testify, but Powers apparently reveled in Plank's stubborn delivery. Crossfire "Doc" seemed to fairly eat up, and no matter how hard or low did some of Plank's shoots go, Powers invariably mitted them, which other catchers would have let slip away to the grandstand.¹⁷

Connie Mack gave Powers the singular honor of catching the first game in club history on April 26, 1901, at the Athletics' Columbia Park.¹⁸ Although the A's came out on the short end of a 5–1 score against Washington, the team was off and running.¹⁹

Powers was the team's primary catcher in 1901, then took a back seat to Schrecongost from 1902 through 1908. Schrecongost was a fine defensive catcher, with a lot more pop in his bat.²⁰

The only brief interruption of this arrangement came during the 1905 season, when injuries left the New York Highlanders (also known as Yankees) needing a catcher on a temporary basis. Mack "loaned" Powers to the Highlanders for a short period of time. Although unheard of today, this practice was not uncommon during the early twentieth century, and no other clubs objected to this courtesy being extended. Powers joined New York on July 13, 1905. Remarkably, the Highlanders won 11 in a row with Powers on the roster and then a 12th after he returned to Philadelphia on August 7, 1905.²¹

JOY TEMPERED BY DISQUIET

After playing at Columbia Park for eight years, the Athletics moved to a new ballpark at the start of the 1909 season. Shibe Park became the club's home for the rest of its stay in Philadelphia. The inaugural home opener occurred on Monday, April 12, 1909, with Plank pitching and Powers catching. The splendidly successful affair saw the A's win over the Boston Red Sox, 8–1, before a sellout crowd in a ballpark that was the crown jewel of the league.²²

The festive mood was diminished slightly by concern over the health of "Doc" Powers who had become ill during the game.²³ One newspaper account reported:

The only thing that occurred to cast a shadow over the joy of the fans was the seizure of "Doc" Powers with acute gastritis in the seventh inning. The redoubtable catcher, however, refused to abandon his post behind the plate and though suffering intense agony, pluckily stuck to it until the end of the game. On the verge of collapse, he was taken to Northwest General Hospital where last night it was stated by the physicians attending him that he would probably be able to don a uniform again in a few days.²⁴

Stories filed by reporters immediately after the ballgame were upbeat, with all estimating that Powers would be gone only a short time.²⁵ Later that night, however, his condition worsened, and doctors judged it necessary to operate.²⁶ The operation started at 1:00AM on Tuesday, April 13, and doctors discovered that Powers was suffering from intussusception.²⁷

Intussusception, which happens rarely in adults, is a disorder in which part of the intestine slides

telescopically into an adjacent part of the intestine, often preventing food or fluid from passing through and cutting off the blood supply to the blocked section.²⁸ The lack of blood causes the tissue of the intestinal wall to die, which can result in perforation of the intestine and infection of the abdominal cavity—a life-threatening condition that requires immediate medical attention.²⁹



A studio portrait of four members of the 1905 AL Champion Philadelphia Athletics. Clockwise from top: Ossee Schrecongost, Harry Barton, Briscoe Lord, and Michael "Doc" Powers.

AUTHOR'S COLLECTION

THE DEATH OF "DOC" POWERS

Surgeons found that the intussusception had caused more than a foot of intestine to become gangrenous, which they removed. Afterwards, "[Powers] was reported to be in a serious condition with even chances of recovery."³⁰ He rallied after the operation, which created optimism for several days that he would recover. A *Sporting Life* columnist observed, "The desperate operation at first bid fair to be successful."³¹

The hope was short-lived. After a week, the abdominal pain and symptoms of obstruction recurred. A second, more intrusive operation was performed on April 20: Another blockage had formed and the gangrene had spread. Doctors cut out the blockage and infected area and created an artificial anus in the abdominal wall. For a brief period, Powers was able to eat food and showed other signs of recovery.³²

But on the morning of Sunday, April 25, his condition again deteriorated. A third operation revealed he was experiencing acute dilatation of the heart.³³ The prognosis was grim.³⁴ Powers was given blood transfusions and oxygen, but doctors judged he was near death and wouldn't live another day.³⁵ Father Kinslow of Philadelphia's St. Elizabeth's Church was called to Northwest General Hospital on the morning of April 25 to administer the last sacrament. A newspaper reported, "At any minute [Powers] may be called upon to obey the mandate of the Inexorable Umpire, but He will find the noble athlete ready for the command."³⁶

Powers gamely held on throughout April 25, lapsing in and out of consciousness. At 9:14 on the morning of April 26, "Doc" Powers passed away. According to one newspaper account, Powers, who with his medical training knew of his impending doom, cried out just before dying, "I've got no pulse...no pulse!"³⁷

WHAT KILLED "DOC" POWERS?

Confusion existed at the time about what caused the death of Powers. Some of it was based on the initial misdiagnosis of his condition as acute gastritis and the forecast of a full recovery. The *Philadelphia Inquirer* acknowledged the "many conflicting reports" and to set the record straight, printed an explanation by one of the surgeons who assisted in the operations.³⁸ The account is reproduced here in its entirety because it provides information important

in refuting misconceptions that exist to this day about what killed the Athletics' redoubtable catcher.

At the conclusion of the ball game on Monday, April 12, Powers was found to be suffering from interssusception [sic]³⁹ of the bowel, which can probably be better described in homely language as like the tuck put in a man's shirt sleeve to shorten it when it is too long.

Interssusception is a condition found most frequently in children and in individuals who have more or less gaseous intestinal distension, and can occur while peacefully lying in bed as readily as while strenuously exercising. The mortality is usually very high; it being regarded as a generally fatal condition.

The need for an operation on Powers was manifested by the fact that he had a mass in the right lower portion of his abdomen, giving excruciating pain, and the opening made into the abdomen over the site of the mass revealed the fact that the lower end of the small intestine had slipped into the colcum [sic] or upper end of the large intestine, rendering about fifteen inches of intestine devoid of blood supply by pressure, and consequent gangrene of this portion of the intestine.

Efforts to reduce this interssusception or, in plainer language, to restore the intestine to its normal condition, were unavailing, and the fifteen inches of intestine involved were cut out and the ends of the severed intestine were united,

with the result that the obstruction was removed and the patient's symptoms for a week were such as to lead all to believe in his ultimate recovery. At this time, however, symptoms of obstruction recurred and it was found necessary to perform a second operation. An artificial anus was then established in the abdominal walls at the seat of the original operation, when the obstruction completely disappeared and the patient improved and partook of nourishment satisfactorily until Sunday morning, the 25th instant, when suddenly he developed acute dilatation of the heart with collapse. During the day a considerable quantity of liquid was introduced into his circulation directly through openings in his veins; oxygen was administered continuously, but under neither did he respond and death resulted at 9:14AM Monday.⁴⁰

Intussusception—the disorder and medical complication arising from it—caused “Doc” Powers to die.⁴¹

MISCONCEPTIONS ABOUT POWERS'S DEATH

Despite credible, definitive explanations for cause of death—offered at the time of his death by attending physicians and separately by Northwest General Hospital—multiple misconceptions persist about what killed Powers.⁴² The two most prominent claims both stem from the day of April 12: either an injury suffered during the game or a sandwich—or sandwiches—Powers ate before or during the game.

The “sandwich” theory originates in newspaper articles written after the game but before surgery had revealed the true nature and extent of the malady. One article, for example, offered this account:

Powers ate a few sandwiches before the game, and these, with the undue excitement the “Doctor” labored under during the game, brought on the attack which did more to knock him out than any of the foul tips shot off the Bostons' bats.⁴³

The author of this piece did not cite a source for the “sandwiches” assertion.⁴⁴ Another version of this claim read, “was said then to have been caused by a sandwich he ate while the game was in progress.”⁴⁵ Still another contended the sandwich had “failed to digest properly.”⁴⁶

Despite being fundamentally wrong, the sandwich theory probably formed in the fertile minds of reporters, conjuring a causative link between eating a sandwich and his subsequent ailment. Food poisoning is not mentioned explicitly by reporters, but the presumption may

have seemed reasonable on a *prima facie* basis to the writers. Specifically:

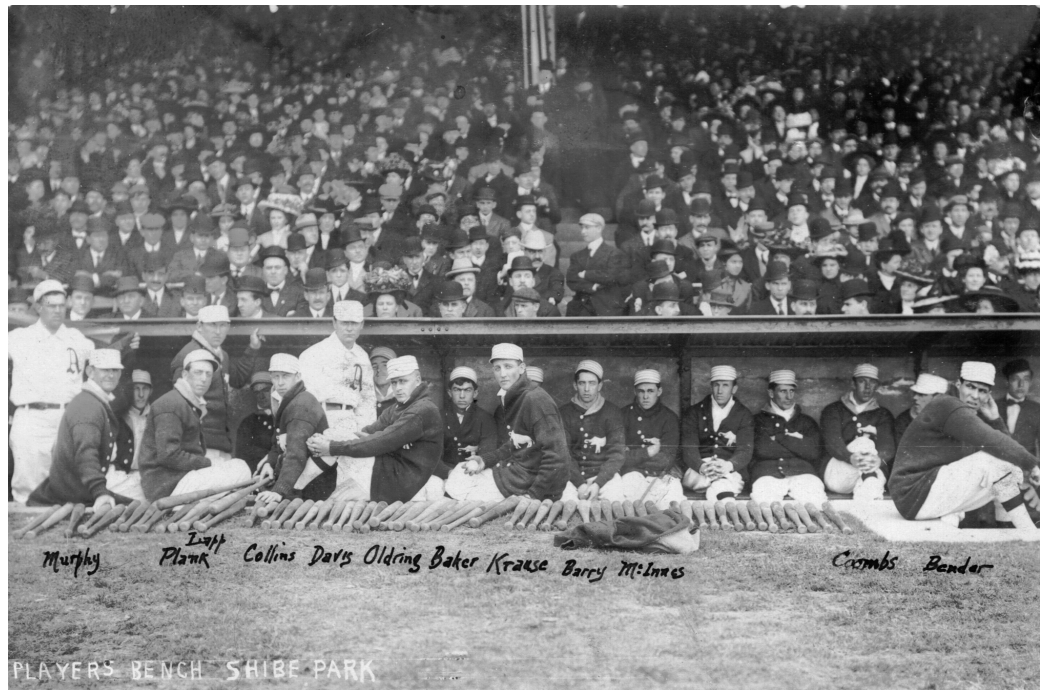
- Powers ate a sandwich—perhaps several sandwiches—either before or during the game.⁴⁷
- Some sources identify it as a cheese sandwich. It could have contained pathogens such as salmonella or listeria that cause food poisoning.⁴⁸
- Foodborne illness—generically referred to as food poisoning—was one of the most common gastrointestinal ailments in America in 1909, as it remains to this day.
- The symptoms Powers experienced—abdominal pain, nausea and vomiting—are commonly associated with food poisoning, and in some cases can be severe enough to require hospitalization.
- Physicians attending to Powers in the hospital at first assessed his illness as acute gastritis, which is often attributable to food poisoning.⁴⁹

The press corps reported the least disconcerting, physician-endorsed interpretation of evidence on hand: Powers had eaten bad food, experienced acute gastritis, and was taken to the hospital to treat the problem. They were wrong, but reporters could not have been expected to imagine that Powers was fatally ill with a rare disorder none of them likely had ever heard of.

The “sandwich” theory lacks empirical corroboration from primary sources, was not cited in physicians' statements on etiology, and was quickly discounted once the true nature of the ailment became known. Yet the theory has persisted so long as to now enjoy a veneer of legitimacy, despite the surgeons announcing the very next day that Powers was suffering from intussusception, not acute gastritis.

The second hypothesis—the “injury” theory—comes in two variations: Either he injured himself when he dove for a foul ball or he crashed into a wall while chasing a foul ball.⁵⁰

The origin of these explanations is difficult to pinpoint. Philadelphia-area newspapers did not include in their reporting on the April 12 game any on-field injury for Powers. Even if he had crashed into a wall or made an arduous dive for a foul ball, neither act was so extraordinary as to warrant mention in game coverage. Despite this, the idea that Powers “was perhaps the first major league baseball death traceable



Athletics players relax in their dugout just before the start of the inaugural home opener at Shibe Park on April 12, 1909.

directly to an on-field injury” appears on numerous websites.⁵¹ They mistakenly assume that the need for three intestinal surgeries was caused by on-field injuries and then post-surgery infections (i.e., peritonitis) ultimately led to his death.⁵²

Yet none of the medical reports issued on his condition—either before or after the first operation—identifies internal injuries. No such injury is cited in statements by the hospital or attending physicians as a causative factor. As in the case of the “sandwich” theory, the spurious basis for this explanation gives pause to wonder how it has remained even superficially legitimized.

The “sandwich” and “on-field injury” explanations lack empirical merit and should be dismissed as baseless. Their falsity is made clear when they are evaluated within the context of what is known medically about the cause and course of intussusception, and official, documented statements made by doctors and the hospital on the illness and death of Michael Powers.

What is critical in understanding how Powers died is that the symptoms of intussusception probably appeared intermittently with varying intensity for several weeks or months before April 12.^{53,54} The physical examination and surgery make that indisputably clear. The mass doctors detected in the lower right portion of his abdomen was palpable, and its size enabled them to locate quickly the source of the excruciating pain he was experiencing.⁵⁵ When they did operate, surgeons discovered that Powers had 15 inches of gangrenous intestine.⁵⁶ That the gangrene had spread to

that great an extent further demonstrates that intussusception had been present and progressed over a period of time. The mass and gangrene did not just form and expand on April 12.

Even if Powers ate a spoiled sandwich or injured himself going after a foul ball on Opening Day, neither act caused intussusception to occur, nor did either affect the disorder’s current state, rapidity of development, or onset of severe symptoms.⁵⁷ As the attending physician’s statement affirms, agonizing pain associated with intussusception can begin “while peacefully lying in bed as readily as while strenuously exercising.”⁵⁸ The food Powers ate and the physical activities in which he engaged on April 12 were irrelevant to the ailment’s advanced state and the deadly menace it posed.

The intussusception from which Powers was suffering was a severe, preexisting, and undetected disorder. The fact that pain associated with his disorder became intolerable on April 12 was a coincidence, and its timing was not dependent on what happened to Powers that day. The claim—or even suggestion—that Powers was the first major leaguer to die from an on-field injury is erroneous, not supported by the facts.

THE GREAT UNSOLVED MYSTERY

There is one mystery associated with “Doc” Powers that will never be solved. No record exists that Powers alerted anyone about abdominal pain or any other discomfort prior to April 12. Medical knowledge of the disorder’s development leaves little doubt that he must

have encountered some symptoms well before Opening Day.⁵⁹ With his training and experience as a physician, it is highly improbable that Powers would not have noticed a “mass” had begun forming in his abdomen. Doctors noted it readily, which prompted them to operate at site.⁶⁰

Given the great likelihood that Powers would have experienced pain and noted the mass, why did he not consult a physician when remedial action could have been taken? That Powers, himself a medical man, did not act sooner to preserve his own life is a great tragedy.⁶¹ Perhaps, like many people, he hoped the problem would go away on its own.⁶² Whatever signs Powers received that something was wrong, he chose to ignore them until it was too late to treat the ailment successfully.⁶³

GRIEF AND A FUNERAL

The death of “Doc” Powers was a great blow to the Philadelphia Athletics, major league baseball, and the City of Philadelphia. A distraught Connie Mack was quoted as saying:

Powers was the most popular man of the Athletics, and his loss is felt keenly by his teammates individually and collectively. To me his death comes as a great personal shock. He was the only player left of the team which opened the first American League championship season at Columbia Park, and there existed between us a bond of friendship that makes the separation doubly hard to bear.⁶⁴

Flags at Shibe Park and down Lehigh Avenue at the Phillies’ National League Park were immediately lowered to half-mast. The Athletics announced that team players would wear knots of black ribbon on their jerseys for 30 days, and that the flags at Shibe Park would stay at half-staff for the same period.⁶⁵

The Athletics’ Board of Directors met on April 27 and adopted a resolution that read in part:

That in the passing away of Mr. Powers this club has lost a valued companion, counselor and friend. His public career was a worthy exemplar of whatsoever is most praiseworthy in the national game which his efforts adorned and dignified. He was manly, loyal, discreet, courteous and capable. He inspired confidence on the playing field, warm friendships among his associates and profound affection in his own cherished home circle.⁶⁶

Messages poured into the Athletics’ offices from other major league baseball clubs expressing grief, offering condolences to his family, and asking that floral arrangements be purchased on their behalf for the funeral. Every AL club—and Philadelphia and Brooklyn of the NL—sent a wreath.⁶⁷

The body was moved from Northwest General Hospital to the home of close friend George E. Flood so that family, friends, and fans could pay their respects.⁶⁸ Newspapers reported that Flood’s parlor, where the body lay in repose, was filled with flowers. One particularly striking, albeit macabre, arrangement was provided by the Sporting Writers’ Association of Philadelphia. According to one eyewitness, “It was a diamond of carnations laid out on a field of green ferns. Directly across the diamond were immense letters in white roses spelling ‘OUT.’”⁶⁹

The funeral took place at St. Elizabeth’s Roman Catholic Church on April 29.⁷⁰ The Athletics’ game scheduled that day against Washington was postponed so players from both clubs and team officials could attend the service.⁷¹ In addition, players from the Phillies and visiting Dodgers also were in attendance. The church was packed to capacity, and according to newspaper accounts, seven thousand people overflowed onto surrounding streets because they were unable to gain admittance.⁷²

The celebrant of mass was Reverend Francis L. Carr of St. Patrick’s Church in Norristown, Pennsylvania, who was a personal friend of Powers. Carr told the congregation:

Dr. Powers lived and died a good man, and my prayers and those of every priest in this diocese, I am sure, are that Our Lord and Our Savior, Jesus Christ come to the aid of the wife and helpless children. Eternal rest to his soul.⁷³

The pall bearers were Jack Coombs, Harry Davis, Danny Murphy, Simon Nicholls, Eddie Plank, and Ira Thomas. Powers was laid to rest at the New Cathedral Cemetery.⁷⁴ The body remained there for only a month. It was moved and reinterred at the St. Louis Cemetery in Louisville, Kentucky.⁷⁵

Philadelphia’s *Evening Times* newspaper started a subscription movement to obtain \$1,000 in sums not to exceed \$25 from any single donor in memory of Powers. The money was to be used to endow a bed at Northwest General Hospital for use by any professional ballplayer who was injured during a game or whose illness was directly attributable to playing in games during the regular season. The needed sum was soon raised.⁷⁶

“DOC” POWERS DAY

Major league baseball players did not have pensions when Powers died.⁷⁷ Although he was a physician, playing baseball had interfered with his ability to develop a thriving practice.⁷⁸ Aware of this, Connie Mack approached AL president Ban Johnson about sponsoring a benefit at Shibe Park to financially aid the Powers family, including establishing an education fund for his three children.⁷⁹ Johnson agreed, and June 30, 1910, was selected for the event because the four “eastern” AL teams—Philadelphia, Washington, Boston and New York—were off that day and could participate in the benefit game.⁸⁰

To encourage attendance at what was officially called “‘Doc’ Powers Day,” the Athletics mailed thousands of postcards advertising the event.⁸¹ Tickets could be purchased at Shibe Park, Gimbels department store, and Spalding’s sporting goods store. The admission prices were a dollar for a reserved seat in the pavilion, 50 cents unreserved, and 25 cents for a bleacher seat.⁸²

Two primary activities were scheduled: a series of baseball skills competitions and an exhibition game. The competitions were as follows:

- **Running** – Going to first base on a bunt; circling the bases; 100-yard dash for players weighing under 200 pounds; 100-yard dash for players weighing over 200 pounds (called the “heavy-weight” class), four-man relay base running (i.e., one player running from home to first; the second player from first to second; the third player from second to third, the fourth player from third to home), each relay team representing an individual AL club.
- **Throwing** – For accuracy, distance, and novelty.
- **Batting** – Fungo hitting.⁸³

The first and second place finishers in each of the above events, except relay base running, received a silver trophy cup. The four men comprising the winning team in relay base running would each be presented a cup.⁸⁴ The trophies were provided by the Athletics.⁸⁵

The winner in going to first base on a bunt in the shortest time was Harry Lord of Boston.⁸⁶ He did so in $3\frac{1}{5}$ seconds. Five players—Eddie Collins, Frank Baker and Morrie Rath of Philadelphia, Tris Speaker of Boston, and Hal Chase of New York—tied for second place, covering the distance in $3\frac{2}{5}$ seconds. A drawing was held to determine who would win the second place cup, and Chase’s name was chosen.



Front cover of the program that was sold during “Doc” Powers Day at Shibe Park on June 30, 1910.

First place in circling the bases most quickly was captured by Collins, who accomplished the feat in $14\frac{1}{5}$ seconds. There again was a tie for second place, with Jimmy Austin of New York and Tris Speaker traveling the distance in $14\frac{3}{5}$ seconds. After a toss of a coin, Austin was awarded the trophy cup.

Austin also won a first-place trophy, winning the 100-yard dash for players weighing below 200 pounds. He crossed the finish line in $10\frac{3}{5}$ seconds, with Harry Hooper of Boston capturing second place.

For the “heavyweight” class, Jake Stahl of Boston took home the top prize, completing the 100-yard dash in $10\frac{4}{5}$ seconds.⁸⁷ Hippo Vaughn of New York came in second.

In the relay base running competition, Philadelphia and Boston tied at $14\frac{3}{5}$ seconds. The race was run a second time, and both teams matched again at $14\frac{2}{5}$ seconds. A coin toss was used to identify the winner, and the hometown crew took home the trophy cups.

In the throwing for distance contest, Hooper was the class of the field. His ball went 356 feet, four inches. Runner-up Speaker could only manage 345 feet, seven and a half inches.

In throwing for accuracy, the day belonged to Pat Donohue of Philadelphia. Germany Schaefer of Washington came in second.

The novelty throw was an evidently tough competition. Contestants were required to squat in the catcher's position behind home plate and throw a ball over second base beneath a bar six feet high located at the pitcher's mound. Only Austin was able to accomplish the feat, winning another first-place trophy.

Finally, Jimmy Dygert of Philadelphia captured first place in the fungo hitting competition, with second place belonging to Tom Hughes of New York.

The exhibition game between the Athletics and the "All-American" team composed of players from the other AL clubs was played with less than serious intent. Called a "horse play game" by one reporter, both teams made sweeping changes in their lineups each inning. The crowd enjoyed the spectacle, nevertheless, with one account noting that "the ragged playing of the league stars was greeted with delight."⁸⁸ Limited to six innings, the Athletics prevailed in the game, 5–3.⁸⁹

The day's festivities went beyond baseball. Clowns made appearances on the field at Shibe Park and performed a series of humorous skits as part of the entertainment. Schaefer and Boston's batboy contributed to the fun by doing a pantomime act that satirized the antics of a big league pitcher-catcher battery.⁹⁰

In addition, there was music courtesy of the Phillies. Club president Horace Fogel arranged to have the Banda Bianca Orchestra under the baton of Sig. Alfredo Tomassino play a number of selections including the overture from Light Cavalry and the sextet from *Lucia*. Also performed was *The Phillies*, a march written by Tomassino and dedicated to Fogel.⁹¹

The Sporting Writers' Association of Philadelphia supplied the judges for the skills contests, and supported the fundraising campaign by having a special program printed for "Doc" Powers Day and selling it for ten cents apiece. All of the proceeds from the sale went to the Powers family.⁹² To encourage attendees to buy the program, each copy was numbered, and Florence Powers, who attended the event along with her children, chose two of the numbers in a drawing. One winner received a free pass to attend Athletics home games for the remainder of the season, while the other received a similar pass to attend the rest of the Phillies' home games in 1910.⁹³

"Doc" Powers Day was called "a grand success" in newspaper accounts. More than 12,000 people paid admission, including Connie Mack, to help swell the fund benefiting the Powers family. Approximately \$8,000 was raised.⁹⁴ Florence took the opportunity "to

thank my friends and the followers of the Athletic team for their kindness on this day. I shall never forget it."⁹⁵

Athletics players appreciated manager Mack's labors, compassion, and generosity in assisting their fallen teammate's family. Before the exhibition game was played, they presented Mack with a large bouquet of flowers at home plate. Eddie Plank made the presentation.⁹⁶

The staging of "Doc" Powers Day was a shining moment. No obligation existed in professional baseball to assist a family financially after a player's death, but extraordinary steps were taken by many caring people—Mack, Johnson, players, sportswriters and the public—to do just that. France C. Richter, writing in *Sporting Life*, captured the importance of the occasion when he praised the day as "successful financially and artistically beyond any similar function in the history of base ball—and thus goes to Philadelphia's credit another unexcelled achievement in base ball."⁹⁷ ■

Notes

1. Period newspaper articles and retrospective pieces occasionally identify "Maurice" Powers. It is unclear why because his name was undoubtedly "Michael." The name that appears on his tombstone, which also lists his birth and death dates, is "Michael." See www.findagrave.com and search on "Michael Riley 'Doc' Powers" to see a photo of the tombstone. In the world of baseball, nevertheless, Powers was regularly called "Doc."
2. "'Doc' Powers' Condition is Serious after Operation," *Philadelphia Inquirer*, April 15, 1909. This article erroneously refers to Powers as "Maurice."
3. Charles Dryden, "Doctor 'Mike' Powers," *The Athletics Sketches* (October 1905): 22.
4. *Philadelphia Inquirer*, April 15, 1909.
5. Unless otherwise noted, offensive statistics, teams played for, transactions, and other information about the major league career of Michael Powers—is taken from www.baseball-reference.com.
6. David Jordan, *The Athletics of Philadelphia: Connie Mack's White Elephants, 1901–1954* (Jefferson, NC: McFarland, 1999), 10.
7. David Nemec, *The Great Encyclopedia of 19th Century Major League Baseball* (New York: Donald L. Fine Books, 1997), 655. Whether Powers was offered an opportunity to play for one of the remaining eight NL teams or chose instead to play for the AL remains unclear. He was, nevertheless, one of the many players who shifted to the AL in 1900 when the NL reduced its structure from 12 to eight teams.
8. Norman Macht, *Connie Mack and the Early Years of Baseball* (Lincoln: University of Nebraska Press, 2007), 184–93.
9. Jordan, *Athletics of Philadelphia*, 14.
10. Frederick G. Lieb, *Connie Mack: Grand Old Man of Baseball* (New York: G.P. Putnam's Sons, 1945), 66.
11. Jordan, *Athletics of Philadelphia*, 20.
12. George Graham, "Catcher 'Doc' Powers," *Powers Day Program*, June 30, 1910, 6. The program included several testimonials to Powers written by Philadelphia newspaper sportswriters.
13. George M. Young, "The Man Behind the Bat," *Powers Day Program*, June 30, 1910, 15.
14. Mark Stang, *Athletics Album: A Photo History of the Philadelphia Athletics* (Wilmington: Orange Frazer Press, 2006), 17.
15. Macht, *Connie Mack*, 439.
16. Plank's annoying pitching style that catchers, hitters, fans and players in the field had to endure was one of his defining characteristics. SABR

- member Jan Finkel writes, “Eddie Plank fidgeted. On every pitch, Plank went through a seemingly endless ritual: Get the sign from his catcher, fix his cap just so, readjust his shirt and sleeve, hitch up his pants, ask for a new ball, rub it up, stare at a base runner if there was one, look back at his catcher, ask for a new sign—and start the process all over again. As if that wasn’t enough, from the seventh inning on, he would begin to talk to himself and the ball out loud: “Nine to go, eight to go...” and so on until he had retired the last batter. Frustrated hitters would swing at anything just to have something to do. His fielders would grow antsy. Fans, not wanting to be late for supper, would stay away when he was pitching. Writers, fearful of missing deadlines, roasted him.” Jan Finkel, “Eddie Plank,” Baseball Biography Project, <http://bioproj.sabr.org>.
17. Stephen O. Grauley, “Work Hard, Old Boy, Work Hard,” *Powers Day Program*, June 30, 1910, 16–17. The phrase “Work Hard, Old Boy, Work Hard,” was a favorite of Powers. He would periodically yell it at Plank during ballgames. It became indelibly associated with Powers and is frequently cited in stories written about him.
 18. Ironically, Powers would die exactly eight years later—April 26, 1909.
 19. Lieb, *Grand Old Man*, 70–71.
 20. Waddell was sold to the St. Louis Browns after the 1907 season, and Schrecongost was sold to the Chicago White Sox during the 1908 season. Connie Mack added catcher Jack Lapp to the team’s roster that same year. With the loss of Powers after Opening Day in 1909, Ira Thomas, Paddy Livingston, and Lapp handled behind-the-plate duties for the team the rest of the season. None of these players contributed much offensively to the Athletics, but Mack accepted that in wanting them to catch for the club. As Norman Macht points out in his biography of the A’s manager, “Mack preferred a good brain over a good bat behind the plate any day.” Mack’s philosophy almost certainly harkened back to his playing days as a light hitting but savvy catcher. Macht, *Connie Mack*, 440.
 21. Ibid., 343.
 22. Shibe Park’s inaugural Opening Day has been written about extensively, and a detailed description of the event is beyond the scope of this article. For readers interested in learning more about the occasion, see, Rich Westcott, *Philadelphia’s Old Ballparks* (Philadelphia: Temple University Press, 1996), 108–11.
 23. Powers was transported to Northwest General Hospital because a physician from the hospital was at Shibe Park and, after making a “hasty diagnosis” in the clubhouse following the game, advised sending him there. The hospital is also referred to as Northwestern General Hospital in newspaper reports, and it is one of several hospitals in the city to which Powers could have been taken, “‘Doc’ Powers Near Doors of Death,” *Philadelphia Inquirer*, April 26, 1909.
 24. “Fully 35,000 Fans See Athletics Beat Boston in First Game of Season,” *Philadelphia Inquirer*, April 13, 1909.
 25. “Plank Was Too Strong for Boston and Athletics Win First Championship Game in Easy Style,” *Philadelphia Inquirer*, April 13, 1909. In addition to Philadelphia-area newspapers reporting optimistically on prospects for recovery immediately after Powers had taken ill, *Sporting Life* contained a similarly positive assessment, observing, “As *Sporting Life* went to press Powers was reported as doing well with much improved chance for recovery.” “Maurice R. Powers,” *Sporting Life*, April 24, 1909. Note how this article incorrectly identifies Powers’ first name as “Maurice.” The early misdiagnosis probably contributed to the proliferation and longevity of erroneous assessments of the reasons for his illness and prospects for a quick and full recovery.
 26. Chronologically details for April 12 are difficult to achieve precisely. The Opening Day game began at 3pm Assuming that it took approximately two hours to complete and that Powers was taken to the hospital soon after he collapsed in the locker room at game’s end, the best guess is that he arrived at Northwest General Hospital around 6pm His condition deteriorated later that evening, and doctors examining him discovered the mass in his lower right abdomen that prompted their decision to operate. The surgery took place at 1am on April 13. This sequence of events suggests doctors only conducted a thorough examination of Powers and found the mass late Monday night, several hours after his 6pm arrival at the hospital. In all likelihood, they initially assumed without examining Powers thoroughly that the symptoms he was exhibiting indicated the problem was acute gastritis, as newspaper stories on his condition reported. Many others supposed this as well, and it would explain why early reports from the hospital indicated Powers would recover and be back on the A’s roster in a few days. His worsening situation—almost certainly evidenced by escalating pain—aroused doctors’ suspicions that a more serious ailment was present and resulted in a more complete examination and determination that immediate surgery was required.
 27. *Philadelphia Inquirer*, April 15, 1909.
 28. “Intussusception,” www.mayoclinic.com/health/intussusception/DS00798. This article, prepared by Mayo Clinic staff, explains that when one part of the intestine—usually the small intestine—slides into an adjacent part, it is sometimes called telescoping because it is similar to the way a collapsible telescope folds together. The article provides an extensive description of the disorder and its treatment.
 29. Ibid. Because of its rarity in adults, even today, symptoms of intussusception are challenging to identify and its causes difficult to pinpoint. It is usually the result of an underlying medical condition, such as a tumor, hematoma, or inflammation linked to Crohn’s disease or similar malady. The symptoms of intussusception include intense abdominal pain, nausea and vomiting. While it can be deadly, intussusception can be treated successfully today without lasting problems.
 30. *Philadelphia Inquirer*, April 15, 1909.
 31. Frances C. Richter, “Death of Catcher Powers of the Athletics,” *Sporting Life*, May 1, 1909.
 32. “Dr. Powers to be Buried Thursday,” *Philadelphia Inquirer*, April 28, 1909.
 33. Heart dilatation is an enlargement of the heart’s cavities beyond normal dimensions which causes thinning of the cavities’ walls. <http://medical-dictionary.thefreedictionary.com/dilatation+of+the+heart>. Newspaper reports do not specify what symptoms Powers exhibited on the morning of April 25 that led doctors to conclude his condition had worsened. Symptoms commonly associated with acute heart dilation include fatigue, swelling of the lower extremities, abnormal heart rhythms, dizziness and chest pain. www.webmd.com/heart-disease/guide/dilated-cardiomyopathy.
 34. Connie Mack was described as being “all broken up over Powers’ condition.” *Philadelphia Inquirer*, April 15, 1909.
 35. *Philadelphia Inquirer*, April 28, 1909.
 36. *Philadelphia Inquirer*, April 26, 1909.
 37. “Athletics’ Famous Catcher Died Yesterday Morning,” *Philadelphia Inquirer*, April 27, 1909.
 38. *Philadelphia Inquirer*, April 28, 1909.
 39. The disorder was spelled differently in 1909 (“Interssusception”) than it is today (“Intussusception”). The original spelling as it appeared in the surgeon’s report is used in the quotation as extracted from the *Philadelphia Inquirer*.
 40. *Philadelphia Inquirer*, April 28, 1909.
 41. Newspaper accounts track the diminution in prospects for recovery. At first, his chances were characterized as good because it was thought he was suffering only from acute gastritis. The initial report issued by Northwest General Hospital after the first operation was that he had “even chances of recovery.” A follow-up report from the hospital issued a week later changed what had been stated previously. The later assessment contended that doctors’ prognosis for his recovery after the first surgery was that he “had only one chance in five to live under any circumstances.” This far more dour assessment may have reflected an attempt by the hospital and its doctors to distance themselves from their earlier, more optimistic estimates of his prospects for recovery. After the second and third operations, the hospital stated that his case was virtually hopeless. *Philadelphia Inquirer*, April 15, 26, 1909.
 42. *Philadelphia Inquirer*, April 28, 1909.
 43. *Philadelphia Inquirer*, April 13, 1909. It is easy to reject as tosh the sportswriter’s suggestion that Powers had become overwrought with excitement attendant to playing in the inaugural Opening Day at Shibe Park. By 1909, Powers was a veteran with 11 years of major league experience.

- rience. His overall calm demeanor and steady influence on pitchers was widely known and respected. There is no evidence or other reporting to indicate the catcher experienced frenzied discomposure that somehow contributed to the illness he suffered during the game.
44. http://en.wikipedia.org/wiki/Doc_Powers. It has been alleged that Powers stated he became ill after eating a cheese sandwich before the game, but the claim lacks documentation and is not confirmed by primary sources. Indeed, while Wikipedia includes the purported statement in its biographical sketch of the A's catcher, there is a notation that a citation is needed to support it empirically. Other websites, nonetheless, have replicated the statement without including the caveat that it is unsubstantiated. See, for example, http://dbpedia.org/page/Doc_Powers.
45. "Catcher Powers Critically Ill," *The New York Times*, April 15, 1909.
46. Westcott, *Old Ballparks*, 110–11. The contention that the sandwich Powers ate did not digest properly was never clarified in terms of what exactly was meant by the phrase, why the food had not digested properly, or how the absence of appropriate digestion caused the ailment. Like all claims that link the malady to a problematic sandwich, this hypothesis lacks documented corroboration and is nothing more than an unsubstantiated narrative.
47. How many sandwiches Powers ate and when he ate them are not essential to the theory, but instead reflect variations in the information that was used to support it initially and in reiterations of the theory that appeared in subsequent years.
48. www.symptomfind.com. Search under "Food Poisoning." The website contains an extensive description of the causes, symptoms, treatment and prevention of foodborne illness.
49. <http://medical-dictionary.thefreedictionary.com/acute+gastritis>.
50. www.baseballhistoryblog.com. Search under Michael "Doc" Powers. This website includes both variations of the "on-field injury" claim. The entry on the death of Powers states, "The root of the problem was never pinpointed in contemporary accounts." This is rubbish. The account written by one of the surgeons and printed in the *Philadelphia Inquirer* on April 28 explained in detail the disorder afflicting Powers and how it led to his death.
51. <http://baseball-reference.com>. The suggestion is found in the "Biographical Information" section of the "Doc" Powers entry on the website.
52. http://en.wikipedia.org/wiki/Doc_Powers.
53. G. Gayer, et al., "Adult intussusception—a CT diagnosis," *British Journal of Radiology* (2002) 75, 185–90.
54. <http://en.wikipedia.org/wiki/Intussusception>.
55. The surgeon's report does not make clear whether the mass was observed visually or felt physically. In either case, it was readily apparent upon examination, making evident that it had been forming for some time.
56. *Philadelphia Inquirer*, April 28, 1909.
57. If the intussusception occurred as a result of an underlying medical problem, as referenced in note 29, it was never identified in reports on his condition or death.
58. *Philadelphia Inquirer*, April 28, 1909.
59. www.ncbi.nlm.nih.gov/pmc/articles/PMC2675089. Search under "Intussusception in Adults." The study conducted on adults with intussusception indicates that the disorder develops and worsens over time, with abdominal pain the most common symptom followed by nausea and vomiting. Other symptoms exist as well. Research shows clearly that intussusception progressively reveals itself in more pronounced ways until suddenly and without warning pain and other symptoms become so severe that people must be rushed immediately to the hospital for surgery.
60. *Philadelphia Inquirer*, April 28, 1909.
61. Powers and the rest of the Athletics arrived in Philadelphia on April 2, 1909, after conducting spring training in New Orleans, stopping for exhibition games in Mobile and Atlanta, and heading home. The A's then played a seven-game "City Series" against the Phillies. This timeframe gave Powers over a week in Philadelphia before the opener against Boston to consult physicians about his condition. There is no evidence that he did. Had he done so, it is almost certain that he would have been in a hospital bed being treated for his ailment on April 12 instead of on the playing field at Shibe Park. Information about the Athletics spring training in 1909 comes from, Barry Sparks, *Frank "Home Run" Baker: Hall of Famer and World Series Hero* (Jefferson, NC: McFarland, 2006), 23–26.
62. Judgments about the development of intussusception and its symptoms prior to April 12 must of necessity be estimative because all participants with firsthand knowledge of his condition are long dead, and none of the newspaper or other reports on the ailment after he had taken ill at Shibe Park address whether he experienced beforehand indications of a medical problem. Nonetheless, based on what is known of intussusception and Powers after his excruciating pain began at Shibe Park, it is highly likely symptoms of the disorder appeared prior to April 12.
63. It is impossible to determine with certainty whether earlier detection and treatment would have enabled Powers to live a longer life. The statement issued by one of the surgeons who treated Powers noted that the mortality rate for intussusception "is usually very high." While the statement was undoubtedly intended in part to preclude questions over whether the quality of care Powers received at Northwest General Hospital was in any way responsible for his death, no one questioned the surgeon's assertion that it is a "generally fatal condition." Nevertheless, hospital bulletins on his deteriorating condition emphasized the ailment's advanced stage of development when treatment began. While intussusception was more deadly in 1909 than it is today, if treatment had started at a much earlier stage of the ailment's development—for example, before gangrene had occurred and spread—then chances for recovery would have improved.
64. *Philadelphia Inquirer*, April 27, 1909. By the start of the 1909 season, just "Doc" Powers, Eddie Plank and Harry Davis remained on the A's roster from the original 1901 team. Powers was the only one of the three, however, who appeared in the first game ever played by the Athletics on April 26, 1901.
65. *Philadelphia Inquirer*, April 28, 1909.
66. "Athletic Directors Pay Tribute to the Memory of Doctor Powers," *Philadelphia Inquirer*, April 28, 1909.
67. *Philadelphia Inquirer*, April 28, 1909.
68. Ibid. Flood's home was located at 2035 North Twenty-Second Street.
69. "Unusual Tribute Paid to Memory of Dr. Powers," *Philadelphia Inquirer*, April 30, 1909.
70. Ibid.
71. Macht, *Connie Mack*, 439.
72. *Philadelphia Inquirer*, April 30, 1909. The last time the City of Philadelphia had witnessed such an outpouring of grief over the untimely death of a baseball player was 21 years earlier when Charles Ferguson, a star for the Phillies who was on his way to fashioning a Hall of Fame career, died from typhoid fever. He was only 25 when he passed in 1888. See, Frank Fitzpatrick, "Charlie Ferguson Seemed Headed for a Place in Baseball Lore: The Short Life and Tragic Death of a Long-Ago Phillies Phenom," *Philadelphia Inquirer*, February 23, 2003.
73. *Philadelphia Inquirer*, April 30, 1909.
74. Ibid.
75. Frances C. Richter, "In Memory of Powers," *Sporting Life*, June 5, 1909. Florence Powers relocated with her children back to her hometown of Louisville, Kentucky, soon after his death. She died 60 years after her husband on August 18, 1969, and was laid to rest beside him. www.findagrave.com.
76. Ibid.
77. G. Edward White, *Creating The National Pastime: Baseball Transforms Itself, 1903–1953* (Princeton: Princeton University Press, 1996), 121–22. The All-Star Game was inaugurated and first played in 1933 in part to generate funds to give financial aid to destitute former players. According to White, "The pension created by All-Star Game receipts marked the first systematic effort on the part of Organized Baseball to pay attention to the welfare of players from its past."
78. *Philadelphia Inquirer*, April 15, 1909.
79. George E. McLinn, "Thoughts For His Family," *Powers Day Program*, June 30, 1910, 13.
80. "Local Fans Do Not Forget The Late Dr. Powers," *Philadelphia Inquirer*, July 1, 1910.

81. Macht, *Connie Mack*, 439.
82. "Shibe Park—Powers Day Today," *Philadelphia Inquirer*, June 30, 1910.
83. *Powers Day Program*, June 30, 1910, 4.
84. Ibid.
85. Frances C. Richter, "Dr. Powers Day," *Sporting Life*, July 9, 1910.
86. The results for all competitions are taken from, "Powers Day Games Held at Shibe Park," *The New York Times*, July 1, 1910.
87. There is a discrepancy in reporting on Stahl's time. It is variously recorded as 10½ seconds and 10¼ seconds. The former figure is shown in Richter, *Sporting Life*, July 9, 1910. The latter is contained in *The New York Times*, July 1, 1910.
88. *Philadelphia Inquirer*, July 1, 1910.
89. "Powers Day" is a Grand Success," *Washington Post*, July 1, 1910.
90. *Philadelphia Inquirer*, July 1, 1910.
91. *Powers Day Program*, June 30, 1910, 8.
92. Ibid.
93. Richter, *Sporting Life*, July 9, 1910. The holder of program number 2119 won the Athletics' pass, and the holder of program number 1616 took home the Phillies' pass.
94. *Washington Post*, July 1, 1910. That Connie Mack also paid admission is noted in Macht, *Connie Mack*, 439. The total revenue raised is variously reported as \$8,000 and \$7,000, with the former figure cited most often as the amount. Macht reports the higher amount, while *Sporting Life* cites the lower figure. Richter, *Sporting Life*, July 9, 1910.
95. Richter, *Sporting Life*, July 9, 1910.
96. Ibid.
97. Ibid.

The 1914 Stallings Platoon

Assessing Execution, Impact, and Strategic Philosophy

Bryan Soderholm-Difatte

This year marks a century since the historic run of the 1914 Boston “Miracle” Braves. They were dead last in the National League on July 4, 15 games behind John McGraw’s pace-setting New York Giants, who seemed well on their way to a fourth straight pennant. They famously overtook the Giants in early September, ultimately claiming the National League pennant by a margin of 10½ games. They capped the year with a World Series sweep of Connie Mack’s imposing Philadelphia Athletics—the very same A’s who had won four pennants in five years and three of the four previous Fall Classics. This team of destiny was managed by George Stallings who, like Mr. Mack, gave directions from the dugout dressed in civilian business attire. Stallings reportedly said, “Give me a ball club of only mediocre ability, and if I can get the players in the right frame of mind, they’ll beat the World Champions.”¹ Historical retrospection has attributed the Braves’ 1914 “miracle” to more than just team motivation, however. The accepted wisdom is that Stallings had an epiphany about platooning and that his use of platoons to wring the maximum production from his roster was, in the words of Bill James, nothing short of “revolutionary.”²

Until now, however, we did not have the means to prove that platooning made the difference. Thanks to the painstaking work of researchers for Retrosheet, comprehensive data on starting line-ups are now available for 1914 and reproduced at Baseball-Reference.com. For the first time it is possible to dissect with precision Stallings’s master manipulation of his outfielders. Stallings employed a three-position rotation to cover weaknesses and keyed the surge to overtake McGraw’s Giants.

PLATOONING TO MASK WEAKNESSES

When Stallings assumed command in 1913, the once-dominant (in the 1890s) National League franchise in Boston had not lost fewer than 90 games since 1903, when they lost 80 in a 140-game schedule. Recasting the roster and proving a tough taskmaster, Stallings immediately turned the team around, guiding the

Braves into fifth place with a 69–82 record. However, even though a writer for *The Baseball Magazine*, the preeminent publication on the sport at the time, claimed the Braves had a sufficiently “formidable ball club” to finish second or third in 1914, nobody expected them to beat the Giants.³ Pitching was a particular strength, headlined by right-handers Dick Rudolph and Bill James, who won 26 games apiece, and Lefty Tyler, who had 16 wins. Rudolph went 20–2 and James 19–1 after July 4, while Tyler was 10–5.

Boston’s only position players of note were second baseman Johnny Evers and shortstop Rabbit Maranville, whose excellence on the field of play earned them first and second in the Chalmers Award (most valuable player) voting in 1914. Both players are in the National Baseball Hall of Fame in Cooperstown but neither is widely considered to have been one of the all-time greats at his position. Maranville, in his second year as the Braves’ shortstop, was young, energetic, and feisty, while Evers was a thirteen-year veteran acquired from the Cubs for being sage, savvy, and ultra-competitive. It was his arrival that spurred some writers to preseason optimism about the Braves. With Maranville and Evers anchoring the middle, Stallings’s infield was set for the season. Butch Schmidt, in his first full major league season, started all but 11 games at first base. Third base was covered by Charlie Deal until the arrival of Red Smith, acquired from Brooklyn in a midseason trade because he was a much better hitter than Deal. Hank Gowdy caught 115 games, second in the league only to the Giants’ Chief Meyers.

Stallings’s outfield, however, was a mess. Previewing the season for *The Baseball Magazine*, writer Fred Lieb projected that fourth place was the best that could be expected of the Braves because “you can’t do much with an outfield composed of Connolly, Mann and Griffith.”⁴ Joe Connolly, Les Mann, and Tommy Griffith had been rookies in 1913. Connolly played in 126 games, Mann in 120, and Griffith in only 37, having not joined the big club until August. The left-handed-hitting Connolly showed the most promise in the batter’s box that season. He tied for the team lead in

home runs with five, led the Braves in RBIs with 57, and his .281 batting average was the highest among Stallings's regulars.

With limited major league experience among those three, and poor talent to be found among their peers, Stallings rotated the seven to eight outfielders he had on his roster at any one time through the three positions. Stallings used a total of eleven different players in the outfield that year. Stallings began the season with three left-handed and three right-handed outfielders, one of whom—Oscar Dugey—could also substitute at any infield position. He ended the season with four left-handed and four right-handed outfielders, two of whom—Dugey and Possum Whitted—could also play in the infield. (See Table 1.)

Connolly continued to be the only truly productive outfielder, at least as measured by wins above replacement (WAR) with 3.8. Though he appeared in only 121 games in 1914, he led the team in home runs with nine and had the highest on-base and slugging percentages on the Braves. His 65 RBIs were third on the team to Maranville and Schmidt, but the shortstop, playing in all but two of Boston's games, had nearly 200 more plate appearances and the first baseman, playing in 147 games, had 145 more plate appearances to knock in six more runs than Connolly. Smith was the only batter in the lineup to hit for an average higher than Connolly's .306, but Smith had nearly 200 fewer at bats with the Braves. Even though Connolly played in only 121 games, and almost never against

left-handed pitching, he was still the team's best and most dangerous hitter, according to the offense component of WAR.⁵ The ten other players used in the outfield by Stallings in 1914 had a collective player value 0.2 wins less than a replacement-level player; only left-handed Les Mann (1.5 WAR) and left-handed Larry Gilbert (0.6 WAR) and the right-handed Whitted (whose 0.9 WAR with Boston—he began the year in St. Louis—included 26 games in the infield) had even marginal value for a major league player by the WAR metric. Stallings's brilliance was to have the insight to play them all in a way to give his team comparative batter-pitcher advantages from game-to-game, and even take account of pitching changes within games.

The Braves played 158 games on their way to a 94–59 record, including five that were tied when called because of darkness or weather. Platooning at all three outfield positions, Stallings's starting lineups had at least two of his three outfielders batting from the opposite side of the starting pitcher's throwing arm in all but 11 of the Braves' games, and 44 times during the season—28 percent of their total games—all three starting outfielders had the platoon advantage against the opposing pitcher. Les Mann started 111 games in the outfield, the most of any Braves outfielder, 94 of them in center, followed by Connolly with 105 starts, all but two in left field. Larry Gilbert was third with 56 outfield starts, 48 in right field. All three played for Boston the entire season.

The turning point for the Braves that made their 1914 miracle possible was June 28, with the team mired in last place and the season already a major disappointment based on preseason expectations. June 28 was an off-day because Boston city ordinances prohibited playing baseball on Sundays, but they apparently did not prohibit baseball transactions. On that day the Braves traded right-hander Hub Perdue, who had tied Lefty Tyler's 16 wins for most on the team in 1913 but was struggling badly this season, to the St. Louis Cardinals for outfielder Ted Cather and utility player Possum Whitted, both right-handed batters. Five days later, the Braves traded with the Phillies for the left-handed batting Josh Devore, who had once been a regular for John McGraw in the Giants' outfield. And on August 23, the Braves acquired another left-handed batting outfielder, Herbie Moran, in a cash transaction with the

TABLE 1.

Left-Handed Batting Outfielders, 1914 Boston Braves

	v right-handed starting pitchers*		v left-handed starting pitchers*		season totals with Braves**
Joe Connolly	102 GS	9/53/.312	3 GS	0/7/.265	121 G 9/65/.306
Larry Gilbert	41 GS	2/11/.250	15 GS	3/9/.309	72 G 5/20/.268
Herbie Moran	33 GS	0/2/.293	7 GS	0/2/.161	40 G 0/4/.266
Josh Devore	27 GS	0/2/.230	4 GS	1/1/.200	51 G 1/5/.227

Right-Handed Batting Outfielders, 1914 Boston Braves

	v right-handed starting pitchers*		v left-handed starting pitchers*		season totals with Braves**
Les Mann	60 GS	2/12/.193	51 GS	2/22/.308	127 G 4/34/.247
Possum Whitted	34 GS	0/14/.233	23 GS	2/17/.306	66 G 2/31/.261
Ted Cather	5 GS	0/5/.301	29 GS	0/17/.286	50 G 0/27/.297
Oscar Dugey	3 GS	1/2/.167	15 GS	0/7/.205	58 G 1/9/.193
Jim Murray	5 GS	0/7/.324	21 GS	0/3/.184	39 G 0/12/.232
Wilson Collins	1 GS	0/0/.200	10 GS	0/1/.267	28 G 0/1/.257

* HR / RBI / BA for GS against right-handed or left-handed starting pitchers include any at bats against relief pitchers regardless of handedness. Splits totals may not equal season totals because of incomplete data.

** Season totals for Whitted, Cather, Devore and Moran are only for the games they played after being traded to the Braves.

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Right-handed hitting utilityman Possum Whitted was acquired in June. On the strength of 11 extra-base hits, a .293 batting average and 26 RBI in September and October, Whitted ended the season as a daily regular in Stallings's lineup, batting mostly cleanup.

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Left-handed hitting Joe Connolly, pictured here with Rabbit Maranville, was the only truly productive outfielder. He led the team in home runs and had the highest on-base and slugging percentages on the Braves.

Cincinnati Reds. Boston was a half-game out of first place on the day they acquired Moran.

Although none of the four was better than a marginal big league player that year according to WAR, each of those transactions proved instrumental in shoring up the Braves' outfield. Cather and Whitted essentially replaced right-handed outfielders Jim Murray and Wilson Collins in Stallings's outfield rotation. Murray was picked up from the minor leagues about a week into the season and moved into the right-handed half of the right field platoon, starting 21 games against southpaws and five against right-handers. Murray had had a long,

distinguished career in the minors, but this was only his third time in the big leagues, having also played briefly for the 1902 Cubs and the 1911 Browns. He was no more successful this time, hitting only .232 in 39 games for the 1914 Braves and a mere .184 in his starts against southpaws, where his platoon advantage proved to be anything but. Collins, whose only prior big league experience was 16 games with the Braves the previous year in which he got only three at bats, started 10 games against southpaws in 1914, also mostly in right field, without making much of an impact. Once Stallings had Cather and Whitted in hand, Murray and Collins were expendable. Neither played in another major league game after July 10. Used by his manager almost exclusively against lefties, Cather hit .297 in 50 games for the Braves, making 34 starts. Whitted started 37 games in the outfield and another 20 in the infield (mostly second base), batting .261. On the strength of 11 extra-base hits, a .293 batting average and 26 RBIs in September and October, Whitted ended the season as a daily regular in Stallings's lineup, playing most often in center field, starting in the team's final 34 games—21 against right-handed starting pitchers—batting mostly clean-up against lefties and righties alike.

The acquisitions of Devore and Moran were just as consequential. Tommy Griffith had started the season as the left-handed bat in Stallings's right field platoon, but after 16 games in which he hit an abysmal .104, Griffith was sold to Indianapolis in mid-May. This left Stallings with Connolly and Gilbert as his only two left-handed hitting outfielders for nearly seven weeks until he picked up Devore on July 3. Playing both center and right fields, Devore started 31 games for the Braves in the summer and fall of 1914, almost exclusively against right-handed starting pitchers, although his batting average of .227 was not much to brag about. Since right-handed pitchers in baseball outnumbered southpaws by nearly three-to-one, trading for Devore gave Stallings more flexibility to both platoon his starting lineup and make in-game substitutions. It surely did not hurt, therefore, to add Moran as a fourth left-handed outfielder as the Braves began their stretch run. Moran was a constant in Stallings's lineup from then till the end of the season, starting in 40 of the Braves' remaining 49 games; lefties took the mound against the Braves in all nine of the games he did not start.

MIXING 'EM UP

Stallings was superb in how and when he rotated his outfielders into the lineup and into the games they did not start. Of the players that he platooned in 1914, only the right-handed Mann and Whitted started a

significant number of games against pitchers throwing from the same side they hit. Although each started more games against righties, Stallings's inclination to platoon both players was spot on. Mann hit .247 for the season, but only .193 in 76 games against righties, while in the 51 games he started against lefties he hit .308. Including 31 at bats for the Cardinals before being traded, Whitted batted .215 against righties in 1914 compared to .286 against lefties, against whom he hit both his home runs.⁶

Unlike with Mann and Whitted, Stallings rarely saw fit to start one of his left-handed outfielders when a southpaw started against Boston. It was conventional wisdom even a century ago, as it is today, that left-handed batters have more difficulty hitting southpaws than right-handed batters do against northsiders.⁷ In the first half of the season, when neither Murray nor Collins was making much of a contribution, Stallings started Larry Gilbert in 15 games against lefties. After Whitted and Cather joined the club, Stallings rarely started a left-hander in his outfield when a southpaw took the mound until he did so with Moran in seven games in the September–October stretch. Gilbert, with a .268 average on the season, batted .309 in games started by lefties, including four he did not start. Moran batted .293 in games started by right-handed opponents, but only managed .161 versus lefties.

Stallings's unwillingness to use the left-handed Joe Connolly against lefties, meanwhile, mystified at least one baseball writer at the time because Connolly was the Braves' most dangerous and potent hitter, certainly against right-handers.⁸ While that writer made sure to say the left-handed Connolly "never had any trouble in hitting the southpaws in the minors," Stallings begged to differ. Connolly started only three games against lefties, but Stallings inserted him into 16 games after the opponent's left-handed starter had been replaced by a right-hander reliever, usually as a pinch hitter who then stayed in the game to play left field. In three of those games, he was later removed when another southpaw came in to pitch. Connolly batted .304 coming off the bench when a right-hander came into the game; his average in the games he started against right-handers was .312, and all nine of his team-leading home runs were against righties. It is also worth noting that Stallings removed Connolly from 16 games, most often due to the insertion of a left-handed reliever.

Connolly's entire major league career was as a platoon player for Stallings, who never gave him the opportunity to play regularly against southpaws. From 1914 until he left baseball in 1916, Connolly started in 207 games for Boston, but only five when a left-hander

took the mound. Appearing in a total of 42 games started by a lefty those three years, Connolly hit only .258 in 62 at bats, compared to a robust (for the era) .296 with nine home runs against righties. Lefty-righty splits are not available for Connolly's rookie season of 1913, but the fact he appeared in only 126 games and that otherwise it was almost all right-handed batters who played in left field suggests Stallings decided in his very first year as Braves manager that Connolly (however successful he may have been hitting southpaws in the minor leagues) was so fundamentally flawed a hitter against left-handers that he was unlikely to improve.

Besides platooning his outfielders in the starting lineup from the very first day of the season, Stallings also often replaced his outfielders during the game depending on circumstances, particularly when the opposing team brought in a reliever who threw from the opposite side of the day's starting pitcher. In all, Stallings made in-game outfield substitutions 87 times during the regular season. Many of these substitutions occurred as soon as a pitching change was made, with the replacement player taking his position in the field rather than waiting to pinch hit for the starting outfielder when his turn came to bat against the new pitcher. The Braves faced a left-handed reliever in 23 of the 102 games started against them by a right-hander, and a right-handed pitcher came in to relieve in 24 of the 56 games started by a lefty. Not including pinch hitters for the pitcher who did not stay in the game in a double switch, Stallings substituted for a position player at least once in 84 of the Braves' 158 games—58 times in games started by a right-hander against them, and 26 times in games started by a lefty. However, not all of Stallings's in-game position player substitutions were necessarily to counter a pitching change.

THE BRAVES' COMPETITIVE ADVANTAGE

By platooning his outfield, Stallings was able to maximize the offensive possibilities of his starting lineup regardless of whether the opposing starting pitcher was righty or lefty. This was particularly important because the 1914 Boston Braves had the third lowest offensive WAR (16.1) as a team in the National League; the five teams with more potent offensives averaged 20.5 offensive wins above replacement. What made his outfield platoon rotation so effective, however, was quite likely Stallings's ability to take advantage of the fact that two of his infield regulars—first baseman Butch Schmidt and second baseman Johnny Evers—were both left-handed batters. No other National League team had more than one infield regular who batted from the left side.⁹ This meant that Stallings

usually had four or five left-handed bats in his lineup against right-handed starting pitchers. Most other managers, with only one left-handed batting infielder at most, and generally wedded to the same starting outfielders game in and game out, could count on no more than three left-handed batters against right-handed starting pitchers. When 71 percent of National League games were started by right-handers, Stallings's outfield platoon plus Schmidt and Evers batting from the left side gave Boston an advantage of no small import.

It is therefore not surprising that with Evers and Schmidt in the lineup every day that they were healthy and Connolly the Braves' most dangerous hitter, Boston faced as many left-handed starters—56—as any other National League team.¹⁰ In 80 of the 102 games where the Braves faced a right-handed starting pitcher, Stallings had at least four left-handed batters in his lineup, and in 14 of those games Stallings started five left-handed position players: three outfielders, Evers, and Schmidt. In eight other games against right-handed starters, all three outfielders in Stallings's starting lineup batted from the left side, but either Schmidt or Evers was sidelined because of an injury or being rested. In four straight games at the end of August and four straight games at the beginning of September, opposing right-handed starting pitchers were faced with a batting order whose first five hitters were all left-handed: Moran leading off, Evers, Connolly, Gilbert batting clean-up, and Schmidt. By the same token, in 39 of the 56 games the Braves faced southpaw starters, Stallings overloaded his line-up with at least six right-handed batters—usually with three right-handed outfielders—leaving daily regulars Evers and Schmidt as the only lefties in the batting order.

Stallings's outfield mixing and matching gave the Braves a platoon advantage in his batting order of at least four of eight position players in 86 percent of their games, and a platoon advantage of at least five in 44 percent of their games. The only National League team to exceed the Braves in proportion of games in which the opposing starting pitcher had to face at least four batters with a platoon advantage was the St. Louis Cardinals, who benefited from having two regulars who were switch hitters (second baseman

Miller Huggins and outfielder Lee Magee), their everyday right fielder (Owen Wilson) being a left-handed hitter, and player-manager Huggins using a lefty-righty platoon at one outfield position most of the entire season. While every team was able to bat at least four right-handers in every game they faced a southpaw starting pitcher, it was rare for teams other than Boston and St. Louis to start four left-handers in a game against right-handed pitchers. Consequently, no other team came close to the Cardinals and Braves in having a platoon advantage of four batters or more in the overwhelming majority of their games. (See Table 2)

As Table 2 also shows, the payoff for the Boston Braves was that their 31 victories in games started against them by lefties was the best in the league, and even more significantly, in games started against them by right-handers, the Braves' 63–35 record was by far the best winning average (.643) of any National League team.¹¹ Those won-lost records take into account all pinch hitting and position player substitutions Stallings made when a relief pitcher of either handedness was brought into the game against his team. Only the American League champion Philadelphia Athletics had a better record against right-handed starters. Why? Because Connie Mack had the advantage of five left-handed batters among his core regulars—infielders Eddie Collins and Home Run Baker, outfielders Amos Strunk and Eddie Murphy, and switch-hitting catcher Wally Schang—none of whom he made part of any platoon when writing out his starting lineups.

In the crucible of a World Series against the heavily favored Philadelphia Athletics powerhouse, Stallings stayed with what worked during the season. Connolly and Moran, both left-handed, started only three games in the Braves' World Series sweep. As he had in all but

TABLE 2.

	% G	vs. right-handed starters			vs. left-handed starters		
	PA-4	GS	PA-4	Record	GS	PA-4	Record
Cardinals	92%	101	88	54–44 .551	56	56	27–28 .491
Braves	86%	102	80	63–35 .643	56	56	31–24 .564
Dodgers	48%	98	18	46–52 .469	56	56	29–27 .518
Cubs	37%	100	2	51–48 .515	56	56	27–28 .491
Reds	31%	122	13	43–77 .358	35	35	17–17 .500
Giants	29%	117	6	62–54 .534	39	39	22–16 .579
Pirates	27%	121	6	52–66 .441	37	37	17–19 .472
Phillies	23%	128	9	60–68 .469	26	26	14–12 .538

PA-4: Platoon Advantage of at least four position players in starting line-up batting the opposite hand of the starting pitching.

Record is the outcome of the game regardless of whether the starting pitcher was involved in the decision. Some W-L records do not add up to GS because of ties in games called because of darkness or weather.

three games all season, Stallings benched Connolly in Game 2 when southpaw Eddie Plank took the mound for Philadelphia, starting the right-handed Ted Cather in left field instead. Stallings also benched Moran in that game in favor of the right-handed hitting Les Mann in right field. And in the fourth and final game of the Series, Connolly was pinch hit for, and then replaced in left field, by Mann as soon as Athletics' right-handed starter Bob Shawkey was relieved by lefty Herb Pennock in the sixth inning. With the Braves in front when it came Moran's turn to bat for the first time against Pennock, Stallings elected to keep him in the game.¹² Whitted, who had started every game since September 8, played every inning of all four games in center field, never mind that the Athletics started three righties.

REVOLUTION, EVOLUTION, OR EVOLUTIONARY REVOLUTION?

George Stallings's undeniable genius in using his outfielders in a platoon system to surprisingly win it all in 1914 is generally considered a revolutionary advance in managerial strategy.¹³ Although the term itself did not come into vogue until much later, "platooning" upended the prevailing wisdom that, barring injuries or poor performance, seven of the eight position players in the starting lineup should be the same from day-to-day (the understandable exception being inevitably banged-up catchers) and, for that matter, mostly play every inning of every game.¹⁴ The bench players rounding out big league rosters were there more for emergencies to substitute for an injured regular, to give a regular an occasional day of rest, or to take over if the incumbent at a position was ineffective. Teams that were generally favored by the baseball gods with good health and few injuries could rely on no more than ten or eleven position players who would receive nearly all of the playing time—four regular infielders, three regular outfielders, typically two catchers, and one or two versatile bench players to fill in wherever necessary. To the extent teams had platooned at all before Stallings's Braves, it was almost exclusively at catcher, because of the wear and tear inherent in playing their position in an era before catchers' armor offered much in the way of protection. Virtually all teams until late in the first decade of the century used at least two catchers interchangeably, although both were usually right-handed batters. In 1903 and 1904, the Giants' left-handed batting Jack Warner and right-handed batting Frank Bowerman gave John McGraw the luxury of a true lefty-righty platoon behind the plate.

Because of the compelling narrative of the Miracle Braves, 1914 historically is considered the baseline year



Stallings, pictured here with Johnny Evers, revolutionized the use of the platoon.

for platooning. But had the Braves not made their miracle run, or perhaps even fallen just short, would Stallings's platoon stratagem have even been noticed? This seems a fair question because, while starting lineup data are not yet available before 1914, Retrosheet data on position games played suggest George Stallings also platooned at all three outfield positions the previous year, his first as Braves manager. Connolly played 124 games in left field in 1913, with right-handed batters accounting for all but four of the other 49 position games played in left. Coincidentally, left-handed pitchers started 40 games against the Braves that year, according to Retrosheet, ten more than the total number of games Connolly did not play—some or all of which could have been after a right-hander was brought in to replace the left-handed starting pitcher. Mann played 103 games for Stallings in center, but the left-handed batting Guy Zinn played 34 games at the position in the 45 games left on Boston's schedule after his contract was bought from Double-A Rochester in mid-August. The 11 games he did not play corresponds almost exactly to the 12 when opposing teams started a southpaw against the Braves.¹⁵ And after veteran lefty John Titus broke his leg in July, Stallings appears to have platooned the left-handed Tommy Griffith with the right-handed veteran Bris Lord in right field, each playing 35 games at that position.

Notwithstanding that Stallings's outfield rotation to gain a competitive platoon advantage against opposing

pitchers was a key element underwriting the 1914 Braves' unexpected championship, there was surprisingly little if any commentary at the time about his insightful strategy. None of the articles in *The Baseball Magazine* in 1913 (if Stallings did indeed platoon that year, as seems likely), 1914, or 1915 mentioned it. The magazine's feature on the World Series praised Stallings for winning it all with "a club of green players and discards from other clubs" and "with one of the strangest assortments of misfit players we ever saw gathered together under one banner," and observed that Stallings had "performed the impossible" with a team that "had no license" to win either the pennant or the World Series, but did not say how exactly he did it.¹⁶ The closest any article came was the one on Joe Connolly, which after noting that Stallings did not pencil him into the lineup in games started by left-handers despite his supposedly having hit southpaws well in his minor league days, said: "We will, however, not attempt to criticize the methods of Stallings, as his record speaks for itself."¹⁷ Stallings, in an extensive interview for that publication recounting his team's tribulations and ultimate triumphs in 1914, said nothing about platooning or how he used his outfielders. The closest he came to that point was to give what has become the now-standard trope about it being a team effort: "Ours is no one-man team."¹⁸

So was Stallings's failure to mention his strategy on platooning an effort to keep a baseball secret to himself? That hardly seems likely, since any professional manager would surely notice, and indeed by the end of the decade, platooning was widely practiced.

Or was it perhaps that Stallings wanted to avoid calling attention to the fact that his outfielders, collectively and individually (with the possible exception of Connolly) were not very good? After all, even in the deadball era, outfielders were expected to be major contributors to their teams' offense, and no matter Stallings's success in masking his outfield deficiencies through the art of platooning, the preference would always be for outfielders who could hit well enough to be in the starting lineup on a daily basis regardless of the pitcher. In this regard, it should be noted that, despite knocking off the two best teams in baseball—the Giants and Athletics—Stallings did not stand pat with his team that offseason. Instead, he moved to bolster the Braves' outfield offense by trading for Philadelphia Phillies slugger Sherry Magee, giving up Whitted, Duguey, and lots of cash in the exchange. An 11-year veteran, the 30-year old Magee had led the National League in hits, doubles, and RBIs in 1914 while crashing 15 home runs—the third most in baseball—and batting .314. Although he hit only two home runs on the season on account of the Braves' home field being far more expansive than the Phillies' Baker Bowl, Magee did in fact provide a stable, daily, potent presence in the Braves outfield in 1915, playing in all but one game.¹⁹ With a 4.8 WAR, Magee turned out to be the best position player on the 1915 Braves. Stallings continued to platoon at two outfield positions, with Connolly the left-handed fixture in his left field rotation and Moran the same in his right.

Or perhaps Stallings did not talk about his philosophy on platooning in his remarks to *The Baseball*

Catcher Hank Gowdy, pitcher Lefty Tyler, and Connolly await their turn at batting practice.



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Magazine because it seemed to him so intuitively obvious that he didn't think it needed mentioning. While he deserves credit for undeniable genius in using his outfielders in a platoon system, rotating two players at the same position was not so much unheard of before this time as not practiced. Managers and players had long had an inherent understanding that a batter hitting from the opposite side of what hand the pitcher throws has a better visual and reaction-time advantage, and left-handed batters (same as today) seemed to have a particularly difficult time against southpaw pitchers. An argument can be made, therefore, that platooning two players (or sometimes more, as Stallings did in 1914) at the same position to take advantage of a right-handed/left-handed split became institutionalized by the collective wisdom of managers observing and learning from each other, and becoming more strategic in their thinking. If so, the foundation for Stallings's strategic innovation of platooning in his starting lineup was his appreciation of the value of position player substitutions that managers had been increasingly making to gain a batter-pitcher advantage at critical junctures during games.

At the beginning of the twentieth century, managers rarely replaced anyone in the starting lineup during a game. Even pinch hitting was rare because pitchers for the most part finished what they started and typically would remain in the game in the late innings of close ball games even if they were losing. By the end of the first decade, however, managers had begun to use their bench more strategically during games. Giants manager John McGraw led this innovation, being much more inclined to pinch hit and/or pinch run at a key moment of the game, which often required a defensive replacement.²⁰ By 1910 McGraw was making more than 100 in-game position player substitutions during the season, more than double the league average, which had been steadily increasing not only because of McGraw, but other teams following suit. In his first year managing Boston in 1913, Stallings replaced a position player in the field 116 times, 57 in the outfield, eclipsing McGraw's 113 substitutions that year.²¹ Given that he made an average of only 51 in-game substitutions when he managed the New York Highlanders in 1909 and 1910, which was right at the league average, Stallings's adoption of the strategy was almost certainly to compensate for an offensively weak team. The 1913 Braves had the second-lowest team offensive WAR in the National League.

Once he became manager in Boston, Stallings took the tactical advantages of position player substitutions to their logical conclusion. If replacing a position player at a critical moment during the game was a savvy

managerial move to gain a platoon advantage against the opposing pitcher (whether the starter or a reliever), then it made sense to seek such an advantage at a position of weakness—which, for Stallings, was his entire outfield—from the beginning of the game by choosing his starter based on the throwing arm of the starting pitcher.

Without specifically mentioning platooning, Stallings is said to have replied when asked about his approach to managing, "Play the percentages," which is of course what platooning is intended to do.²² Because managers were already "playing the percentages" to give their team the best possible comparative batter-pitcher advantages at key moments within games, the strategy of platooning can be seen on its merits alone as arguably less revolutionary than evolutionary. Indeed, Stallings appears not to have been alone among managers in adopting platooning as a strategy as early as 1914 (if not earlier). The Cardinals were able to achieve a platoon advantage of at least four players in the starting lineup in over 90 percent of their games because, in addition to two switch-hitters and a left-handed right fielder, player-manager Miller Huggins had an outfield platoon that included the left-handed Walton Cruise paired with the right-handed Ted Cather (until he was traded to the Braves) and then Joe Riggert.

And then there was John McGraw. Even though Stallings's epiphany about platooning in the starting line-up almost certainly occurred to McGraw, he does not appear to have done so (except at catcher) until 1914—the year Stallings had such success with the strategy, and quite likely a year after Stallings first used the strategy—when he paired off rookie left-handed hitting outfielder Dave Robertson with the right-handed veterans Fred Snodgrass and Red Murray. After being called up by McGraw in late May, Robertson started 68 games for the Giants in right or left field—not a single one against southpaws. McGraw, however, still seemed to prefer a set lineup and typically always had players for all eight non-pitching positions he judged good enough to deserve taking the field every game. Robertson was a regular each of the next two seasons, but was reduced to a platoon role again in September 1917—this time with former US Olympian Jim Thorpe—when he had difficulty hitting left-handers.²³ It was not until the 1920s that McGraw became baseball's leading practitioner of platooning in his starting lineup.

That more teams would pick up on the advantages of platooning was likely inevitable, an evolutionary outgrowth, especially for managers who like Stallings did not have eight position players they felt comfortable starting every day, but had the Braves not won it all in

TABLE 3. World Series Platoons, 1915–25

	A.L. Team	Players Platooned	N.L. Team	Players Platooned
1915	Boston Red Sox	C Pinch Thomas (LHB) with Hick Cady and 1B Dick Hoblitzel (LHB) with Del Gainer	Philadelphia Phillies	none
1916	Boston Red Sox	1B Dick Hoblitzel (LHB) with Del Gainer and CF Chick Shorten (LHB) with Tilly Walker	Brooklyn Dodgers	RF Casey Stengel (LHB) with Jimmy Johnston
1917	Chicago White Sox	RF Nemo Leibold (LHB) with Shano Collins	New York Giants	RF Dave Robertson (LHB) with Jim Thorpe
1918	Boston Red Sox	LF Babe Ruth (LHB), when Ruth did not pitch, with George Whiteman or Hack Miller	Chicago Cubs	none
1919	Chicago White Sox	RF Nemo Leibold (LHB) with Shano Collins	Cincinnati Reds	C Ivey Wingo (LHB) with Bill Rariden
1920	Cleveland Indians	1B Doc Johnston (LHB) with George Burns; LF Charlie Jamieson (LHB) with Joe Evans and Jack Graney; and RF Elmer Smith (LHB) with Smoky Joe Wood	Brooklyn Dodgers	RF Tommy Griffith (LHB) with Bernie Neis
1921	New York Yankees	none	New York Giants	C Earl Smith (LHB) with Frank Snyder and CF Curt Walker (LHB) with Lee King
1922	New York Yankees	none	New York Giants	CF Casey Stengel (LHB) with Bill Cunningham
1923	New York Yankees	none	New York Giants	CF Casey Stengel or Jimmy O'Connell (LHBs) with Bill Cunningham
1924	Washington Nationals	none	New York Giants	CF Billy Southworth (LHB) with Hack Wilson
1925	Washington Nationals	none	Pittsburgh Pirates	1B George Grantham (LHB) with Stuffie McInnis

1914, the concept would probably have remained relatively obscure until some team did win using a platoon system. What was revolutionary was how quickly other teams adopted the strategy after 1914. The Braves' success in coming from far behind to win the pennant and then take out the powerful Athletics ratified platooning as a road to victory. And thus did George Stallings become the historical midwife of the strategy.

CATCHING FIRE

While Stallings' outfield platoon in 1914 was really making a virtue out of a necessity, other managers took notice of its advantages. By the 1920s, platooning was widespread in major league baseball, and most teams

had a tandem lefty-righty couple playing at least one position. Using designated players interchangeably allowed managers to take advantage of their comparative strengths and, perhaps more importantly, to mitigate their weaknesses (such as an inability to hit lefties or to play every day of the long hot summer). It should be noted, however, that the overwhelming majority of lefty-righty position platoons were in the outfield. With the exception of first base, platooning in the infield was relatively uncommon—and very rare in the middle infield positions—both because most infielders in that era were right-handed batters, and because managers desired daily stability at such premium defensive skill positions.



Catcher Hank Gowdy, pitcher Dick Rudolph, pitcher Lefty Tyler, outfielder Joe Connolly, and Oscar Dugey (later traded for Sherry Magee).

Platooning was an obvious strategy for mediocre or bad teams to try to compensate for the weaknesses of individual players. While it was not intuitively obvious that managers of very good teams would find much merit in platooning, even if they nonetheless sought platoon advantages in the course of a game, managers with much stronger cohorts of players than Stallings had with the Braves were quick to see the value of platooning at a position of relative weakness in their lineup—and every team had at least one. Starting with Stallings's 1914 Braves, every World Series until 1926 featured at least one team that used at least one position player platoon during the regular season. They included all four of McGraw's pennant-winning teams from 1921 to 1924.

Unlike Stallings, who had more of an inchoate mix-and-match philosophy for platooning in his outfield, most managers who platooned relied on a designated tandem pair who split the position between them. This seems an important point: as with a set lineup, most managers who platooned required a semblance of stability in which they relied on certain pairs of players at selected positions and players understood their roles in the scheme. Of course, players' understanding their role is not the same as agreeing with such a division of their playing time. As Bill James has suggested, the fact that good players understandably resented the implication they lacked the ability to be everyday players helped to doom the widespread use of position platoons as a line-up strategy by the end of the 1920s.²⁴ The same downward trend was also true for in-game position player substitutions. It would not be until after the Second World War that position player game substitutions and platooning would make a comeback. The perpetrator: one Mr. Casey Stengel. ■

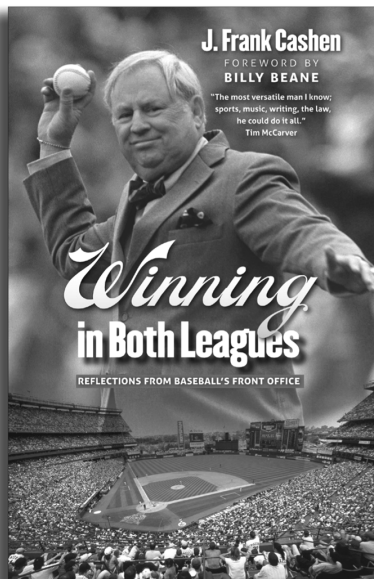
To see the full information and methodology regarding starting lineup platoons, see the Appendix online at <http://sabr.org/node/32296>.

NOTES

1. Stallings as quoted by Harold Kaese, *The Boston Braves: 1871–1953* (Northeastern University Press, 2004), 138.
2. Bill James, for example, writes in his book on baseball managers, "In 1914 Stallings platooned at all three outfield positions. [His team] stunned the baseball world by surging to the 1914 pennant, then defeating the mighty A's in four straight. This event had tremendous impact on other managers, almost revolutionary impact, as opposed to evolutionary. Managers had platooned a little bit here and there since the 1880s, but it was very rare..." Bill James, *The Bill James Guide to Baseball Managers From 1870 to Today* (New York: Scribner, 1997).
3. William A. Phelon, "The Big League Pennant Winners," *The Baseball Magazine* (May 1914): 17–18.
4. Frederick G. Lieb, "How Will They Finish Next October?" *The Baseball Magazine* (March 1914): 45.
5. Rabbit Maranville, with 5 wins above replacement (WAR), and Johnny Evers, with a 4.9 WAR, both had a higher overall player value than Connolly's 3.8 WAR, but a significant portion of their value was their fielding. Connolly's 3.9 offensive WAR was the highest on the team, with Evers second at 3.2.
6. Player splits for 1914 at Baseball-Reference.com include how the batter did in games started by a right-hander or a left-hander, including any pitcher in relief regardless of which side he threw from.
7. See James Click in *Baseball Between the Numbers: Why Everything You Know About the Game is Wrong*, ed. by Jonah Keri (Basic Books, 2006), 347.
8. "For some reason [Stallings] withdraws Joe from the line-up when a southpaw is opposing the Braves," wrote Samuel M. Johnston in, "Good Natured Joe Connolly: The Man Who Always Smiles," *The Baseball Magazine* (February 1915): 27.
9. Giants' second baseman Larry Doyle and Cardinals' second baseman Miller Huggins—a switch hitter—were the only starting infielders in the National League besides Evers to bat left-handed and play at a position other than first base. Brooklyn, Chicago, Cincinnati (until Dick Hoblitel was waived in mid-season) and Philadelphia had left-handed first basemen starting regularly for them.
10. Also facing 56 left-handed starting pitchers during the 1914 season were the St. Louis Cardinals, three of whose regulars were either switch hitters or a left-handed batter; the Chicago Cubs, whose left-handed batting first baseman, Vic Saier, was one of baseball's premier sluggers,

- knocking out 18 home runs (one short of the major-league lead); and the Brooklyn Dodgers, whose right fielder, Zach Wheat, was one of the league's premier left-handed batters.
11. The Cardinals, with a lineup of at least four left-handed batters in 88 of the 101 games they faced a right-handed starting pitcher, had the second-best record after the Braves against righties.
12. Moran had only one hit in 13 at bats in the Series and Connolly only one hit in nine at bats. That Connolly had only one RBI in the Series was surely a disappointment, but that came on his sacrifice fly off right-hander Bullet Joe Bush to drive home the tying run in the bottom of the tenth inning of Game 3, which the Braves went on to win in twelve innings giving them a three games-to-none lead.
13. See, for example, Bill James's discussion in *The Bill James Guide to Baseball Managers*, 47.
14. According to Robert W. Creamer in *Stengel: His Life and Times* (Simon & Schuster, 1984), his authoritative biography of Casey Stengel, who popularized platooning when he managed the Yankees in the 1950s, the term "platooning" was first used ("as far as I can determine") by *New York Herald Tribune* sportswriter Harold Rosenthal "to describe what Stengel was doing." (228).
15. Zinn's contract was purchased on August 18.
16. F.C. Lane, "Where the Dope Went Wrong," *The Baseball Magazine* (December 1914): 16–17.
17. Johnston, "Good Natured Joe Connolly," *The Baseball Magazine* (February 1915): 27.
18. F.C. Lane, "The Miracle Man," *The Baseball Magazine* (February 1915): 64. Lane also made no reference in the article to Stallings's outfield rotation.
19. The Braves played at Fenway Park, home to the Red Sox, for most of 1915 until their new ballpark—Braves Field—was ready for baseball in mid-August.
20. New York Giants star pitcher Christy Mathewson (or rather, Mathewson's ghost writer) wrote about McGraw's astute judgment in making these kinds of decisions during games in his 1912 book, *Pitching in a Pinch: Baseball From the Inside* (Penguin Classic, 2013).
21. The number of in-game position player substitutions made in the field in any given season is the difference between the total number of position games by a team's players and the total number of position games started as calculated by the number of games played by the team multiplied by eight fielding positions. Pitchers are not included in this calculation. Neither are pinch hitters who did not appear in the field. For example, position players on the 1913 Braves combined for 1,348 games, while the 154 games the Braves played that season, multiplied by the eight fielding positions, total 1,232 position games started. The 116-game difference is the number of defensive changes Stallings made during the season, either after having used a pinch hitter or pinch runner; to insert a superior defensive player into the game; or to replace a player who got hurt. These data can be found for each season on Retrosheet.
22. Stallings as quoted by Kaese, 139.
23. There is an interesting historical footnote on the machinations of both platooning and position player substitutions. In the 1917 World Series, which the Chicago White Sox won in six games, McGraw started Robertson in all five of the games the White Sox started a right-hander. In the one game McGraw wrote Thorpe into the starting lineup—Game 5, when southpaw Reb Russell took the mound for Chicago—the Giants' manager sent Robertson up to pinch hit for him in the very first inning because Russell, failing to get a single out, had already been replaced by a right-handed reliever. McGraw's move worked as pinch hitter Robertson singled to drive in a run—one of his 11 hits on his way to a .500 batting average in the World Series—and remained in the game in right field. Since the Giants were the road team and this happened in the top of the first, Thorpe did not even get the chance to play in the field.
24. James, 89.

Behind the Bowtie



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The Third Brother Dean

“Elmer the Great”

Paul Geisler, Jr.

The brothers Jay Hanna (“Dizzy,” also known as Jerome Herman) Dean and Paul Dee (“Daffy”) Dean are remembered as perhaps the greatest brother pitching duo ever. Combining to win 49 games for the 1934 St. Louis Cardinals, they won all four Cardinals’ wins in the seven-game World Series. Well, meet their older brother Elmer Monroe Dean, “Elmer the Great,” “long recognized as the ace goober salesman of the Texas League” and “almost as celebrated in his line as his younger brothers are as pitchers.”¹

Born in 1909 to sharecroppers Albert and Alma Dean in rural Arkansas, Elmer spent most of his childhood picking cotton and playing baseball with his younger brothers.² Both parents had athletic backgrounds. “Ab” played third base on a semipro nine, and Alma batted lead-off for her softball team. The family worked as share-croppers and moved often, following the crops. In all they had five children, but the first two died early. Jay and Paul followed Elmer, in 1910 and 1912, respectively.

Alma died of a severe case of tuberculosis in 1917, leaving Ab and the boys to work the fields together. Dizzy later remembered, “I never knew anyone who had it as tough as my father did.”³ They stayed in shacks and lived off the land, eating “plain grub,” as Ab called it—“sowbelly and cornmeal when there was a little money; sweet potatoes and peanuts when there wasn’t.”⁴

The boys played ball, usually barefoot, wherever they could find an open spot, with a potato sack for home plate, a rock wound with string for a ball, and whatever kind of stick they could find for a bat. Elmer usually caught his brothers’ pitches, or shagged flies in the outfield. Sometimes they played pick-up games for money, with the stakes reaching 50 cents or a dollar, equivalent to a day’s wages.⁵ Elsie Brennen Wachtel, who grew up on a farm neighboring the farm where the Deans worked, remembers Dizzy had a rhyme for the boys: “Poodle, Jay, and Paul—and that’s all.”⁶

Sometime in 1927 Elmer got separated from the rest of the family. They had traveled to Texas to visit Dizzy, who had just enlisted in the Army with a falsified birth certificate. Elmer’s vehicle moved on, while Pa and

Paul found themselves stuck waiting for a long freight train. They drove around for a while, but found no sign of Elmer. Pa had no way to contact him, with no settled residence or telephone. Mentally challenged from birth, Elmer had never learned to read or write. But Pa did not seem very worried and never notified the police. “He’ll turn up someday,” he said confidently.⁷

About four years later, Elmer, now working on a farm in Arkansas, noticed a newspaper picture of Dizzy pitching for Houston in the Dixie Series of 1931. “That’s my brother!” shouted Elmer. Others in the drugstore with Elmer read him the story, and the druggist sent a letter to Dizzy, who by then was barnstorming through small towns in Missouri and Arkansas with brother Paul. Paul and Dizzy went to reclaim their older brother. “We liked to never get Elmer to go,” remembered Paul. They packed him in their car with his possessions stuffed in a pasteboard suitcase. Paul drove, and Dizzy sat with Elmer in the back. “Diz just took that suitcase and throwed it out the back of the car,” continued Paul.

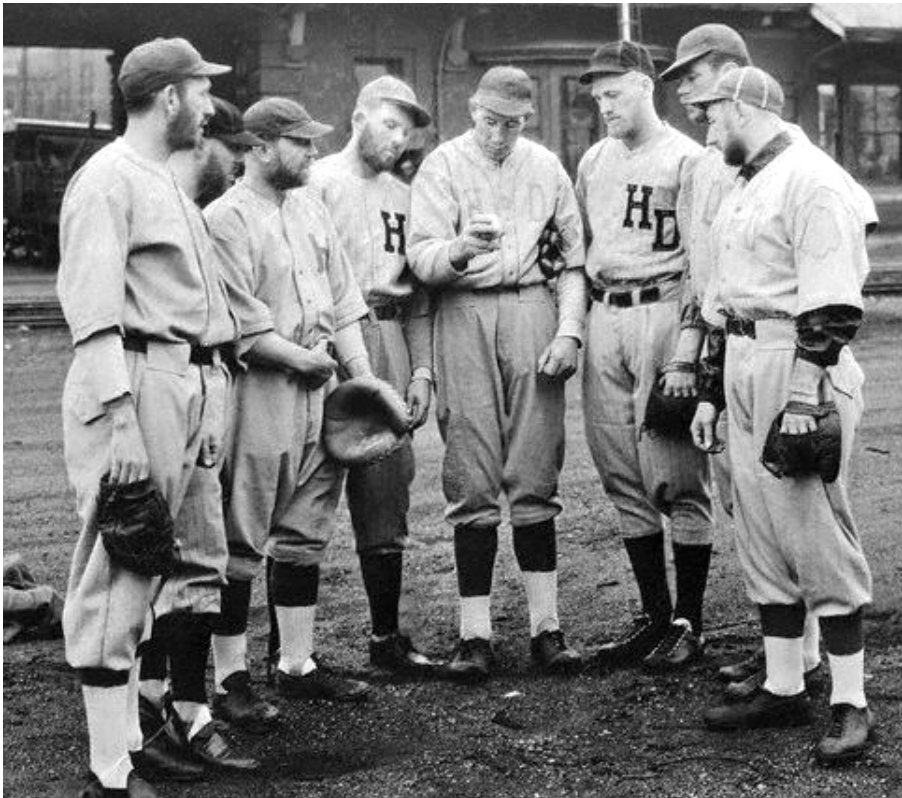
“Hellfire, Jay, them was my clothes. Them was all the clothes I got,” responded Elmer. Dizzy promptly stopped in town and outfitted Elmer with a new wardrobe.⁸

Albert had moved to the Houston area, with Dizzy playing for the Buffaloes in 1931, as Paul moved from Springfield, through Houston, and eventually to Columbus that year. Elmer had played some in the Ozark League, and now saw his chance to join the Buffaloes himself.

Houston team president Fred Ankenman had high hopes of finding a third Dean brother, who might keep up the Dean tradition. Elmer signed on in 1933, at least for a tryout, as a six-foot, 185-pound outfielder who batted left-handed and threw right-handed. In anticipation, Ankenman commented, “if you thought Dizzy was dizzy, and if you can imagine his brother Paul was strange, you ain’t seen nothing yet.”⁹

Elmer’s semipro experience in Arkansas was described as “extremely semi.” He did not impress the Houston brass. He appeared “far from a gazelle on his feet and not too handy at catching and throwing,” and

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The original caption on this May 5, 1935 wire service photo read, "Elmer Dean, brother of Dizzy and Paul, stars of the St. Louis Cardinals, will pitch for the House of David team of Muscatine, Iowa, this summer. He is in the center of the above photo, showing some of his new teammates how he grips the curve ball. He spent last season selling peanuts at the Houston Ball Park, and won a claim as the champion peanut seller of the Texas League."

they rated his batting as not "up to the standard required of outfielders." Manager Casey Selph worked long and hard to make Elmer a pitcher.¹⁰ Though Elmer remained unimpressive, with the Dean name "such a good drawing card he probably will be retained until the squad is cut to 16."¹¹

Though he called himself "a right smart country ball player," Elmer did not seem to fit anywhere.¹² The team did not issue him a uniform and left him behind when they traveled to Galveston for their opening series. Because he "promised to furnish so much entertainment for the fans," Ankenman offered him a job as bat boy. Elmer protested, and threatened to quit.¹³

"Batboy!" exclaimed Elmer. "Me, who taught my kid brother Dizzy how to pitch."¹⁴

Still hoping to keep a Dean in Houston, Ankenman then offered Elmer a job selling concessions. "This new field is wide open for a man with Elmer's singularity of aim and capacity of voice."¹⁵ Elmer found early success, then his sales started to drop. Ankenman watched him one day and discovered that after removing the caps, Elmer would wipe the soda bottles with the same towel he used to wipe sweat from his face. The boss quickly shifted Elmer to selling peanuts and he soon became a star attraction at Buff Stadium.¹⁶

Elmer quickly gained recognition with his familiar cry, "Get your goobers here, and I'll tell you how I taught Dizzy Dean to pitch. He's my brother."¹⁷

After his first season, Elmer had earned the recognition as "probably the baseball fans' most popular peanut dispenser here [Houston] during the diamond campaign."¹⁸

One of Elmer's biggest thrills on the field came that fall. Dizzy came to Houston to pitch a benefit barnstorming game, and Elmer hit a triple off his kid brother. "It was the only real wallop off Dizzy, whose team won, 9 to 1."¹⁹ When not shouting at the crowds about his goobers, Elmer liked to roam the tall buildings of the city, "indulging his hobby of riding in elevators."²⁰ He also supported himself running errands and working in a tire shop, down the street from the bare apartment where he lived with his father.²¹

The next season, 1934, Paul joined Dizzy with the big league Cardinals. Dizzy lobbied St. Louis general manager Branch Rickey to find Elmer a job, too. Rickey had recently hired his brother as a scout, and Dizzy hoped for a clerical job in the front office for Elmer. The eldest Dean brother stepped off the bus from Houston in St. Louis only to find that his great reputation with the Buffs had earned him a position hawking peanuts in the St. Louis stands. St. Louis headlines read, "Cards Buy a Third Dean Pitcher—And it's a Nutty Idea," and, "The Dean Brothers—Two Nuts and One Goober."²²

A Dean family meeting, reportedly led by Pat Dean (Dizzy's wife), determined that "Elmer, hawking peanuts in the grandstand, would put Dizzy and Paul

in an undignified light.”²³ Saying he did not much care for St. Louis, Elmer soon returned to Houston “much to the delight of peanut-conscious and pop-minded fans at Buffalo Stadium,” without selling one goober in St. Louis.²⁴

Houston fans welcomed Elmer back. News accounts reported “his stentorian cry of ‘ice cold soda water—who wants one?’ has won him the rating of a championship contender in his chosen line.” He wore a hat band clearly labeled “Elmer Dean.”²⁵ According to Roy Forrest of the *Miami News*, “Nobody could duplicate Elmer’s lusty bellow—‘Buy a goober!’—which sold thousands of pounds of peanuts.”²⁶

Early in the summer of 1934, Dizzy and Paul staged a short strike, seeking an increase in pay. Elmer seemed to take this lead from his brothers, as he went on strike soon after he returned to Houston. “I want more money or I’ll let your goobers go stale,” he told Walter Benson, director of concessions at the Houston park.²⁷ He missed only one day of work, then returned to the grandstands.

One day in 1934, Casey Stengel, manager of the Brooklyn Dodgers at the time, asked Dizzy if he had any more brothers. Diz replied, “We got another brother named Elmer, and Casey, you ought to grab him. He’s down at Houston, burnin’ up the league.” Stengel actually pursued the tip, until he learned that Elmer was pitching peanuts for the Texas League club.²⁸

When the Cardinals played the Detroit Tigers in the 1934 World Series, Pa Dean traveled to St. Louis for games three, four, and five. Elmer stayed home at Dizzy’s request, and since the Dean family could not afford a radio of their own, he listened to the games at a nearby gas station.²⁹

In 1935, Elmer left his peanut pitching to join promoter Ray Doan and his traveling bearded team, the House of David, as a pitcher. Pa Dean came along also to do promotional work and serve as team secretary. Elmer played a bigger role in Doan’s promotional schemes than he ever did as a pitcher. He took a lot of ridicule, as well. He usually batted lead-off, and pitched the first inning, then would slip down to one end of the bench and huddle in a corner the rest of the game. House of David players regarded him more as a team mascot than as a player. People mocked his name “Elmer” and nicknamed him “Dippy.” He had left the realm of “Elmer the Great.”³⁰

Elmer returned to Houston to start the 1936 season, hoping again for a diamond tryout. Sure that someday he would play in the major leagues, he said he would not go to the Cardinals. “It wouldn’t be fair to the other teams to let all of the Dean brothers pitch for one

club.”³¹ When Ankenman did not leave him a uniform that fit him, he worked out in his street clothes. He explained that if he did not make the team roster, he planned to hold out, following the lead of his younger brothers in St. Louis, for more money for selling soda and peanuts.³² “I could show ole Diz and Paul something about baseball, if you’d give me a chance.” Dizzy and Paul came to terms with the Cardinals, and Elmer returned to his “ace peanut vending.”³³

Early in the 1936 season, Elmer expanded his territory north, as he caught on with the Fort Worth Cats, also in the Texas League. He peddled his wares in the “Panther City” whenever the Buffs were on the road, and return to Houston for their home games. The move proved convenient for the Dean family as Pa Dean had moved to Garland, Texas, outside of Dallas, to help work his son Paul’s farm. Even in Fort Worth Elmer’s “persistent selling talk and his shouts and laughter never fail to attract the attention of the customers.”³⁴

Also early in 1936, the House of David dropped Elmer, reportedly because he could not grow an adequate beard.³⁵ Then before the end of the season, Elmer saw his peanut sales come to an end, as the Houston stadium gave him his “unconditional release.”³⁶ Elmer retreated to Paul’s farm and joined his dad farming, still attempting to play some semipro baseball as a pitcher for Dallas-area teams.³⁷

Elmer spent the next twenty years sharing chores on the farm with his dad. Within six months of his father’s death earlier that year, Elmer died September 24, 1956, following a long illness, leaving his brothers Jay (“Dizzy”) and Paul as his only survivors.

The eldest Dean brother, sometimes known as Goober or Poodle or Elmer the Great, made a distinctive impact in baseball, even if not as a player on the field. “The best doggone goober salesman that ever hit Buffalo Stadium” lived his motto as an outfielder: “Be thar when the ball gets thar.”^{38,39} ■

Notes

1. “Elmer Dean to Sell Peanuts for Panthers.” *Pampa (Texas) Daily News*, May 6, 1936, 6.
2. The website findagrave.com lists his birth date as March 11, 1909, while some sources indicate he was born in 1908.
3. John Heidenry, *The Gashouse Gang* (New York: Public Affairs, 2007), 30.
4. Timothy M. Gay, *Satch, Dizzy, and Rapid Robert* (New York: Simon and Schuster, 2010), 57.
5. Heidenry, *Op cit.*, 33.
6. Chauncey Durden. “The Sportview.” *Richmond (Virginia) Times-Dispatch*, May 9, 1952, 33–34.
7. Robert Gregory. *Diz* (New York: Viking Press, 1992), 36.
8. *Ibid.* 75–76. Also Gay, *op. cit.*, 63.
9. “Elmer, Another Dean to Carry Family Tradition.” *Dallas Morning News*, March 13, 1933, 4.
10. “Cvengros Signed by Houston Club.” *Dallas Morning News*, March 16, 1933, 2.

11. Lloyd Gregory. "Houston Fans Warm Up to Selph and His Buffs." *The Sporting News*, April 13, 1933, 3.
12. Henry McLemore. "Today's Sports Parade." *Amarillo Globe Times*, March 27, 1933, 7.
13. "Dean Fails with Houston." *The Sporting News*, April 20, 1933, 2.
14. "Dean's Brother Selling Peanuts in Houston Park." *Baton Rouge State Times*, April 30, 1933, 16.
15. Ibid.
16. Vince Staten. *Ole Diz* (New York: Harper Collins, 1992), quoted in Heidenry, Op cit., 158.
17. Gregory, Op cit., 91.
18. "Elmer Clouts Triple off Dizzy, but Latter Twirls Team to Win," *Dallas Morning News*. October 20, 1933.
19. "Caught on the Fly," *The Sporting News*, October 26, 1933, 2.
20. "Elmer Dean Fails as Major League Peanut Vendor, So He Returns to the Texas League," *Sarasota Herald*, August 28, 1934, 5.
21. Heidenry, Op cit., 225.
22. Ibid. 159.
23. "Elmer Dean, Dizzy's Brother, Is Not to Peddle Peanuts at Sportsman's Park After All," *Lubbock Avalanche-Journal*, August 12, 1934, 5.
24. "Elmer Dean Fails," Op cit., 5.
25. Ibid.
26. Roy J. Forrest, "Great Elmer Dean Grows Beard, Joins house of David," *Miami News*, March 24, 1935.
27. "Elmer Dean, Goober Magnate at Houston Park, On Strike," *Abilene (Texas) Reporter-News*, August 26, 1934, 4.
28. J. Roy Stockton, *The Gashouse Gang and a Couple of Other Guys* (New York: A.S. Barnes, 1945), 31.
29. Heidenry, Op cit., 226.
30. George C. Fossum. "Dippy Dean Not Like Dzy or Daffy Dean," *Aberdeen (South Dakota) Evening News*, June 1, 1935, 5.
31. "Youngest [sic] Dean Will Twirl Here on Friday Night," *Canton (Ohio) Repository*, July 10, 1935, 11.
32. "Brief Bits of Gossip." *The Sporting News*, March 19, 1936.
33. "Last Holdout of Dean Brothers Is in Houston Fold," *Corsican (Texas) Daily Sun*, March 25, 1936.
34. "Elmer Dean to Sell Peanuts," Op cit., 6.
35. Eddie Brietz. "Sports Roundup," *Corsicana (Texas) Daily Sun*, May 7, 1936, 11.
36. Felix R. McKnight. "Texas League Coffers Gain," *Heraldo de Brownsville (Texas)*, August 4, 1936, 6.
37. "The Sports Barker," *Paris (Texas) News*, May 5, 1957.
38. Forrest, Op cit., 39.
39. "Oldest Dean Has Motto," *Tampa (Florida) Tribune*, May 2, 1933, 9.

Henderson, Cartwright, and the 1953 US Congress

Adam Berenbak

South Shields is a coastal town in Northern England, located at the mouth of the River Tyne, downstream from Newcastle upon Tyne. The town boasts an economy built around shipbuilding and coal mining, and produced the director Ridley Scott and actor/comedian Eric Idle. The main sports are rugby and soccer.¹ So it may seem strange that a story about the birth of baseball should start there, but it was also in South Shields, in 1888, that Robert Henderson was born. Henderson emigrated to the United States and joined the staff of the New York Public Library in 1911.² His fascination with the history of games and sport led him to publish *Ball, Bat and Bishop* in 1947, a book that would help unravel the myth of Abner Doubleday's 1839 invention of the game in Cooperstown, New York, and open the door to the notion that a myriad of other players, including Alexander Joy Cartwright, developed it instead.³

While researching an article about the relationship between baseball and the US Congress that was published in the National Archives magazine (*Prologue*), I came across several references to a commendation by the 83rd Congress on June 3, 1953, officially recognizing Henderson for proving Cartwright as the inventor of baseball. In my position as an archivist in the Center for Legislative Archives, a unit of the National Archives and Records Administration, I had never previously come across such a reference and decided it was worth some more scrutiny. Specifically, Cartwright's Wikipedia page states: "Cartwright was officially declared the inventor of the modern game of baseball by the 83rd United States Congress on June 3, 1953."⁴ And his *New World Encyclopedia* entry states: "Alexander Cartwright II (April 17, 1820–July 12, 1892) was officially credited by the United States Congress on June 3, 1953, with inventing the modern game of baseball....In 1947 Robert W. Henderson documented Cartwright's contributions to baseball in his book *Bat, Ball, and Bishop*, which the US Congress cited in recognizing Cartwright as the inventor of the modern game."⁵ Other sites, as well as several printed publications, repeat the same information, citing a variety of sources,

from the Wikipedia page to an article in the June 4, 1953, *New York Times* (more on that below). However, there is no mention in the records of Congress to suggest that any official credit was given to Cartwright or Henderson, in 1953 or during any other Congress.

The bulk of the records pertaining to both baseball and Congress in the National Archives relate to the multiple challenges made to Major League Baseball's antitrust status, first conferred upon baseball in a Supreme Court ruling in 1922. Every subsequent challenge to that decision has been settled out of court or resulted in the Supreme Court upholding the original ruling, leaving it to Congress to redefine that status. Charged with such a responsibility, the House and the Senate have held multiple hearings since the 1940s to debate the matter, but have done little but issue reports that either support the antitrust status or compel the Court to overturn its ruling. There were four days of hearings in May of 1953, before the Interstate and Foreign Commerce Committee, but no mention of Cartwright or Henderson was made. Few other references to baseball, on either the House or Senate floor, during 81st and 83rd Congresses were made, one being a Joint Resolution designating June 26 as National Baseball Day (a sentiment raised again on the Senate floor by Bill Bradley in 1996—though the '96 resolution does mention Cartwright). Harold and Dorothy Seymour, in their seminal work *Baseball: The Early Years*, published in 1960, mention the report issued by the Cellar committee in 1952 that states baseball as "a game of American origin," with no reference to Cartwright or Henderson.⁶

However, there is no mention in the *Congressional Record*, *House Journal*, or *Senate Journal* recorded on June 3, 1953, of Alexander Cartwright or Robert Henderson. In addition, the US Serial Set contains no reports or publications from the 83rd Congress (or any other congress, for that matter) singling out Henderson's work or ratifying Cartwright's position as THE creator of baseball. The 1954 *Official Baseball Guide*, published by *The Sporting News*, makes no reference either in its 1953 year in review. In addition, there is nothing in the



Despite numerous apparent references, there is no mention in the records of Congress to suggest that any official credit was given to Alexander Cartwright or Robert Henderson, in 1953 or during any other Congress.

June 3 or 10, 1953, editions of *The Sporting News*, nor is there any mention in the June 3 or 4, 1953, editions of the *Washington Post* or *The New York Times*. As mentioned above, there is an article in the June 4 *Times* of that year about Robert Henderson, though not about any kind of Congressional recognition.⁷ The June 4 article is about Henderson's retirement from the New York Public Library, effective June 3, 1953, mentioning his efforts to debunk the myth that Abner Doubleday "invented" the game of baseball but leaving out any mention of Alexander Cartwright.

In fact, Harold Peterson, who wrote the first real Cartwright biography, argued in a 1973 letter to the *Times* that Henderson, while establishing sufficient evidence against the Doubleday myth, "never investigated Cartwright."⁸ Henderson had written about Cartwright, but only as an integral part of a complex development of the game, and never focused on his role beyond that.

The final nail in the coffin may be the concurrent resolutions, recorded in the *Congressional Record* of July 1957, and recommend by both House and Senate that the Baseball Hall of Fame be recognized "since Abner Doubleday conceived" of the game in Cooperstown in 1839. So, by 1960, the United States Congress was still approving of the Doubleday myth at the same time that Seymour, then the premier baseball historian, was publishing only the Celler committee's approval of that myth and nothing else.

If Congress never credited Henderson's "discovery," or cited Cartwright as the inventor of the game, then where did such a rumor start? So far there has been no conclusive evidence found of the rumor's origin, but it is possible that a combination of factors led it to make its way into popular understanding of Cartwright and, in turn, to an Internet "fact" that grew legs of its own. The earliest mention found so far is in *The Baseball Chronology*, published in 1991.⁹ Such a resource would no doubt have proven useful in compiling data for sites

such as Wikipedia and other fact-based sites, but it is not certain whether the proliferation of this rumor originated with that publication.

Wolfgang Saxon's 1985 obituary of Robert Henderson details his service to the New York Public Library and as librarian of the Racquet and Tennis club on Park Avenue, his contributions to baseball scholarship, and even his work with the *Library Journal*. Yet no mention is made of Cartwright or Congress. However, Saxon does cite another type of recognition, writing that "it was not until 1951 that the *Official Encyclopedia of Baseball* capitulated and embraced Mr. Henderson's views."¹⁰ Though the book in question—Hy Turkin and S.C. Thompson's *Official Encyclopedia of Baseball*—was the first publication of a real baseball stats book, the notion of Henderson's work as being recognized by an "official" entity could have contributed to the construction of the rumor. Could it be that the confluence in one author's head of Saxon's reference to the 1951 encyclopedia, the June 4 article on Henderson's retirement the day before, and the Celler committee's report led to the creation of this myth?

Though the only Congressional attention to professional baseball during the spring and summer of 1953 focused upon the business of Major and Minor leagues as well as the Congressional baseball game, it wouldn't be out of the question for Congress to have recognized Robert Henderson at the end of a long and successful career. Such recognition was commonplace on the floors of the House of Representatives and the Senate—however, no evidence exists of any recognition of Henderson, Cartwright, or the origins of baseball. ■

Notes

1. Ridley Scott, last accessed December 31, 2013, http://news.bbc.co.uk/2/hi/talking_point/forum/1234177.stm. Eric Idle, last accessed December 31, 2013, www.imdb.com/name/nm0001385.
2. Wolfgang Saxon, "Robert W. Henderson Dies; Librarian and Sports Expert," *The New York Times*, August 20, 1985.
3. Robert Henderson, *Ball, Bat and Bishop: The Origin of Ball Games; with an introduction by Will Irwin* (New York: Rockport Press, 1947).
4. Alexander Cartwright, last accessed December 31, 2013, http://en.wikipedia.org/wiki/Alexander_Cartwright.
5. Alexander Cartwright, last accessed December 31, 2013, www.new-worldencyclopedia.org/entry/Alexander_Cartwright.
6. Harold Seymour, *Baseball* (New York: Oxford University Press, 1960).
7. "Retiring Librarian's Own Books 'Struck Out' a Baseball Legend," *The New York Times*, June 4, 1953.
8. Harold Peterson, "The Man Who Invented Baseball (Letter to the Editor)," *The New York Times*, September 16, 1973.
9. James Charlton, ed. *The Baseball Chronology: The Complete History of the Most Important Events in the Game of Baseball* (New York: Macmillan; Toronto: Collier Macmillan Canada; New York: Maxwell Macmillan International, c1991).
10. Wolfgang Saxon, "Robert W. Henderson Dies; Librarian and Sports Expert," *The New York Times*, August 20, 1985.

What's My Line? and Baseball

Rob Edelman

W*hat's My Line?* was a popular primetime game show which ran on CBS-TV from 1950 through 1967, with a daytime syndicated version lasting from 1968 to 1975. Its format was simple and clever: a quartet of panelists questioned individuals to determine their often unusual or unlikely occupations, which ranged from the offbeat (safety pin maker, skunk breeder, mattress tester, flea powder seller, toupee manufacturer, zipper factory inspector) to the gender-bending (female doctor, plumber, private detective, truck driver, butcher, barber, bartender, architect, cab driver, real estate agent, horse trainer, wrestler). Each program also featured the appearance of at least one mystery guest, a celebrity whose face and voice were known to the masses, and who was quizzed by the blindfold-wearing panelists. These luminaries usually were screen, stage, or television personalities who often comically disguised their voices while responding to the panel.

Occasionally, the mystery guests were baseball figures, primarily players but also managers or executives of renown. Unfamiliar or unheralded baseball-connected individuals also appeared sporadically. (Since the show primarily was produced in New York, a majority of the guests were affiliated with the New York nines.) These days, hearing and seeing sluggers and hurlers from stars to scrubs as well as non-playing baseball personnel is commonplace; they are familiar to fans because they frequently are interviewed in a range of venues. Such was not the case in the 1950s, when television was in its infancy, and so it is fascinating to observe the *What's My Line?* baseball guests out of uniform, garbed in suits and ties, and casually comporting themselves.

During its CBS run, the show was hosted by John Daly, a noted journalist and broadcast personality. While he is best-remembered as the *What's My Line?* master of ceremonies, Daly earned notoriety as the first national radio correspondent to report on the December 7, 1941, Japanese attack on Pearl Harbor and the April 12, 1945, passing of President Franklin Roosevelt. A range of famous faces sat on the show's

panel; however, the "regulars" were a high-profile journalist and syndicated columnist who specialized in show-biz gossip but also was a chronicler of organized crime and politics (Dorothy Kilgallen), a humorist and lecturer who co-founded the Random House publishing company (Bennett Cerf), and a stage and occasional film actress and New York radio personality (Arlene Francis). As befitting the formality of the era, the panelists most often were stylishly garbed in evening wear. Daly usually referred to them by their surnames, particularly when passing the interrogating from one panelist to the next. Ever-so-appropriately, he asked the female contestants if they should be addressed as "Miss" or "Mrs."

But the celebrity guest appearances were the *What's My Line?* highlight—and the initial one was neither screen legend Gloria Swanson nor comic actor Phil Silvers, not burlesque star-striptease artist Gypsy Rose Lee nor clarinetist-bandleader Benny Goodman, all of whom were on the show during its first year. It was, instead, a New York ballplayer. Years before he became an aging self-caricature on New York Yankees broadcasts whose "holy cannoli" banter has been deftly parodied by Billy Crystal, Phil Rizzuto was quiet and serious-minded in his various *What's My Line?* appearances. Rizzuto's initial gig was on the debut episode, which aired on February 2, 1950. (Dizzy Dean and Jackie Robinson followed The Scooter as 1950 mystery guests.)

Rizzuto also appeared in that capacity almost exactly two decades later, on February 5, 1970, when the Bronx Bombers were indeed bombing in the American League. They finished the previous season in fifth place in the six-team American League East with an 80–81 record; meanwhile, the crosstown New York Mets were the World Series champs.¹ Panelist Soupy Sales asked Rizzuto, "What kind of team the Yankees gonna have this coming year, Phil?" His response reflected a time in New York baseball when the Mets were superstars and the Yankees were also-rans: "Well, it's gonna be a lot better, Soupy. Actually, the Mets have given everybody a lot of hope. You don't think of

the Yankees as a second-division team, but we are right now. And we figure if the Mets can have the 'impossible dream,' maybe the Yankees might be able to."

On October 7, 1956, a month-and-a-half after being unceremoniously released by the Yankees and a year before the Brooklyn Dodgers abandoned the Borough of Churches for Los Angeles, Rizzuto was a guest panelist. The mystery guest was Sal Maglie, who was identified as "Pitcher-Brooklyn Dodgers." Irony was the hallmark of the back-and-forth between the blind-folded Scooter and Sal the Barber:

Rizzuto: "Do you deal in services?"

Maglie: "I sure do."

Rizzuto: "Is it the type of service that I could enjoy?"

Maglie: "Probably. Yes. I'd say yes." (Laughter was heard from the audience.)

Rizzuto: "Do you work for a profit-making organization?"

Maglie: "I think so. Sometimes." (More laughter was heard.)

After it was established that the mystery guest was a sportsman, the ever-astute Arlene Francis echoed the sentiment of many when she asked, "If Mr. Rizzuto were playing with the Yankees, where he belongs, would he be nervous about you?" Maglie responded, "I don't think so."

Francis: "You know what I meant by that. I meant, are you on the opposing team?"

Maglie: "I'd say yes."

Francis: "Are you a member of the inevitable Dodgers?"

Maglie: "Uh huh."

Francis: "Are you known to pitch a few now and again?"

Maglie: "Once in a while."

Francis: "I think probably we all know together who this is. This is Sal Maglie."

Yankee-Dodger dynamics 1950s-style were frequently on display on *What's My Line?* The September 28, 1952, mystery guest was manager Chuck Dressen, whose Dodgers were about to face the Bronx Bombers in the World Series. As Dressen's identity emerged during the questioning, the Bums' determination to best the Yanks was emphasized. Just before identifying Dressen, Arlene Francis asked him, "Did you write an article in the [New York] *Post* that said [the Dodgers] weren't going to blow it this time?"



NATIONAL BASEBALL HALL OF FAME LIBRARY COOPERSTOWN, NY

Phil Rizzuto was the mystery guest on the debut episode of What's My Line? on February 2, 1950.

But the New York Giants were not completely overlooked. On July 11, 1954, during the heart of the baseball season, the mystery guest was Willie Mays. After a round of spirited questioning, an animated Arlene Francis declared, "Well, sir, I think I've got you. Did you hit your 31st home run today? Did you play center field? Are you Say Hey Willie Mays?" (This particular contest was a near-record-breaker. Earlier that day, the Giants split a doubleheader with the Pittsburgh Pirates, winning 13-7 in the opener and falling 5-1 in the nightcap. Louis Effrat, covering the games in *The New York Times*, reported: "Home runs, for and against, told the story of the opener. The nine circuit wallops were one less than the National League record for two clubs in a game. The six by the Giants, including Mays' thirty-first, were two short of the mark for one club in a game."²) Bennett Cerf then asked Mays if he would utter what then had become his nickname. ("I'd like to hear just how he says it. Do one for us, will you Willie?") Mays declined, and explained that "it's just a phrase that I use [sic] when I first came up" in order to greet those whose names he had not yet memorized. It also was noted that Mays momentarily would be heading for Cleveland to play in the All-Star Game.

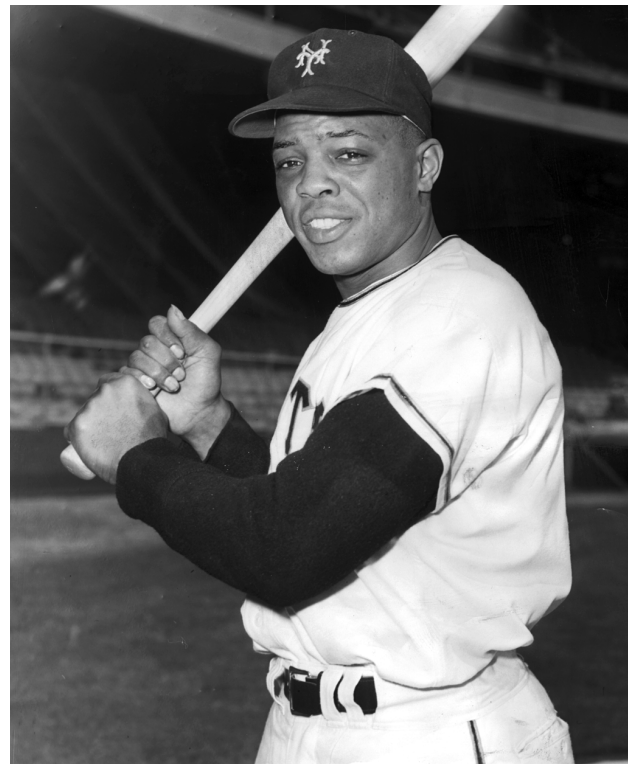
Fourteen years later, on August 20, 1968, Mays reappeared on the show. He was greeted with loud cheers and whistles and, after being identified, insisted that he was "in show business. What do we think baseball is? Baseball is show biz." Host Wally Bruner (who had replaced John Daly) asked if Willie could break Babe Ruth's career home run record. "The Babe is 714, but I don't think I can reach it," Mays responded. He noted that he was at "569 or 570" and added, "If I can reach

600, I'd be very happy about it. The way the pitchers are coming along nowadays... I'm not getting any younger. They're getting younger. I don't think I can reach 714." As he was asked if anyone else might, Hank Aaron's name was dropped. "I don't think so..." Mays prognosticated. "If he can reach 600, or a little above 600..." Mays of course totaled 660 homers in his career but he underestimated Hammerin' Hank, who of course bested the Babe with 755 dingers.

On September 6, 1953, Roy Campanella was the mystery guest. After he was identified by panelist Steve Allen, John Daly observed, "This is a great day in Roy's life... Roy hit his 38th home run today, which beat Gabby Hartnett's 19—what, 1930 Cubs record..." (Daly was only partially correct. The Dodgers beat the Giants, 6-3, and Louis Effrat, writing in *The New York Times*, reported that Campy's dinger "set one major-league record and tied another for catchers. Gabby Hartnett of the 1930 Chicago Cubs held the previous homer mark with thirty-seven. [His] two runs batted in tied Campanella with Bill Dickey of the Yankees, who established the record of 133 RBIs for a season in 1937."³)

On another occasion, eleven baseballers comprised the "mystery guest." (When two or more such guests were present, their number was not identified—and it was up to the panel to determine this.) The date was June 24, 1956, and they all played for the Cincinnati Reds, who had battled the Dodgers that day in a doubleheader. Ted Kluszewski was the spokesman, and was seated next to John Daly. Standing behind them were Johnny Temple, Wally Post, Gus Bell, Frank Robinson, Ed Bailey, Ray Jablonski, Smoky Burgess, Roy McMillan, Johnny Klippstein, and Joe Nuxhall. These Reds mirrored the demographics of big-league baseball mid-1950s-style as there were ten Caucasians, one African-American, and no Latinos. After Arlene Francis identified the guests, it was noted that the Reds bested the Bums in both games by 10-6 and 2-1 scores. Bennett Cerf added that Ed Bailey had smashed three home runs in the first game. (Bailey was not the lone hero of the day. Kluszewski and Robinson also homered. Nuxhall started and completed the second game and John Drebing reported in *The New York Times*: "Until yesterday not a left-hander had pitched and won a complete game against the Dodgers since Sept. 16, 1954, when this same Nuxhall achieved the feat." Klippstein was not as fortunate. He started the first game but only lasted into the fourth inning, when he was replaced by ex-Dodger Joe Black.⁴)

One of the more intriguing baseball personalities to appear on *What's My Line?* was Bonnie Baker, a guest on August 17, 1952. Baker's "line" was "Professional



NATIONAL BASEBALL HALL OF FAME LIBRARY COOPERSTOWN, NY

Willie Mays appeared on the show twice, in 1954 and 1968. After being identified on the second broadcast, he explained that he was "in show business. What do we think baseball is? Baseball is show biz."

Baseball Player," and she was identified as the second sacker on the Kalamazoo Lassies of the All-American Girls Professional Baseball League. Given the conventions of the era, once it was determined that Baker was a "performer" who wore unusual clothing that did not cover her entire body, the supposition was that her artistry was of the striptease variety. Sex roles and assumptions certainly came into play when, after explaining her affiliation, John Daly noted, "For heaven's sake, I must get more interest in baseball" while Dorothy Kilgallen pronounced, "I certainly think Mrs. Baker is an argument for allowing women to play in the big leagues."

Occasionally, a non-athlete, manager, or executive made it into the *What's My Line?* box score. One such non-mystery guest was Mrs. Beulah Gellert, who appeared on the July 29, 1962, broadcast. Gellert's "line" was: "Makes Baseball Bats"; she was identified as the owner of the Adirondack Bat Company. Another was Harry B. Latina, who on the April 16, 1961, installment was identified as a "[Designer of] Baseball Gloves." It was explained that for four decades Latina had worked for the Rawlings Sporting Goods Company and had created gloves for Joe DiMaggio and Mickey Mantle, among others. In a Smithsonianmag.com profile of Rawlings glove designer Bob Clevenhagen, Jim Morrison



On June 24, 1956, Ted Kluszewski acted as spokesman for the “mystery guest”—eleven members of the Cincinnati Reds.

reported, “He is only the third glove designer in the history of the company, following the father-son team of Harry Latina, who worked from 1922 to 1961, and Rollie Latina, who retired in 1983.”⁵ Given Latina’s profession, some panelist questions provoked audience amusement. After it was determined that Latina’s “line” involved something that was put on, Bennett Cerf asked him, “Is this something that might be worn in the bedroom?” Dorothy Kilgallen’s follow-up: “I hate to dismiss Mr. Cerf’s romantic notions, but would it be worn in the kitchen?”

On September 25, 1960, Joane Westermarck, another non-celebrity guest, was identified as “Usher at Baseball Park (S.F. Giants).” Chuck Connors was a guest panelist and, after it was determined that Westermarck resided in the City by the Bay, the ballplayer-turned-television star quipped, “San Francisco... the only thing I can remember recently that happened in San Francisco [is that] the Giants died. And I don’t blame the Giants. I blame the weather.” The Giants played their first game in the infamously windswept Candlestick Park on April 12, and Connors’s remark reflected the ball yard’s already controversial weather conditions and the fact that, during the just-concluded season, the Giants were a fifth-place ball club.⁶

A little over a year earlier, on September 13, 1959, Branch Rickey was the mystery guest. The recent

departure of the Brooklyn Dodgers and New York Giants for western environs had generated interest in the formation of a third major baseball league. At the time, Rickey was at its forefront, and he was introduced as “President of New Continental Baseball League.” At one point, Bennett Cerf asked him, “Mr. Rickey, how ’bout that third league?” Rickey’s response was: “Inevitable as tomorrow morning.” But of course, with the advent of major league expansion, the Continental League ceased to exist.

The October 23, 1960, *What’s My Line?* mystery guest was Ralph Houk, the newly-hired New York Yankees skipper who had replaced the venerable Casey Stengel. Bennett Cerf asked him, “Mr. Houk, where do you think Casey’s gonna end up?” Houk responded, “Well, I know one thing. He’s gonna have a lot of money wherever he ends up.” Ten days earlier, Stengel’s Yankees had lost the seventh game of the World Series to the Pittsburgh Pirates. Five days later, and five days before Houk’s *What’s My Line?* appearance, Stengel had been unceremoniously dumped by the Yankees. Houk likely was referring to the news that Stengel, then the highest-paid big league skipper, supposedly had been given a profit-sharing disbursement of \$160,000 by his former employer.⁷

But who could have prognosticated that the seventy-something Stengel was not through as a major league manager? On April 15, 1962, the ever-charming Ole Perfessor was a *What’s My Line?* guest. He then was the first-ever skipper of the expansion New York Mets. Two days earlier, on April 13, the Mets had made their debut at the Polo Grounds, losing to the Pittsburgh Pirates by a 4–3 score.⁸

A prime example of how memories play tricks may be found on the November 20, 1969, *What’s My Line?* broadcast. The mystery guest was “Baseball’s Hall of Famer Jackie Robinson,” and panelist Soupy Sales told him, “One of the big thrills of my life... was in 1944. And I was in the navy, and I went to the Coliseum on Saturday afternoon, and UCLA in their backfield at the time had Jackie Robinson, Bob Waterfield, and Kenny Washington. You played USC that day, and you whipped ’em good.” This of course was misinformation, which Robinson quickly corrected. “I’m a little older than that,” he explained. “I played with Kenny Washington in 1939.”

The primary purpose of *What’s My Line?* was of course entertainment of the lighthearted variety, and accidental humor was one of the show’s hallmarks. When Ted Williams appeared as a mystery guest, on May 23, 1954, Dorothy Kilgallen asked him, “Would you describe yourself as a performer?” Williams answered in



The October 7, 1962 guest was billed as "Baseball Announcer (Currently Announcing World Series)"—the Giants' own Russ Hodges.

the affirmative. Kilgallen's retort—"You have a very nice voice. Do you sing?"—resulted in audience laughter and a resounding "No!" from Teddy Ballgame. Then on October 7, 1962, the mystery guest signed in as "Mister X." He was Russ Hodges, and his "line" was "Baseball Announcer (Currently Announcing World Series)." This was a time in which space exploration was much in the news and, regarding his profession, Arlene Francis innocently asked, "Does [your work] have anything to do with something that goes on in outer space?" Hodges answered in the negative, and elicited a hearty guffaw. Later on, John Daly placed Hodges's presence into the context of the time when he observed, "...Russ was good enough to note that he had not been seen much on camera for six or seven years. [But] as you all know, Russ IS the Giants." Ever the proud New Yorker, Daly was not referring to the San Francisco variety.

On September 5, 1954, the mystery guest was a two-headed monster: Sal Maglie, who then was pitching in the Polo Grounds; and Duke Snider, who was patrolling center field at Ebbets Field. When Bennett Cerf asked, "You're either a Giant or a Dodger, is that correct?," it was Snider who answered, "Yep." But when he asked, "Are you a teammate of Willie Mays?," Snider answered "Nope." Minutes later, when Dorothy Kilgallen asked, "Are you a Dodger?," it was Maglie who answered

"Nope." Finally, Arlene Francis figured out that the "guest" was in fact one Dodger and one Giant.

Snider returned as a mystery guest on January 12, 1958. Only here, the Bums no longer were in Brooklyn and the former Duke of Flatbush was identified as "Center Fielder: Los Angeles Dodgers." After he was identified, John Daly observed, "Well, Duke... [the famed celebrity restaurateur] Toots [Shor] talks with great melancholy about our Brooklyn Dodgers moving to Los Angeles..." One of the panelists was actress Laraine Day; from 1947 to 1960, Day was wed to Leo Durocher, ex-skipper of the Dodgers as well as the New York Giants. Was Day reflecting her husband's preferences (as well as her own) when she interrupted Daly and emphatically observed, "Toots is a Giants fan!" Daly chimed in, "He also likes the Dodgers, though, but after the Giants." "WAY after," Day added. "A Giant fan couldn't possibly like the Dodgers."

Several years earlier, on May 31, 1953, Day also was on the panel. Durocher was the mystery guest and, given the circumstance, her questions were unintentionally funny. Day of course was blindfolded, Durocher's voice was disguised, and her first question to him was: "Are you a man?" After it was determined that Durocher was baseball-connected and affiliated with the National League, Day asked: "Should I know you? To speak to, I mean. If I met you on the street, would I speak to you? That would mean you weren't working for Brooklyn." John Daly piped in, "Yes, you would know our guest... I'm quite sure, Miss Day." But it was Steve Allen who, soon after, correctly guessed the identity of Leo the Lip.

On January 13, 1957, Robin Roberts appeared—but as a regular contestant rather than mystery guest. This was because his "line" was not "Star Pitcher, Philadelphia Phillies" but "President of Frozen Shrimp Company." John Daly played along by asking Roberts where he was from. Roberts responded, "Well, I'm from Philadelphia most of the time," and Daly quipped, "...that's funny. That's a strange coincidence..." Could there be two Robin Robertses in the City of Brotherly Love? But Bennett Cerf, the first questioner, recognized him immediately and asked, "Aren't you the star pitcher of the Philadelphia Phillies?" Over a half-century later, Roberts recalled, "I was on television once, on *What's My Line?* The panel had to try and guess my off-season job, which was with the Neptunalia Seafood Company. I was president of Gold King and we sold frozen shrimp. No one could figure out what I did, but they sure came close."⁹

Irony also was the order of the day when Joe DiMaggio was the mystery guest. The date was September 18,

1955. His appearance was greeted with unusually loud cheers, which reflected his mass popularity, and Arlene Francis observed, "Nobody's ever had a hand like that but Eisenhower and Monroe." Francis of course was referring to Dwight Eisenhower and Marilyn Monroe. The Yankee Clipper had been wed to Monroe, but not for long; they married in January, 1954, and Monroe filed for divorce nine months later. The Brooklyn Dodgers clinched the NL pennant ten days before the broadcast. Game One of the World Series was set for September 28. At the start of this particular show, Dorothy Kilgallen introduced a fellow panelist by quipping, "On my left, the surprise pinch-hitter for the Brooklyn Dodgers in the World Series, Mr. Fred Allen." It was a fitting reference. Allen, a popular radio personality, was one of the most celebrated humorists of the 1930s–50s and was famed for his long-running faux "feud" with Jack Benny, his good friend and fellow comedian. Allen scholar Alan Havig noted that his "scripts were especially sensitive to goings-on in his own town, New York City. More than on any other network radio program, the metropolis of Mayor Fiorello La Guardia, Coney Island, immigrant neighborhoods, the subway, and the Brooklyn Dodgers played a continuing role on Allen's shows."¹⁰ Allen was a *What's My Line?* regular from 1954 until his death in March 1956.

The March 25, 1956, mystery guest was Ford Frick, whose "line" was "Commissioner of Baseball." Before his profession was determined, Bennett Cerf asked Frick, "Do you do any singing of any kind?" and Dorothy Kilgallen wondered, "Have you and I ever danced together?" After he was identified, John Daly observed, "...you occasionally hear nowadays... that baseball is losing its popularity. Do you think there's anything to that?" The essence of Frick's response easily might have been spouted by Bud Selig in 2014. "Well, I've heard

baseball is dying," Frick declared. "I don't know what constitutes death, but I would say it's a lively corpse. Attendance in baseball today is 50 per cent higher than it was before the war. There are twice as many colleges playing, twice as many high schools. There are more youngsters playing baseball than ever before in history. No, I think we're going to survive."

Seeing Frick, DiMaggio and the other baseball luminaries on the *What's My Line?* episodes over a half-century after their broadcasts is at once attention-grabbing and illuminating. For one thing, their interactions with the panelists are reflections of the attitudes of the moment, the spirit of the era. For another, their presences are visual records of a place and time in baseball history. ■

Sources

Internet Movie Database: <http://www.imdb.com>.

YouTube: <http://www.youtube.com>.

Notes

1. John Thorn, Pete Palmer, Michael Gershman, David Pietrusza. *Total Baseball*, Sixth Edition. New York: Total Sports, 1999.
2. Louis Effrat. "New Yorkers Win, Then Lose, 5 to 1." *The New York Times*, July 11, 1954.
3. Louis Effrat. "Furillo and Durocher Stage Battle; Dodger Player Fractures Left Hand." *The New York Times*, September 7, 1953.
4. John Drebing. "Redlegs Wallop Six Home Runs In Conquering Brooks, 10–6, 2–1; Bailey Connects Three Times, Kluszewski Once in Opener—Frank Robinson and Thurman Hit 4-Baggers in 2nd Test." *The New York Times*, June 25, 1956.
5. Jim Morrison. "Baseball's Glove Man." *Smithsonianmag.com*, September 13, 2011.
6. John Thorn, Pete Palmer, Michael Gershman, David Pietrusza. *Total Baseball*, Sixth Edition. New York: Total Sports, 1999.
7. Bill Bishop. "Casey Stengel." <http://sabr.org/bioproj/person/bd6a83d8>
8. John Thorn, Pete Palmer, Michael Gershman, David Pietrusza. *Total Baseball*, Sixth Edition. New York: Total Sports, 1999.
9. Jeff Idelson. "Love of baseball grows in spring." *Cooperstown Chatter*, April 3, 2009.
10. Alan Havig. *Fred Allen's Radio Comedy*. Philadelphia: Temple University Press, 1990.

Fact vs. Fiction

An Analysis of Baseball in Films

David Krell

Baseball is great theatre. Indeed, baseball stories have been fodder for Hollywood since the era of silent films, both dramatic and comedic. But baseball biographies in movies and TV-movies often sacrifice facts to move the story forward at a watchable pace, increase drama, or provide comic relief. For a sport whose patrons guard its history like sentinels protecting a prince, baseball suffers an invasion against the minutiae that make it a glorious game grounded in lore, legend, and literature.

The movie *42* brought us the story of Jackie Robinson's debut in the major leagues, complete with the recreations of much-told stories in Robinson lore: the boycott initiated by southern-bred players on the Brooklyn Dodgers, Branch Rickey's "turn the other cheek" meeting with Robinson, and the vicious bench jockeying by Philadelphia Phillies manager Ben Chapman. When compared to historical accounts, *42* portrays these scenes with accuracy. For example, after a Phillies-Dodgers game, Chapman explains that his racially charged verbal abuse of Robinson is nothing new by comparing it to other instances that, in his paradigm, are part of the game. The Chapman scene parallels the description in *Wait Till Next Year* by Carl Rowan and Jackie Robinson: "You fellows want Robinson to become a real big leaguer, I suppose. Well, so do we, and we're treating him just the same as we do any other player on a rival club. When we're playing exhibitions with the Yanks, Di Maggio is always 'The Wop,' and when we meet the Cards, Whitey Kurowsky (sic) is 'The Polack.' The phils [sic] ball club rides the devil out of every team it meets. That's our style of baseball. We hand it out and we expect to take it too."¹

The climactic scene in *42* deviates from history, using dramatic license to amplify the story's tension. In the movie's climactic scene, Robinson faces Pittsburgh's Fritz Ostermueller in a game that could clinch the National League pennant for the Brooklyn Dodgers. Although Robinson did hit a game-winning home run off Ostermueller on September 17, it was not the clinching game; the win merely reduced the Dodgers' magic number to two.²

Early in the film, Ostermueller beans Robinson, another exaggeration: Ostermueller hit Robinson with a pitch at a Pirates home game on May 17, 1947, but the ball struck Robinson's arm, not head.³ (However, Robinson may have prevented a beaning by throwing up his arm.)

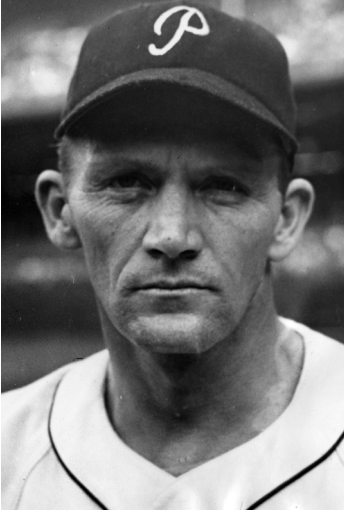
Ostermueller is a setup-payoff device in *42*, setting up a scene where the hero is defeated, so that a payoff occurs later in the story when he overcomes the opponent. The payoff is Robinson hitting a home run off Ostermueller. Here, the scene not only deviates from history, but from Robinson's business-as-usual approach to baseball, by depicting Robinson standing in the batter's box after the climactic home run. This deviation from baseball's unwritten rules of conduct rankled Bob Ryan of the *Boston Globe*, who wrote, "But nowhere in my extensive readings covering six decades of sports fandom do I recall hearing about him clinching the 1947 pennant for the Dodgers with a home run in Pittsburgh. I must have skipped those pages, because that's what Mr. Helgeland has him doing.... And get this: He has Jackie watching the home run from the batter's box. In 1947? Unimaginable."⁴

In addition, for baseball purists, Ostermueller was left-handed while *42* shows him as right-handed.

Jackie Robinson also features in *Soul of the Game*, a 1996 HBO television movie focusing on Satchel Paige, Josh Gibson, and Jackie Robinson as baseball stands on the verge of integration. In this recreation, the first meeting between Rickey and Robinson at the headquarters of the Brooklyn Dodgers includes a short, portly fellow named Pete, depicted as a Dodgers scout familiar with Robinson's playing ability but who doesn't know Robinson personally. Rickey introduces Pete to Robinson, who knows the scout only as a white man in the stands at Negro League games with a stopwatch in his hands.

In the real version of events, Rickey dispatched scouts Tom Greenwade and Clyde Sukeforth to scout Robinson at different times. Both were tall, lanky men, and Sukeforth introduced Robinson to Rickey at the meeting. Sukeforth met Robinson in Chicago, persuaded

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Fritz Ostermueller gave up a home run to Jackie Robinson late in 1947. The film 42 revised history to show the homer clinching the pennant for the Brooklyn Dodgers. It didn't.

him to travel to Brooklyn, and recalled the events at a meeting with Rickey in 1950. "You said 'In Chicago next Friday night, Kansas City Monarchs play in Comiskey Park. I want you to see that game and especially do I want you to see a shortstop named Robinson. I would like for you to see Robinson before the game. There is some doubt as to whether he has a really good arm. I would like for you to speak to Robinson before the game and ask him if he will throw the ball overhand from the hole, his right, in the practice.'

"You told me you had good reports on the fellow. You said you understood he was quite a ball player and if I liked him and if his schedule would permit. You told me that you wanted him to get away from his team and see you without anybody knowing anything about it. There was to be great secrecy, in that I was to avoid any publicity if possible, but if asked was to give my own name."⁵

Another HBO production, the TV movie **61* showcases the 1961 chase of Babe Ruth's home run record by Mickey Mantle and Roger Maris, including the impact of the chase on Mantle and Maris, the Yankees, and the press. Some events, though, are tightened to move the story. For example, Bob Cerv appears as a Yankee from the beginning of the story, when he was actually peripatetic: on the Kansas City Athletics and the New York Yankees for the 1960 season, drafted by the Los Angeles Angels in the 1961 expansion draft, then returned to the Yankees in a May 1961 trade.

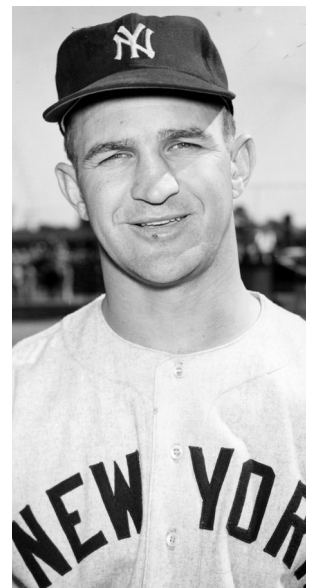
The story culminates with Maris hitting his 61st home run off Tracy Stallard of the Boston Red Sox while Cerv and Mantle, both injured, watch on television from a hospital room. Though they both suffered injuries that sidelined them during Maris's historic moment—Cerv had knee surgery and Mantle had an abscessed hip—they did not watch the game together.

In a 2001 *Hartford Courant* article, Cerv said this of the film: "You believed that? I knew Mick was there, but we had private rooms. They had to be a little artistic. They had to make a story. But I'd say 70 percent of the stuff really happened."⁶

Babe Ruth's legend suffered a couple of changes to his biography in *The Babe Ruth Story* starring William Bendix. Wayne Stewart, a Ruth biographer, writes in *Babe Ruth*, "For instance, it shows Ruth receiving a \$5,000 fine and suspension for missing a game because he took a child's injured dog to a hospital for an operation—this is sheer fiction. The film even portrayed the home run Ruth dedicated for Johnny Sylvester in 1926 as the 'Called Shot' of 1932. In the maudlin death scene, Ruth is operated on by the same surgeon who saved the life of the dog years earlier, and, Ruth, who had a notoriously poor memory, recalls the doctor's face from almost sixteen years before. The film also inaccurately shows Ruth retiring on the spot just moments after hitting his final three home runs in Pittsburgh, the last of which is actually shown landing in the stands at Yankee Stadium."⁷

Major League sacrifices verisimilitude in its portrayal of a fictional Cleveland Indians team winning the American League East pennant in a one-game showdown against the New York Yankees. Using a classic storyline of misfits banding together to defeat a common foe, *Major League* is entertaining, funny, and uplifting with the championship decided in true Hollywood fashion in the bottom of the ninth inning. There's one problem. The scenes depicting Indians home games, including the one-game playoff, take place at Milwaukee's County Stadium. Sharp-eyed *Major League* fans will note the logo for Milwaukee television station WTMJ on the

The movie 61 depicts Bob Cerv in the hospital with Mickey Mantle while they watch Maris hit his historic home run. In real life, both were hospitalized, but not together.*



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The part of Cleveland's Municipal Stadium was played by Milwaukee's County Stadium in the movie *Major League* and Baltimore's Camden Yards in the sequel, *Major League II*.

scoreboard. There is, however, an overhead shot of a standing room only crowd at Cleveland's Municipal Stadium to give the audience a dramatic jolt.⁸ In *Major League II*, Baltimore's Oriole Park at Camden Yards substitutes for Municipal Stadium.⁹

On July 4, 1939, the New York Yankees held Lou Gehrig Day to honor the "Iron Horse" after he was sidelined by Amyotrophic Lateral Sclerosis, the disease that would kill him two years later. Gary Cooper recreates Gehrig's speech in *The Pride of the Yankees* with some refinements here and there. The Cooper version begins, "I have been walking onto ballfields for 16 years, and I've never received anything but kindness and encouragement from you fans. I have had the great honor to have played with these great veteran ballplayers on my left—Murderers Row, our championship team of 1927. I have had the further honor living and playing with these men on my right—the Bronx Bombers, the Yankees of today."¹⁰

Gehrig never mentioned the phrases "Bronx Bombers" or "Murderers Row" in his speech. Further, the Cooper version takes liberties by excluding two men who were mentioned by Gehrig: Jacob Ruppert, the Yankees owner who had died six months earlier, and Ed Barrow, "the builder of baseball's greatest empire," according to Gehrig.¹¹

One of the best-known lines in film history is Cooper's last line of the speech, "Today, I consider myself the luckiest man on the face of the Earth." The line is lifted verbatim from Gehrig's speech, where it's the second sentence. Later in the speech, Gehrig says, "Sure I'm lucky" before mentioning Ruppert, Barrow, and Yankees managers Huggins and McCarthy. Then, he repeats the phrase as he thanks the New York Giants for their gifts and his family for their support.¹²

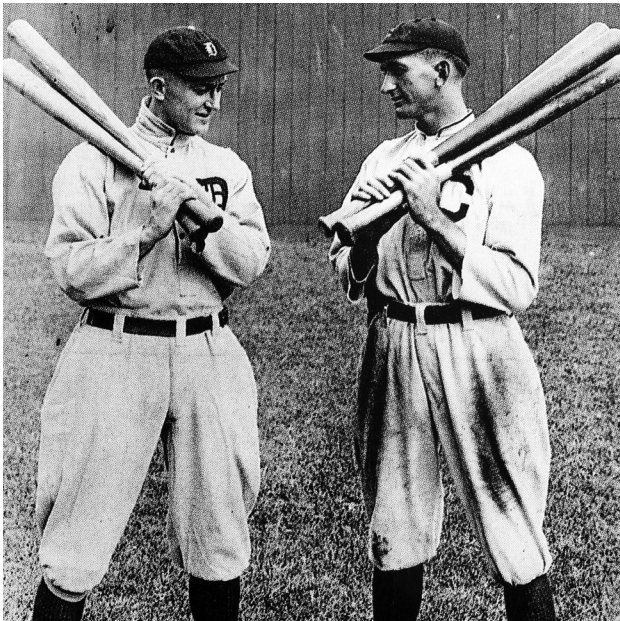
Based on the eponymous book by Eliot Asinof, the film *Eight Men Out* shows the events, controversy, and consequences of the 1919 Chicago White Sox allegedly throwing the World Series against the Cincinnati Reds for financial gain. Though acquitted of "conspiracy to defraud the public" in court, eight players suffered a lifetime ban from major league baseball—Eddie Cicotte, Oscar "Happy" Felsch, Arnold "Chick" Gandil, "Shoeless" Joe Jackson, Fred McMullin, Charles "Swede" Risberg, George "Buck" Weaver, Claude "Lefty" Williams were banned by dint of the omnipotence of the new baseball commissioner, Kenesaw Mountain Landis: "Regardless of the verdict of juries, no player who throws a ballgame, no player that undertakes or promises to throw a ballgame, no player that sits in conference with a bunch of crooked players and gamblers where the ways and means of throwing a game are discussed and does not promptly tell his club about it, will ever play professional baseball."¹³

"Shoeless" Joe Jackson hit .375 in the 1919 World Series and .356 in his career. After the "Black Sox" scandal, Jackson played on semi-pro teams. At the end of *Eight Men Out*, some fans debate whether Jackson is one of the players on the field. Wearing a Hoboken jersey, Jackson runs around the field like a gazelle in a game against Hackensack. Playing the outfield, he snares a ball destined for extra bases, then hits a stand-up triple in his next at-bat.¹⁴

Hoboken and Hackensack did not have semi-pro baseball teams.

In *For Love of the Game*, Kevin Costner plays Billy Chapel, a forty-ish pitcher for the Detroit Tigers. On the cusp of pitching a perfect game against the New York Yankees, Chapel reviews his life with his girlfriend,

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Both Ty Cobb and “Shoeless” Joe Jackson have been given the “Hollywood” treatment.

Jane, as she prepares to leap across the pond known as the Atlantic Ocean for a job in London. The day after the game, Billy goes to the airport so he can catch a flight to London only to find that Jane delayed her trip because the perfect game consumed her attention.¹⁵

In this fictional Tigerverse, the audience quickly learns Billy Chapel’s former pitching prowess; a newspaper headline praises his dominance in Game 1 of the 1984 World Series, though Jack Morris was the real hero of Game 1. Also, to the lament of Tigers fans, no Tigers pitcher has ever pitched a perfect game. (Armando Galarraga came close in 2010, but umpire Jim Joyce ruled that Indians batter Jason Donald beat out a ground ball for an infield hit.)

Bernie Mac stars as Stan Ross in *Mr. 3000*, the title stemming from Ross ending his career after his 3000th hit so he can use the “Mr. 3000” moniker as a marketing device. Playing for the Milwaukee Brewers, Ross is a fan favorite. His former teammates, however, view him as selfish because he retired during the middle of a playoff race. When the Brewers retire Ross’s number, former teammates Robin Yount and Paul Molitor opt to not attend the ceremony.

The Baseball Hall of Fame realizes that statisticians double counted three hits, thereby leaving Ross with 2997 hits. So, to maintain his marketing power as “Mr. 3000,” Ross returns to the Brewers. After getting two hits, Ross has a chance to achieve the gloried 3000 number for a “second time,” but lays down a sacrifice bunt so the Brewers can get a victory.

IMDB.com points out some continuity flaws, including Ross stating that he played a game against the Houston Astros. During the time referenced, inter-league play did not exist during the regular season. There is no evidence to suggest that Ross meant to qualify the game as occurring during spring training. Also, when Ross achieved what was thought to be his 3000th hit, he did it in 1995 at Miller Park. He might have used a time machine because Miller Park opened in 2001.

Though filmmakers take creative license to tighten a storyline, dramatize a moment, or enhance a character, their films are no less appealing for baseball fans. Whether it’s Billy Chapel pitching a perfect game, Gary Cooper embodying the spirit of Lou Gehrig, or Brad Pitt showing Billy Beane defying baseball’s entrenched *modus operandi*, baseball films show all sides of a sport that has moments of drama and comedy, pathos and joy, and milestones and surprises. ■

Notes

1. Carl T. Rowan with Jackie Robinson, *Wait Till Next Year: The Life Story of Jackie Robinson* (New York: Random House, 1960), 183.
2. www.baseball-almanac.com/teamstats/schedule.php?y=1947&t=SLN.
3. Richard “Pete” Peterson, “The Next Page: Fritz Ostermueller, beamed by Hollywood,” www.post-gazette.com/opinion/Op-Ed/2014/08/03/The-Next-Page-Beamed-by-Hollywood-by-Richard-Pete-Peterson-Fritz-Ostermueller-Pirates-pitcher-unfairly-cast-as-a-racist-in-the-movie-42/stories/201408030088, August 3, 2014.
4. Bob Ryan, “Hollywood committed some errors in ‘42,’” www.bostonglobe.com/sports/2013/05/11/hollywood-errors-aside-tells-important-story/U4Ze90TmGH0X9v8SNDYel/story.html, May 12, 2013.
5. Memorandum of Conversation Between Mr. Rickey and Mr. Sukeforth, Monday, January 16, 1950, Arthur Mann Papers, Subject File, Memorandum of Conversation Between Branch Rickey and Mr. Sukeforth, 1950 Jan. 16, Library of Congress.
6. Jeff Jacobs, “For Cerv, ‘44 Was The Real Drama,” http://articles.courant.com/2001-07-22/sports/0107221977_1_roger-maris-mickey-mantle-yankee-stadium, July 22, 2001.
7. Wayne Stewart, *Babe Ruth* (Westport, Connecticut: Greenwood Publishing Group, 2006), 150.
8. *Major League*, Written by David S. Ward, Directed by David S. Ward, Morgan Creek Productions / Mirage Enterprises, 1989.
9. *Major League II*, Written by R.J. Stewart, Story by R.J. Stewart, Tom S. Parker & Jim Jennewein, Based on characters created by David S. Ward, Warner Brothers / Morgan Creek Productions, 1994.
10. *The Pride of the Yankees*, Written by Jo Swerling and Herman J. Mankiewicz, Original Story by Paul Gallico, Prologue by Damon Runyon, Directed by Sam Wood, The Samuel Goldwyn Company, 1939.
11. Full text of Lou Gehrig’s farewell speech, www.si.com/mlb/2009/07/04/gehrig-text.
12. Ibid.
13. “Baseball Leaders Won’t Let White Sox Return to the Game,” *The New York Times*, August 4, 1921.
14. *Eight Men Out*, Written by John Sayles, Based on the book *Eight Men Out* by Eliot Asinof, Directed by John Sayles, Orion Pictures, 1988.
15. *For Love of the Game*, Written by Dana Stevens, Based on the book by Michael Shaara, Directed by Sam Raimi, Universal Pictures, 1999.

Remembering the 1954 Waco Pirates and the Mejias Streak

Sam Zygner

On the morning of May 11, 1953, the fair citizens of Waco, Texas woke up to a muggy day. Many prepared themselves for the beginning of the work week by downing their daily cup of coffee and reading the latest edition of the *Waco Tribune-Herald*. Sprawled across the front page were reports of intense tornadoes in Minnesota, and the possibility of strong winds and rain in their own area. Native American Indian legends, attributed to the local Huaco tribe, prophesied that the bend in the Brazos River where Waco resided would never be touched by a twister, and so few, if any, Wacoans showed concern about such calamities.¹

Near the center of town stood Katy Park, home of the Waco Pirates, a Class-B affiliate of the Pittsburgh Pirates. General manager and team skipper Buster Chatham and business manager Jack Berger Jr. arrived at their offices on Eighth Street and Webster to prepare for that night's Big State League game against the Greenville Majors. Directly opposite the ballpark's front entrance rested a diesel locomotive that had long been a source of irritation to Chatham due to its proximity.²

As the day wore on, and the skies grew increasingly foreboding, thoughts of canceling the game grew in the minds of the Pirates brain trust. At 4:10 PM, southwest of Waco near the town of Lorena, an unexpected and terrible F-5 tornado, approximately one-third of a mile wide, touched down and began to cut a north-northeast path. By 4:25 the skies above Waco were so dark residents reported it was like night. Baseball-sized hail and steady rains began to pelt the downtown area. By 4:37 the funnel cloud was on course for the center of town, wreaking havoc as it passed through the business district, toppling buildings and tossing vehicles around like Tonka toys.

Inside Katy Park, Chatham and Berger realized the gravity of their situation and ran for their lives, taking cover under the very same train that had been a thorn in the side of Chatham. The locomotive would ultimately shield them both from the devilish whirlwind. Their beloved ballpark would not share the same fate.

In the wake of the terrible devastation, 114 were

dead, 597 injured, and the monetary damages topped \$41 million. Many of the survivors were buried under collapsed structures and waited up to 14 hours to be rescued. It was the deadliest twister in Texas since 1900 and one of the worst in US history. Among the casualties was Katy Park. All that remained of the almost 50-year-old ball yard was twisted metal and the splintered wood from the grandstands. Chatham, having played for a couple of bad Boston Braves squads in 1930 and 1931, was no stranger to adversity.³ But for all intents and purposes professional baseball in Waco was finished for the 1953 season.^{4,5}

RECONSTRUCTION AND REBIRTH

Though the leveled downtown area resembled a war zone, Waco began the reconstruction process almost immediately. Although homeless, team owner A.H. Kirksey, who purchased the Katy Park in 1944 from O.B. Perot, announced he would build a new concrete and steel grandstand in anticipation of the Pirates returning for the 1954 season.^{6,7} In the meantime the Pirates would play out the rest of the 1953 schedule in Longview, Texas.⁸ On June 20, following a conversation with Pittsburgh Pirates general manager Branch Rickey, Waco team president Jack Kultgen announced that the parent club would sign a three-year agreement to maintain their lease with Waco. On August 5 the deal was consummated when a three-year lease was signed guaranteeing the Pirates would return to the new Katy Park following its construction.⁹ For a city suffering such trauma, the news gave Wacoans something to cheer about.

As the 1954 season dawned, Chatham focused his attentions on running the club as a full-time general manager. One of the first orders of business was addressed when 31-year old Jack Paepke took over the reins as manager.¹⁰ Paepke broke into organized baseball with the Brooklyn Dodgers in 1941 at Class-C Santa Barbara of the California League and thereafter quickly rose up the ladder, reaching as high as Double-A Montreal (1946), and Triple-A St. Paul (1947-48) and Hollywood (1949-51). Paepke's managerial career

Front Row (L-R): T.R. Taylor, Roberto Sanchez, Larry LaSalle, George Matile, Ron Sheetz, Ron Boone, Jack Falls, Don Kildoo.

Back Row (L-R): Bill Phillips, Fats Hale (trainer), Oscar Rodriguez, Jim Monohan, Myron Hoffman, Ramon Mejias, Jack Paepke (manager), Rex Babcock, Ernie Johnson, Buster Chatham.



COURTESY OF GEORGE MATILE

got off to a rousing start in 1953 with the Brunswick Pirates of the Class-D Georgia-Florida League, where he served as player-manager; as he would in Waco. He had led Brunswick to a second place finish and then won the league playoffs.¹¹ The Pirates officials were confident he would work the same magic in Waco.

On Sunday, April 4, the Waco Pirates christened the new Katy Park with a preseason win over their sister affiliate, the New Orleans Pelicans, 14–3.¹² An enthusiastic crowd of 1,200 surveyed their new digs and were rewarded with a taste of things to come. Fans were greeted with several new amenities in their updated ballpark including an attractive front brick and concrete façade, new ramps separating the box seats from the grandstand seats, stainless steel and glassed-in concession stand countertops, sparkling new metal seats, and the league’s best lighting system.¹³ Stars of the evening for the hometown club were catcher Bill Phillips, who slammed a home run and drove in three runs, and third baseman George Matile who went 2-for-5, plating a couple runs.¹⁴

There was good reason for optimism. The displaced Pirates finished 1953 with a respectable 77–68 record, in fourth place—quite an improvement from the 1952 team that went down as the worst in BSL history. Under manager Ted Gullic they had tallied a 29–118 record, 56 games out of first place.¹⁵ According to the Associated Press, “Waco, a farm club of Pittsburgh and in the best position to meet the youth challenge, is generally being favored to win the pennant this campaign.”¹⁶ Indeed, the roster featured new faces, including a bevy of young pitchers who would

make significant marks that season. Tops among the group out of camp were right-hander Myron “Dick” Hoffman (15–11, 2.64) at Hutchinson of the Western Association (C), left-hander Don Kildoo (9–5, 2.25) at Brunswick (D), lefty Roger Sawyer (22–5, 1.99) at Hutchinson, and right-sider Ron Sheetz (12–5, 3.89) at Bristol in the Appalachian League (D).¹⁷

Besides catcher Paepke, two Cuban-born position players drew praise from local scribes: outfielder Ramon Mejias (117 G, 8 HR, 42 SB, .325), who would later play in the major leagues as Roman Mejias, and slick-fielding shortstop Roberto Sanchez (104 G, 4 HR, .235), both coming from Batavia of the Pennsylvania-Ontario-New York League (D).¹⁸

Mejias in particular intrigued the parent Pirates. Born in Central Manuelita on August 9, 1930, he progressed to his third year of high school before going to work at his father’s side at 15 years old. Full of natural ability, he excelled in the Pedro Betancourt Amateur Baseball League in Cuba, and was later signed by Hall of Famer George Sisler who was scouting talent in the area. Mejias showed the propensity for hitting for average and power, had good speed on the basepaths, and played his outfield position ably, all tools which would serve him well on his climb to the big leagues.¹⁹

Both Mejias and Sanchez would have a significant impact on the team’s success, but Mejias’s accomplishment would be far-reaching. He would achieve a feat that few would ever approach and his deed would ultimately go down as one of the greatest in the annals of minor league baseball history.

A MAGICAL SEASON AND THE STREAK

Since its inception in 1947 the Big State League had gained the reputation as a hitters' league. High batting averages and homer totals were not uncommon. Frank Saucier of the Wichita Falls Spudders led the league in 1949 with a .446 average and Buck Frierson slugged 58 taters for the 1947 Sherman-Denison Twins. The league was also famous for ex-major leaguers hanging on, many as player-managers. The 1954 season was no exception with the likes of 49-year old Earl Caldwell, Lon Goldstein (36), Sam Harshaney (44) George Hausmann (38), Al LaMacchia (32), and Fred Martin (39).²⁰

On April 13 the Pirates opened their Big State League slate against the Corpus Christi Clippers at Schepps Palm Field in front of 3,567 enthusiastic paying customers.²¹ The park was known for its rock-hard playing surface. The irregularly landscaped infield made every ground ball an adventure for the infielders and it lived up to its reputation. Many of the new faces on the Pirates received a baptism by fire, committing a total of seven errors, led by first baseman Sam Cooper who booted a couple during the 12-10 loss.²²

On April 16, the Pirates returned to the new Katy Park and an estimated crowd of 2,500 rabid fans greeted them with ample cheers. It had been almost a year since the team had been forced to relocate to Longview and the locals were happy to have their home team back. The affable Jack Falls hit the first home run in the rebuilt park and led the Waco attack, driving in four runs. Ramon Salgado—in his second season with the club—and newcomer Ron Sheetz combined for the 7-0 shutout victory over the Harlingen Capitols.²³

The "Baby Bucs" started the season slowly, and after experiencing two rainouts in Corpus Christi, dropped four of their next seven games, including two losses against the Temple Eagles, a team who would finish the season with the BSL's worst record. The poor early season play dropped the Pirates to 3-5 and into seventh place. Paepke regularly tinkered with his lineups and juggled the batting order, trying to find the right combination. He also incorporated a rotating system of four outfielders—Falls, Mejias, Oscar Rodriguez, and Raymundo Zonta—looking for whoever carried the most productive stick.

From April 24 through 28 the Pirates ran off their first five-game win streak of the season including back-to-back shutouts against the Tyler Tigers. Roger Sawyer earned his second win of the year with a 4-0 victory. Ron Sheetz followed by coasting in a 10-0 blanking, aided by a Falls five-RBI explosion.

The Pirates began picking up steam in May and kept pace with Tyler, closing within percentage points of first

place. Although the offense took a blow when Paepke broke his thumb in a May 6, 7-1 win against Bryan, Oscar Rodriguez moved from the outfield to take his place until a suitable replacement arrived.²⁴ Matile recalled, "He broke it from a foul ball off the bat. It came back and hit the top of his finger and I was playing third base and I went down to see what was going on. And that thumb bone was sticking out the thumb. He really broke it bad. And some guy was hollering, 'Pull on it.'... Jack was, 'No you'll pull it off.'"²⁵

Several moves trimmed the Pirates roster down to 18 men, revamped the pitching staff, and bolstered an already strong club. Three pitchers were optioned early in May: Tom Smith to Hutchinson (C), Peter Furibondo and Art Burkle to Billings (C).^{26,27} In addition, pitchers Jess Leach and Robert Swanson were reassigned on May 17, the former to St. Jean of the Provincial League and the latter to Hutchinson (C). In their stead Waco received Pete Nicolis from New Orleans (AA), Fred Waters (a late arrival due to nursing a sore arm), and Al Grunwald from Toronto (AAA) of the International League.²⁸ The Pirates also reacquired Bill Phillips from New Orleans to handle catching duties and fill the void left by Paepke. Grunwald, a first baseman by trade, was the most interesting case. The parent Pirates had sent him to the lower minors to begin his conversion into a pitcher.²⁹ Paepke would continue to utilize Grunwald's potent bat between assignments on the mound.

Paepke also began to cement his batting order. After hitting eighth, "pepper pot" shortstop Sanchez was moved into the leadoff spot, where he would remain through the end of the season, and Mejias shook off his early season doldrums and was placed in the middle of the order. Both moves proved fortuitous and were a major factor in fueling the team's future success.

On June 5, behind Don Kildoo's five-hit shutout, the Pirates (33-18) upended Bryan, 3-0, and took first place to stay. It was Kildoo's fourth blanking of the season; the defense turned four double plays.³⁰ Although Mejias went 0-for-4 he was about to embark on a historic journey.

THE STREAK

On June 6, a sparse crowd of 603 gathered at the Galveston ballpark to watch what seemed like another nondescript contest. One would be hard-pressed to find anyone who remembers attending the game. Mejias's record-setting trek began innocently, with a single and triple during the 10-9 slugfest win. Mejias was not the evening's star. Instead it was his two teammates, Falls and Grunwald, who were the hitting heroes with three base knocks apiece.³¹

But Mejias built his streak. From June 6 through 26 he went on a tear, batting at a .488 (39-for-80) clip. Mejias missed one game on June 23 after spending the morning in the dentist's chair.³² The Pirates won 16 of the 21 games, improving their record to 49–23, three games ahead of Tyler. Interestingly, Mejias had a few close calls, gathering single base hits in 8 of the 20 contests.

In the June 27 edition of the *Waco Tribune-Herald*, sportswriter Dave Campbell took notice of the streak and Mejias's effect on the "Baby Bucs" fortunes. In his column, *On Second Thought*, he noted, "Three weeks ago long-striding Ramon Mejias was hitting a spasmodic .237 and the Waco Pirates were struggling to stay out of fourth place in the Big State League. Today Mejias is hitting an explosive .331 and the Pirates are leading the pack with room to spare." He added, "Rarely in Waco Pirates history has a player improved so much in so short a time."³³

The Pirates made a few moves to solidify their batting order around Mejias. Regular first baseman Sam Cooper was released in mid-June (only to be later signed by Austin.)³⁴ Jim Monahan, who had been with Waco in 1952 (.320, 13 HR), joined the club from New Orleans (AA), and Paepke returned to action on June 19, spelling a weary Bill Phillips.^{35,36}

Mejias began to receive national attention for his consecutive game hitting streak in July. *The Sporting News* first noted the streak at the 37-game mark in their July 21 issue. After missing a July 13 match against Bryan due to a viral infection, Mejias returned the next night and legged out two infield hits to help Waco get past the Indians, 8–3.³⁷

With Mejias's torrid batting and the league's best pitching, Waco was nearly unbeatable in July, going 27–5. On July 31, Waco fell to Austin, 9–4, but Mejias laced a single and a double, extending his hitting streak to 54 games. Mejias, who was smiling and amicable but spoke almost no English, was asked about the streak. Through an interpreter, his teammate Oscar Rodriguez, Mejias said, "No, I'm not too nervous. Every game is just another game. I'd like to hit every time I go up. But I can't do that. I'm trying to hit in every game the rest of the season." Although the language barrier was sometimes an obstacle to Mejias, sportswriter Dave Campbell believed the lack of communication served as a shield to divert pressure. As Mejias approached Joe Wilhoit's record of 69 straight games with Wichita of the Western Association (A) in 1919, and Joe DiMaggio's runner-up mark of 61 with the San Francisco Seals (AA) of the Pacific Coast League in 1933, he appeared to be handling all the

attention well. By the conclusion of the month, the Pirates (79–29) had pulled 12½ games ahead of their closest challenger, Tyler (67–42).^{38,39}

August 1 found the Pirates in the second game of a three-game set with Austin. Facing off against left-hander Roger May, Mejias wasted no time and extended his hitting streak to 55 games, picking up a single and double during the Pirates 6–5 victory.⁴⁰ Closing in on DiMaggio for second on the all-time minor league hit streak list, Mejias was increasingly feeling the pressure. The press reported he was then one game short of tying DiMaggio's major league record of 56 games.

Fans expressed concern the streak could be halted if Mejias were walked in each at-bat in a game, or connected on a sacrifice fly. J.G. Taylor Spink, dean of *The Sporting News*, did little to ease their trepidations by stating, "Appearance in a game, and not official times at bat, is the deciding factor."⁴¹ However, soon these concerns would matter little.

Robert McNeal, the next day's starter, was a solidly-built left-hander who had struggled all season. He did not appear to be a difficult obstacle. McNeal would finish the season 5–8 with a 4.06 ERA, but on August 3 he was up to the task.

It was the final game of a three-game set with the Pioneers in Disch Field. The 883 in attendance eagerly anticipated each at bat when Mejias approached the plate. In the second inning Mejias flied out. He came to bat again in the third and hit into a force play. In the fifth frame Mejias hit a sharp grounder to third baseman Hardie Nettles which was handled cleanly and the throw just nipped Mejias at first base. Mejias got his fourth opportunity in the eighth inning, facing new pitcher Richard Roberson, but for the second time on the evening Mejias hit into a force play. There was a slim chance to bat again going into the ninth inning with the Pirates leading, 4–2. If his teammates were able to string something together, Mejias would be the seventh batter up. With two runners on and two outs, Falls stepped to the plate in hopes of continuing the inning. Mejias crouched nervously in the on-deck circle, but luck wasn't on his side this time. Falls grounded into a force play at second base. Austin failed to score in the bottom of the ninth inning and the streak was over at 55.⁴²

A consecutive streak of any sort involves a great deal of ability and a measure of luck. Invariably, bad pitchers have good stuff some nights and stop the best batsmen, while the most skilled hitters make good contact yet make an out. Nevertheless, it takes mental toughness and skill to accomplish what Mejias achieved and his statistics were impressive. During his

amazing skein, Mejias (96-for-229) batted .419, with 19 doubles, 5 triples, and 7 home runs, while driving in 67 runs and scoring 56 times. Of the 55 games he took part in, Mejias only once had four hits. (In nine games he had three hits, while 20 times he notched two, and 25 times only one.) Waco won 45 of the 55 games in which he appeared, including win streaks of 8, 12, and 13. Some credit goes to his position batting fourth behind Falls, who served as protection in the batting order due to his fecundity with the bat. During the aforementioned streak, Falls—who appeared in 46 games—batted .380 (71-for-187) and slugged 6 homers while driving in 42 runs.⁴³

FINISHING THE SEASON STRONG

The Pirates kept up their torrid pace as they approached August. The success of the club had obviously drawn the attention of Pirates general manager Branch Rickey, who visited Waco and orchestrated two moves. On July 27, 19-year old lefty Roger Sawyer (14–6, 3.03) was optioned to Class-A Williamsport of the Eastern League. On the same day, Al Grunwald's experiment to convert him to a full-time pitcher took a twist when he was re-assigned to Class-C Billings of the Pioneer League. The loss of the two hurlers not only thinned the starting rotation, but the loss of Grunwald (4–1, 4.03, and 61 games, .292, 12 HR, 44 RBIs) left a void at first base. The Pirates were assigned left-hander Larry Lasalle from Burlington-Graham of the Carolina League (B).⁴⁴ Rickey was not done wheeling and dealing.

On August 3, the day after Mejias's batting streak was halted, the Pirates offense exploded for their highest run total of the year, crushing the hapless Temple Eagles, 25–7. Mejias came back with a vengeance, tallying four hits in seven at-bats and driving in three runs. Jim Monahan led the visiting Pirates with 4 RBIs, while Hoffman hardly broke a sweat in the complete game win.

Despite a thin roster, the Pirates kept winning. Paepke continued to be creative, using himself as an occasional pitcher. Matile was moved to first base. Falls was used a few times as a backstop and utility man Ronnie Boone saw his playing time increase, filling a hole wherever needed.

A great example of the attitude of the Pirates was the August 8 matchup that pitted Waco against Tyler in Katy Park. The "Baby Bucs" had fallen behind 12–7. Going into the bottom of the ninth inning at 10:30 PM, the evening's crowd—including a disgusted Paepke who retired to the showers—began to file out of the ballpark. The situation was so bleak that infielder Matile had been called on to perform mop-up duties.

However, the Pirates rallied and with two outs, 35-year-old minor league veteran Joe Phipps found himself on the mound trying to do his best Houdini act and escape from a jam. With Rex Babcock in scoring position and Sanchez leading off first, Phipps hung his first pitch to Jack Falls. Falls, who at this point of the season led the league with a .364 average, launched the horsehide over the left field wall, giving Waco the 13–12 win. The remaining faithful in the stands went berserk.⁴⁵

George Matile vividly remembers that game to this day and shared his account of that evening:

Well, I hate to tell you this, but there was one game (pause). I used to throw batting practice a lot and we were playing, I think it was Tyler, Texas. And we went into the ninth inning, and we scored about seven runs and we were behind twelve to six. [scored six runs in the 9th inning after falling behind 12 to 7].

Well, Jack got so disgusted with us, he left. He went into the dugout and then took a shower. He said, "Matile." He said, "You go out and pitch the last inning." So I went out and threw the inning and got three outs. We came back and scored seven runs [six runs] and beat them. I've got a one and oh record in organized baseball (laughing heartily). And that's the only game I ever pitched—that one time."⁴⁶

On August 14, the Pirates filled their need at first base with a Waco native who had just been released by the Army, T.R. "Tex" Taylor. Taylor was called on short notice and made the long drive from his home to Galveston to start at first base that night. Taylor's return was fortuitous as he was known as a slick fielding first baseman and a decent hitter. In 1952, "Tex" had hit .303 in the Class-C Provincial League with St. John's, Quebec, and made the loop's all-star squad.⁴⁷ Taylor said, "I got home from the service and the phone was ringing. 'You gotta be in Galveston tonight. We don't have a first baseman.' That was about 250 miles."⁴⁸

The Pirates did receive one last blow to their pitching staff when Fred Waters (12–4, 3.18) had to leave the club for more scholarly pursuits.⁴⁹ Tex Taylor remembers Waters leaving the team after his last start, a 9–2 win over Galveston that upped Waco's record to 92–37. "He left us because he had to teach school in Kansas City."⁵⁰

Waco reached the 100-win mark on August 29. A sparse crowd of 600 witnessed Monahan drive in the

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After six seasons with the Pittsburgh Pirates, Mejias returned to Texas as a member of the expansion Houston Colt .45s in 1962. He enjoyed his best season batting .286 with 24 home runs and driving in 76.

winning run in a come-from-behind win at Katy Park, edging Harlingen 9–8 in 11 innings.⁵¹ The next evening, Waco again eked out a one-run victory, 7–6. They tied the BSL record for wins in a season, matching the 1947 Texarkana Bears' mark. Fittingly, Sanchez, as he had done so frequently all year, scored the winning run on a Mejias base hit. Paepke, getting used to his new role, earned the win in relief of Sheetz.⁵²

By season's end Waco had amassed 105 wins and 42 losses. The closest competitor, Tyler (92–55), finished a distant 13 games behind. Although the Pirates did not lead the league in runs scored (939), they were a close second to Corpus Christi (998). Jack Falls (.349, 22, 113), Roman Mejias (.354, 15, 141, 23 SB), Jack Paepke (.314, 8, 48), and Roberto Sanchez (.301, 16, 130 runs, 26 SB) were the pacesetters in a balanced attack.

Pitching and fielding are the trademarks of many great teams and the "Baby Bucs" were no exception. Ron Sheetz (219 IP, 19–7, 2.67) led the team in wins, followed by Don Kildoo (183 IP, 15–4, 3.39), Dick Hoffman (212 IP, 15–7, 3.42), Roger Sawyer (181 IP, 14–6, 3.03) and Fred Waters (116 IP, 12–4, 3.18). The staff was so deep that the loss of Sawyer, Waters, and Salgado (87 IP, 7–4, 2.48) did not slow the club's momentum.

The pitching staff was aided by the best fielding in the league. The defense was solid up the middle, with Rex Babcock at second base and Roberto Sanchez at shortstop anchoring the infield. The Pirates led the league in fielding average (.968) and committed only 184 errors, while turning the second most double plays in the BSL (175).⁵³

Tex Taylor assessed his teammates when he stated, "The only thing that I can tell you is, when we ran onto the field we expected to win. That was a lot of it, you know. We expected to win." He added, "We knew we was going to win. We just didn't know how. If the other team got ten runs, we got eleven. If they got one run, we got two. It was that kind of year for us. We had better pitching than the rest of the league did. If you check out those stats on our pitchers you will see all of them had winning records."⁵⁴

THE PLAYOFFS

The Pirates opened the playoffs against a familiar enemy, the Austin Pioneers. Austin, like Waco, was a charter member of the BSL. They had finished the regular season with a 79–67 mark and were piloted by 38-year-old player-manager George Hausmann. The former New York Giants infielder showed he still had some "gas left in the tank" after batting .263, in 77 games.⁵⁵

The best-of-seven series opened in Katy Park. The Pirates got off to a good start, taking the first game. Sheetz aided his own cause in the September 8 contest by driving in a pair of runs and receiving assistance from Falls and Mejias, who each hit home runs in the 6–4 win.

The next evening, Don Kildoo held the Pioneers to five hits and earned the complete game victory, 5–2. Austin, the lowest scoring team during the regular season, continued to struggle at the plate.

Austin surprised the Pirates by winning the next two games, but Waco closed out the series, winning game five in Austin, 11–8, then finishing off the Pioneers back at Katy Field, 10–2, pounding four Austin hurlers for 17 base hits. Meanwhile, Corpus Christi, who finished the regular season in third place, easily dispatched Tyler in five games to advance to the championship.⁵⁶

The Big State League championship kicked off in Waco on September 15. Corpus Christi (87–60) featured the most potent offense in the league, led by left fielder Dean Stafford, purchased from Galveston on June 30,⁵⁷ and shortstop John "Jack" Wilkinson acquired from Temple in April.⁵⁸ Stafford, who garnered the BSL's Triple Crown, collected 212 hits as the league's leading hitter with a .362 average, 38 homers and 171 RBIs. Wilkinson was the team's table-setter having scored 151 runs during the regular season.⁵⁹ The Clippers would soon prove up to the task, testing the league-leading Pirates pitching staff.

The Clippers came out of the gate fast, grabbing the first game from Waco, 6–2. Three Corpus Christi pitchers combined to hold the Pirates to five hits,

while Stafford alone collected three singles and a triple. Thirty-six-year-old Elwood Moore—7–2 during the season—was the winning pitcher. Dick Hoffman took the loss.

Game two featured Sheetz taking on 23-game winner Jim Vitter. The Pirates touched Vitter early, tallying three runs in the second frame on doubles by Paepke and Babcock, a single by Matile, and an error. Rodriguez hit a solo home run in the third inning to extend the lead and Sheetz did the rest of work, limiting the Clippers to eight hits, one run. The Pirates had evened the series with the 4–1 win.

After a well-deserved day off for both clubs, the series transitioned to Schepps Palm Field in Corpus Christi for the next three games. Game three started out with an explosion as the Pirates scored seven runs in the top of the first inning. The Clippers clawed their way back, scoring four in the third frame and three more in the seventh, but fell short as Kildoo and Sheetz combined to stop them, 8–7.

Game four found the Clippers whipping the Pirates, 16–6. Stafford crushed two homers and drove in seven runs, putting a shock into the Waco pitchers.⁶⁰ The Clippers then followed up the next night with another beating, topping Waco 10–1. Elwood Moore—the “Pirate killer”—won for the second time in the series—his ninth straight winning decision dating back to the regular season. All of a sudden the Pirates looked in dire straits. They were in need of otherworldly intervention and it was about to come in a rather unexpected form.⁶¹

So far during the playoffs the Pirates’ pitching bore little resemblance to the group that had dominated the BSL all season. But this team seemed to find ways to win in creative ways. In game six the pitching staff was bone-tired, but the overworked Pirates did have one secret weapon: Paepke. The players pleaded for Paepke to take the mound for the game, and although he initially resisted their pleas, he eventually agreed. “Tex” Taylor remembers the events coming up to the do-or-die contest.

Well, the sixth game was the standout game... We didn’t have any pitchers. The other guys on the staff didn’t do much, you know. They couldn’t trust them for a big ballgame. But we talked Jack into pitching... He said, “they’ll crucify me if I lose.” I said, “Jack we’re not going to lose if you pitch.” They all talked to him and he was tired. He’d been catching and driving 305 miles back at night, then the next morning. He had to pitch that night. And he did pitch and he stuck it up their butt.”⁶²

Armed with his dazzling forkball, Paepke had the Clippers waving ineffectually at his offerings. He shut down Corpus Christi to even the series at three apiece. The only base knock was a pinch-hit single by Kermit “Luke” Luckenbach. The big blow of the evening came from the smallest guy on the field when Roberto Sanchez clubbed a grand slam in the eighth inning. The final score showed Waco 8, Visitors 0. The stage was set for a dramatic game seven.

In front of the largest crowd of the season—3,316—Don Kildoo got the call to face the Clippers’ big right-hander, Bill Tosheff. Both clubs traded zeroes until the fourth when Babcock and Taylor hit back-to-back doubles, putting the Pirates up, 1–0. Corpus Christi tied the game in the top of the eighth on a solo home run by Stafford. The Pirates answered in the bottom of the same inning when, with Boone and Falls on the bags, Paepke doubled, plating both. The Pirates had prevailed, 3–1. The 19-year-old Kildoo was masterful and pitched like a veteran, scattering three hits, walking four, striking out nine. The jubilant “Baby Bucs” rushed the field and the celebration was on. The Waco Pirates had completed a magic season and were the 1954 Big State League Champions.^{63,64}

CONCLUSION

In 2001, as part of minor league baseball’s one hundredth anniversary celebration, Bill Weiss and Marshall Wright researched the 100 greatest minor league teams of all time. Such legendary teams as the 1934 Los Angeles Angels, 1921 Baltimore Orioles, and 1937 Newark Bears topped the list. Coming in at No. 25 were Paepke’s Waco Pirates.⁶⁵

Paepke’s leadership and adeptness at utilizing his players were part of the team’s success. “He was a good leader,” said “Tex” Taylor. “We were just a bunch of young kids and this was an old man’s league, and a hitters league. Some of them were salty, but he [Paepke] turned them around right fast. He just about bit your head off, but he was a great guy Paepke was.”⁶⁶ George Matile also remembers that his skipper had the adeptness to relate to his players, “Yeah, Jack was a good guy. Jack Paepke was a good person and he was fun to play with. He would joke with you, and tell you a lot of things, and help you out.”⁶⁷

The Waco club was also a close-knit group. Although they were the youngest team in the league, averaging 23 years of age, they played cohesively. “But it was just a great bunch of guys. You never heard a cross word from any of them you know... Normally on a ball club there is a lot of squawking you know, but that year they didn’t have it. They were a great bunch

of guys and there will never be a team like that again,” remembered Taylor.

There was probably not a player on the Pirates who better typified Taylor’s description of his teammates than Jack Falls. Always sporting a smile, and friendly with his teammates, he led the club by example both on and off the field. Danny Foyet played with Falls in Gastonia, South Carolina in 1960.⁶⁸ He described his teammate and coach: “He was like a big brother to us. He would do anything to help.” Foyet remembered that when his spikes wore out early in the season, and he didn’t have money to buy a new pair, Falls not only gave Foyet a pair of his own spikes but also his personal glove.⁶⁹ Although he did not receive the national attention that his teammate Mejias did, Falls’s 1954 season ranks up there with his counterpart.

Propelled by the success of his consecutive game hitting streak, Ramon Mejias (soon to be Roman) made the jump to the big leagues the next season in 1955. Mejias was even named the Pittsburgh Pirates opening day starting right fielder in front of Roberto Clemente, although he would not hold his starting position long.⁷⁰ Always well-liked by his teammates, Mejias went on to a nine-year major league career, including stops with Houston and Boston. His best season came in 1962 with the Colt .45s for whom he played in 146 games, hit .286, stroked 24 home runs, and drove in 76 runs.

Mejias was one of a trio of players from the “Baby Bucs” who made the climb to the majors. Both Al Grunwald and Freddie Waters also made the leap. The Grunwald experiment worked: he made it to the big leagues as a pitcher in 1955 although his stay was brief. Grunwald appeared in three games for Pittsburgh, hurling 7½ innings with a 4.70 ERA. Grunwald returned to the minors, but came back in 1959 with the Kansas City Athletics for six more games. Fred Waters appeared in two games in 1955 and returned in 1956 to the Bucs, appearing in 23 games with an impressive 2.82 ERA.

Jack Falls, despite his extraordinary season, did not see his major league dream come to fruition. Falls had a brief look at Class-AA New Orleans in 1956 before being assigned to Class-A Lincoln, where he hit .262 in 131 games. He played through various towns in the minor leagues, including a stop in his hometown Gastonia in 1959 and 1960. He finally hung up his spikes in 1961.⁷¹

Sixty years have passed since the glorious season championship of 1954. The Pirates played out their agreement with Waco through 1956. It would prove to be the last year that the city of Waco would host

Final Standings*

Waco Pirates	105–42	—
Tyler Tigers	92–55	13
Corpus Christi Clipper	87–60	18
Austin Pionee	79–67	25.5
Galveston White Caps	73–73	31.5
Bryan/Del Rio Indian	53–93	51.5
Harlingen Capita	53–94	52
Temple Eagles	44–102	60.5

(Bryan moved to Del Rio on July 28.)

*Final Standings from Baseball-Reference.com.

professional baseball. In 1957 the Big State League died a victim of declining interest in minor league baseball. However, the feats of the 1954 Waco Pirates have not diminished. To this day locals recall that magical season and the Mejias batting streak. Paepke said it best when he wrote, “It was a great year with a bunch of young players. We all wanted to win, so we did...I was really proud of all my players.”⁷² ■

Acknowledgments

Special thanks to Danny Foyet, George Matile, Jack Paepke and T.R. “Tex” Taylor for contributions to this article including sharing their personal experiences. Also, I am appreciative to the Falls family (Jeff and Jim; Jack’s sons) for sharing information on their dad’s career and photos from the glorious 1954 season. And last, but not least, I am grateful to my wife Barbra, who supports me in my love of baseball.

Notes

1. John Young, “The ‘53 tornado: When Indian legend proved a curse,” wacohistoryproject.org.
2. Mark Presswood, “The Minor Leagues in Texas,” www.texasalmanac.com.
3. Baseball-Reference.com.
4. Srh.noaa.gov, “Remembering the May 11, 1953 Waco Tornado.”
5. Life.time.com/history, “Waco Tornado 1953: Photos From The Aftermath Of A Deadly Texas Twister.”
6. Earl Golding, “Baseball Future Bright—Kirksey,” *Waco News-Tribune*, April 16, 1954, 4.
7. Oscar Larnce, “Storm Orphaned Team Sought by Two Other Cities,” *The Sporting News*, May 20, 1953, 15.
8. “Waco Club Shifted To Longview,” *The Sporting News*, June 3, 1953, 36.
9. “Pirates Sign Waco Park Lease,” *The Sporting News*, August 12, 1953, 34.
10. “Jack Paepke New Pirates Manager,” *Waco Tribune-Herald*, December 13, 1953, Sec. 2, 1.
11. Baseball-Reference.com. Chatham played shortstop and third base during his two-year major league career where he batted .263 in 129 games hitting six home runs and driving in 59 runs.
12. Baseball-Reference.com. New Orleans was a Pittsburgh Pirates Double-A affiliate in the Southern Association.
13. “New Home For The Pirates,” *Waco Tribune-Herald*, April 11, 1954, 15.
14. Dave Campbell, “Pirates Maul Pelicans, 14–3,” *Waco News-Tribune*, April 5, 1954, In Debut; Delight Waco Fans, 6.
15. Baseball-Reference.com.
16. The Associated Press, “Waco, Galveston Race Favorites,” *Waco Tribune-Herald*, April 4, 1954, 27.

17. Baseball-Reference.com.
18. "Waco Pirates Visit Corpus For Opener," *Waco News-Tribune*, April 13, 1954, 9.
19. Ron Briley, Rory Costello, Bill Nowlin, *Sweet 60: The Pittsburgh Pirates* (The Society for American Baseball Research, 2013), 145–46.
20. Baseball-Reference.com. Caldwell (Philadelphia-NL 1928, St. Louis-AL 1935–37, Chicago-AL 1945–48, Boston-AL 1948), Goldstein (Cincinnati 1943, 1946), Harshaney (St. Louis-AL 1937–40), Hausmann (New York-NL 1944–45, 1949), Al LaMacchia (St. Louis-AL 1943, 1945–46, Washington 1946), Martin (St. Louis-NL 1946, 1949–50).
21. Baseball-Reference.com. Corpus Christi an affiliate of the Milwaukee Braves.
22. "Bucs Drop Opener to Corpus, 12-10," *Waco News-Tribune*, April 14, 1954, 13.
23. Dave Campbell, "Bucs Blank Harlingen In Home Opener, 7 to 0," *Waco News-Tribune*, April 17, 1954, 12.
24. Dave Campbell, "Pirates Win 7 to 1, But Paepke Lost For Month," *Waco News-Tribune*, May 7, 1954, 15.
25. George Matile, phone interview, October 1, 2013.
26. Listed as John Burckle in Baseball-Reference.com.
27. Dave Campbell, "On Second Thought," *Waco News-Tribune*, May 6, 1954, Sec. 11, 3.
28. "Pirates Juggle Roster, Get Three New Players," *Waco News-Tribune*, May 18, 1954, 12.
29. "Grunwald Turns to Pitching," *The Sporting News*, May 26, 1954, 34.
30. "Waco Hold Lead, Clips Bryan, 3-0," *Waco Tribune-Herald*, June 6, 1954, Sec. 2, 2.
31. "Pirates Survive Galveston Rally, Score 10-9 Victory," *Waco News-Tribune*, June 7, 6.
32. Dave Campbell, "Pirates Slaughter Harlingen For Sixth Straight Victory, 16-3," *Waco News-Tribune*, June 24, 1954, 14.
33. Dave Campbell, "On Second Thought," *Waco Tribune-Herald*, June 27, 1954, Sec. 2, 2.
34. "Sam Cooper Stars In Debut," *The Sporting News*, June 30, 1954, 40. Sam was the younger brother of Mort and Walker Cooper who both starred in the major leagues.
35. George Raborn, "Indian Southpaw Tames Waco, 4-3," *Waco News-Tribune*, June 11, 10.
36. "Bucs In Top Condition To Face Corpus," *Waco News-Tribune*, June 1, 9.
37. "Mejias Hits in 37th Game; Believed Big State Record," *The Sporting News*, 42.
38. Dave Campbell, "On Second Thought," *Waco Tribune-Herald*, August 1, 1954, Sec. 2, 2.
39. Baseball-Reference.com, "Longest Hitting Streaks Minor League Baseball."
40. "Don Kildoo Hurls Waco Past Austin," *Waco News-Tribune*, August 2, 1954, 6.
41. Dave Campbell, "On Second Thought," *Waco News-Tribune*, August 3, 1954, 8.
42. "Mejias Hit Skein Stops; Waco Wins," *Waco News-Tribune*, August 3, 1954, 8.
43. Both Mejias and Falls batting statistics accumulated from daily boxscores from the *Waco News-Tribune* and *Waco Tribune-Herald*.
44. Dave Campbell, "Paepke, Mejias, Falls Lead Waco To 7-6 Win," *Waco News-Tribune*, July 26, 8.
45. Dave Campbell. "Waco Scores Sixth In Ninth To Win," *Waco News-Tribune*, August 9, 1954, 4.
46. George Matile, phone interview, October 1, 2013.
47. "Ex-Waco High Star Joins Waco Pirates," *Waco News-Tribune*, August 17, 1954, 8.
48. T.R. Taylor, phone interview, September 23, 2013.
49. George Raborn, "Waters Wins Final Game For Bucs, 9-2," *Waco News-Tribune*, August 21, 1954, 8.
50. T.R. Taylor, phone interview. September 23, 2013.
51. Dave Campbell, "Bucs Rally To Win 100th Victory, 9-8," *Waco News-Tribune*, August 30, 1954, 6.
52. Earl Golding, "Pirates Shade Harlingen, 7-6 To Tie Record," *Waco News-Tribune*, August 31, 1954, 8.
53. Baseball-Reference.com.
54. T.R. Taylor, phone interview, September 23, 2013.
55. Baseball-reference.com.
56. *The Sporting News*, "Playoffs Class B," 33.
57. "Clippers Buy Dean Stafford; Sell Schroeder," *Corpus Christi Caller-Times*, June 30, 1954, 7-B.
58. "Sims Pitches Third Victory For Clippers," *Corpus-Christi Caller-Times*, April 25, 1954, D-1. Wilkinson's first appearance in a boxscore for Corpus Christi.
59. Baseball-Reference.com.
60. "Stafford of Corpus Christi Tabs Seven RBI's In Inning," *The Sporting News*, September 29, 1954, 60.
61. *The Sporting News*, September 29, 1954, 60.
62. T.R. Taylor, phone interview, September 23, 2013.
63. "Waco Cops Playoff Title Over Clippers," *Corpus Christi Times*, September 23, 1954, 18.
64. *The Sporting News*, 60.
65. mlb.com/mlb/history/top100.
66. T.R. Taylor, phone interview, September 23, 2013.
67. George Matile, phone interview, October 1, 2013.
68. Gastonia (D) of the Western Carolina League.
69. Danny Foyet, phone interview, February 25, 2014.
70. Ron Briley, Rory Costello, Bill Nowlin, *Sweet 60: The Pittsburgh Pirates* (The Society for American Baseball Research, 2013), 146.
71. Baseball-Reference.com.
72. Jack Paepke, personal correspondence, September 28, 2013

Giving Up the Stars and Reaching for the Moon

The Rookie Debut of Wally Moon

Mark Randall

Opening Day, April 13, 1954, should have been one of the best days of Wally Moon's life. Instead, it was turning out to be one of his worst.¹ The heavy-browed, lean-jawed, 24-year-old rookie from Bay, Arkansas, was the starting center fielder for the St. Louis Cardinals. But as he came to bat for the first time in the big leagues, Moon was greeted by a harsh chorus of boos from the hometown fans and chants of "We want Eno! We want Eno!" from "seemingly every corner of the park."² Moon had to fill the shoes of longtime Cardinals great Enos Slaughter, who had been traded to the Yankees two days before the start of the season. The trade shocked the city, and disgruntled fans let the Cardinals management and the newcomer know they weren't too happy. As a young boy growing up in Arkansas, Moon had rooted for the Cardinals and signed with the team in 1950 because of his admiration of Slaughter. Now, he was replacing his favorite player. "I guess there would have been catcalls at anybody who was to take the place of an old favorite like Enos," Moon said.³

Moon wasn't even on the roster when the Cardinals started spring training.⁴ The trade put "team manager Eddie Stanky, who had advocated the trade," on the spot, but the spotlight glared with even harsher intensity on Moon.⁵ "All of a sudden they told me that I was going to be on the St. Louis Cardinals roster and I'm going to open in center field Tuesday," Moon recalled. "This was on a Sunday. I'm shocked, but I'm excited."⁶ Moon was given a cool reception the next day during the team parade through downtown St. Louis. All along the parade route, fans carried signs expressing their disapproval of the trade and shouted at the rookie. Riding in an open convertible, Moon couldn't help but hear the calls directed his way. "Everyone along that parade route was yelling 'We want Slaughter! We want Slaughter,'" Moon recalled. "There was a huge picture on the front page of the newspapers with Slaughter weeping in a towel. He had been there seventeen years and was an icon and a great player. I loved him as a young man listening to him on the radio. So to replace a legend like that, there

was a lot of controversy, a lot of upset people. So I made that parade route through downtown and was not well received."⁷

Moon, however, showed the fans that he belonged in the lineup. The rookie outfielder stepped into Slaughter's shoes, smashing a home run in his first at bat as a major leaguer. After outfielder Rip Repulski flied out to first for the first out of the inning, Moon connected on a 2-0 pitch from the Chicago Cubs' Paul Minner. The ball went over the roof of the right-field pavilion in Sportsman's Park, onto Grand Avenue. Only one other Cardinal had debuted with a home run, left-handed hitter Eddie Morgan, who hit one off Lon Warneke of the Cubs in the 1936 home opener. By the time Moon got to second base, the boos had changed to roars of applause. "It was a huge, magnificent home run for me," Moon wrote in his 2011 autobiography, *Moon Shots*. "And it took a lot of pressure off."⁸ Moon became a hitting sensation from that point on and helped take away some of the sting of losing Slaughter. Moon batted .304 on the season (12th best in the league), banged out 193 hits, clubbed 12 home runs, scored 106 runs (sixth best in the league), led the Cardinals with 18 stolen bases, and was named NL Rookie of the Year. Slaughter, by contrast, started in only 22 games in the outfield and batted only .248 in a limited role for the New York Yankees. He missed over a month of the season after crashing into the outfield wall at Yankee Stadium, fracturing his wrist in three places and was traded the next season to the Kansas City Athletics. (The "Old War Horse" then rebounded to hit .322 for Kansas City and was reacquired by the Yankees for the waiver price on August 25, 1956. Although he was used sparingly over the next four seasons, Slaughter would go on to help the Yankees to win three straight pennants and two World Series between 1956 and 1958.)

Wally Moon almost didn't get his chance. By the time he arrived in the major leagues in 1954, Moon had already earned both a bachelor's and a master's degree from Texas A&M. After four years in the minors and with a newborn child at home, Moon had determined

that if he did not make the Cardinals roster in 1954, he would give up baseball and go back to teaching. He had thrived in 1953 under manager Harry Walker with the Cardinals' Triple-A team in Rochester. Walker was a former National League batting champion whose ten-year career in the majors was spent mostly in the Cardinals outfield, alongside Slaughter and Stan Musial. Walker was being groomed as a big league manager. Moon matured offensively as a Red Wing, batting .307 with 12 home runs and 61 runs batted in. "The baseball gods were smiling on me when they brought Harry Walker into my life," Moon recalled.⁹

Impressed by his performance at Rochester, the Cardinals suggested he continue to hone his skills in winter ball. Excited about the possibility, Moon, with his wife and infant son in tow, headed to Maracaibo where he was assigned to Pastora de Occidente in the Venezuela League. The team went on to win the Venezuela League championship and would represent the country in the Caribbean World Series in San Juan, Puerto Rico. The Venezuela club wired the Cardinals to ask if Moon could remain and got permission for him to stay with the team for the World Series. Moon was scheduled to report to the Cardinals minor league camp in DeLand and because of the tournament would be late reporting to spring camp. When the Caribbean World Series was over, Moon wired the Cardinals for instructions. General Manager Dick Meyer gave Moon the option of reporting to either the club's minor league base in DeLand or St. Petersburg, where the big league club was working out, whichever worked out best for him.¹⁰ Moon talked it over with his wife and reached a critical decision. "Just two months in Rochester and the winter in Venezuela made me realize that I was no longer willing to keep dragging my wife and child with me in pursuit of my baseball dream," Moon wrote in his autobiography. "I believed I had the talent and I wanted the big club to take a look at me and make a decision. I needed an answer one way or the other."¹¹ Moon took Dick Meyer at his word and decided to head to the Cardinals' big league camp in St. Petersburg.

The Cardinals held spring training in two stages in those days. They had an early camp about 20 miles from Daytona Beach at DeLand, Florida, for rookies and players they wanted to look at. Then, after two

A gutsy decision on the part of Wally Moon helped him land a job in the major leagues and led to the trade of Enos Slaughter.



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weeks, the team moved to St. Petersburg to start regular spring training. Because of the Caribbean World Series, Moon recalled that "there were only a few days left in the rookie camp and I knew that manager Eddie Stanky already had left camp and wouldn't even see me."¹² After checking his wife in at the Cardinals headquarters at the Bainbridge Hotel in St. Pete, Moon walked the half dozen blocks to Al Lang Field where the team worked out and introduced himself to the manager. Stanky was angry. "You were supposed to report to Daytona," Stanky said. "You weren't supposed to report here." Moon explained the choice he had been given and told Stanky, "Yeah, but you're here. They've seen me play. They know what I can do. I want you to see me." Stanky growled a bit, but liked his spirit and told Moon that he could hang around and work out with the Cardinals until they straightened the situation out.¹³

It was a daring move for the young rookie. "I showed up in St. Petersburg and said to the Cardinals, 'You promised me a shot. I want to find out if I can play in the big leagues. And I'm not going to sign a minor league contract and go back to Triple-A baseball,'" Moon recalled in a 2011 radio interview.¹⁴ Stanky asked if Moon had his equipment and said Moon might as well work out since he was there. Two left-handed pitchers, Al Brazle and Royce Lint, were throwing batting practice that day. Moon filled the park with line drives. "I found my groove quickly and I sent frozen ropes to right, center, and left fields," Moon recalled.¹⁵ Stanky called Moon out of the outfield early during that first morning's workout and sent him to get outfitted with a spring uniform with the number 20. "He made an impression on all concerned," Stanky said.¹⁶

Moon's timing was perfect; the team was looking to unload its aging star in Slaughter.¹⁷ The Cardinals had finished in a tie for third place in 1953—22 games behind the Dodgers—and new club president "Gussie" Busch wanted to build a winner. Anheuser-Busch had bought the team from Fred Saigh, who had become an embarrassment to baseball after he had run afoul of the Internal Revenue Service during the 1952 season. Saigh was hit with a fine and given a fifteen-month jail sentence.¹⁸ Busch set out on a long-range program of building the team from the ground up. "The Cardinals are trying to build a young ball club," Busch said.¹⁹ Stanky knew the Cardinals had to be reshaped and that Slaughter had to be replaced if the team was going to be competitive. But until his replacement was found, the club had hoped he had one more good season left in him.²⁰

Slaughter had no idea his days with the Cardinals were about to end. On December 28, Busch signed a contract with Slaughter for the 1954 season. "After the signing he said to me, 'You're a credit to the game, and you'll always be with me,'" Slaughter wrote in his autobiography.²¹ But going into spring training, Slaughter was about to turn thirty-eight and the "old man" talk was already starting. He had been synonymous with the Cardinals for sixteen years in a career marked by brilliant fielding, clutch hitting, and a reputation for hustle. Slaughter, whose lifetime batting average with St. Louis was .305, was the last member of the colorful Gas House Gang. He had played against the Yankees in the 1942 World Series and also in 1946 when he hit .320 in the seven games against the Red Sox and scored that Series' most storied run. He had played well in 1953, appearing in 143 games and hitting .291 while driving in 89 runs. Slaughter was excited about the Cardinals' chances against the Dodgers. Busch had not only bought and renovated Sportsman's Park, but spent more than \$300,000 in money and traded players for three minor leaguers.²² And during spring training, the club gave \$75,000 and two minor leaguers to the Yankees for 35-year-old powerhouse right-handed pitcher Vic Raschi. Slaughter saw the trade for Raschi as a big plus, "But I wasn't aware that the other shoe was about to drop."²³

Slaughter faced competition in the outfield that year in spring training from Joe Frazier, a journeyman who had played in nine games with Cleveland in 1947 and had hit .332 at Oklahoma City, and from Moon, who had hit .307 at Rochester. Slaughter was conscious of the situation, but everyone expected that he would play his usual 140 or 150 games. "Even though both of these outfield prospects displayed potential for

power, I wasn't bothered by the situation," Slaughter wrote.²⁴ He stopped at Moon's locker one day and told the young rookie, "Don't worry. You're not going to get my job."²⁵

Meanwhile, Moon drove himself hard. "I gambled on everything," Moon told *Sports Illustrated* in 1957. "If I hit a single, I'd go for two. If I had two, I'd go for three. I tried to catch everything I had the slightest chance for in the outfield. I ran every place. Boy, was I tired that spring. I'd get home after practice and I'd fall asleep on the couch. Bettye would wake me up for supper and we'd eat, and I'd fall asleep again. That's the way it went all spring."²⁶ Moon went all 45 days of spring training without a contract of any kind. The Cardinals wouldn't give him a major league contract, and he wouldn't sign a Triple-A contract. Fortunately, he was in great shape from having played winter ball and was playing well. "I know I was making an impression on Eddie Stanky and his staff," Moon reflected.²⁷ Stanky said little to Moon, but continued to insert him into the lineup on a regular basis.

Moon took it as a good sign when he earned a spot on the travel squad which was heading to Los Angeles for a weekend series against the Chicago Cubs. "I viewed my presence as a sign the team was beginning to like what it was seeing from me," Moon wrote.²⁸ As it turned out, Stanky had seen enough. "We've got at least an outside chance to win the pennant," Stanky told reporters. "So if I think Moon can help us more than another outfielder, he'll stick as one of our 25 players. In other words, I'm not going to worry about whether he'd be better off playing regularly in the minors than infrequently with us. If he can help, he'll stay."²⁹ When the team broke camp for its trek north to St. Louis, Moon was invited along for the ride, although the final regular season roster had not yet been determined. A few more cuts would have to be made. Moon still did not know whether he was destined to become a St. Louis Cardinal. Moon approached Dick Meyer about a contract but was told, "We're not ready to make a commitment yet." Asked what he should do with his wife and child, Meyer replied, "If I were you, I'd send them home to her mother."³⁰

The Cardinals played a series of exhibition games with the Chicago White Sox as both teams traveled north. Stanky mostly kept Moon on the bench, using him as a pinch runner or as a late-inning defensive substitute for Slaughter. Moon didn't know it at the time, but as it turned out, the club was "parading Slaughter on an abbreviated farewell tour during the team's excursion in cities and towns in Cardinal country."³¹ In St. Louis for the team's weekend pre-season

series with the Browns, Slaughter doubled off Bob Turley for the game-winner. It turned out to be his last hit as a Cardinal. Slaughter was not in the line-up for the Sunday game. In the eighth inning, with the Cardinals down 8-1, Stanky informed Slaughter that general manager Dick Meyer wanted to see him. As he changed into street clothes, Slaughter had no idea it would be his last time in a Cardinals uniform. He strolled up to Meyer's office "completely unprepared for the news I was about to receive."³²

Meyer gave it to him straight. "Eno, all good things must come to an end," Meyer said. "We've traded you to the New York Yankees."³³ Slaughter was shocked. He had always thought he would retire in a Cardinals uniform. Tears gushed from his eyes "like water from a broken pipe."³⁴

"It cut my heart out," Slaughter recalled. "I cried like a baby. I couldn't help it. I'd been a Cardinal since 1935, and I don't think anybody who's ever worn a Cardinal uniform was ever more loyal to it than I was, or put out as hard as I did, or gave as much."³⁵

Slaughter joined Meyer and Stanky for a press conference where Meyer announced that Slaughter had been traded for outfielder Bill Virdon, pitcher Mel Wright, and Emil Tellinger. The Old Warhorse was seated with his hands on his knees, nervously unfolding his handkerchief. "This is the biggest shock of my life," Slaughter sobbed. "To think that I spent nearly all of my life with this organization and then they trade me after I've given them everything I got. I didn't think it would ever happen to me. I'm not through. And I'll say this—I'll be around when a lot of the guys they got now will be gone. But you can tell 'em in New York that I'll give 'em 100 percent just as I did in the Cardinal organization."³⁶ Many baseball writers speculated that the Slaughter trade was part of the February 23 deal in which the Yankees had sold Vic Raschi to St. Louis for \$75,000, but Meyer and Stanky denied it. Meyer said the Yankees expressed an interest in Slaughter around the time of the Raschi deal but were told he was unavailable until they saw how he would perform in spring training. The deal developed quickly, he said, after the Cardinals left Memphis on their homeward-bound barnstorming trip.

Stanky said the trade had been made to make room for Moon in the outfield. The 24-year-old Moon had been impressive in spring training and Stanky felt he was ready for major league ball. He also did not believe the 38-year-old Slaughter could adapt to a reserve role. "A player like Slaughter just can't stand sitting on a bench," Stanky told the press.³⁷ Stanky also pointed out that the club had other rookie outfielders

like Joe Frazier and Tom Burgess and "if I had Enos sitting around I know I wouldn't use them."³⁸ Meyer and Busch admitted the trade was a gamble, but said they felt it was a sound organizational move because of the opportunity to give the younger Moon a chance to play. "We realize this is a difficult thing from a public relation viewpoint," Meyer said. "But we've got a continuing obligation to have a top contender. We can't buy a pennant. We have to build a cycle to develop stars. We don't think we've imperiled our chances. But we realize we are taking a risk." Busch, in a prepared statement, added, "The Cardinals are building a young ball club. We are looking for an organization that will give us strong teams and pennant winners for years to come and we must look to the future. We have several very promising young outfielders with the Cardinals and in our system. They are knocking on the door of the Cardinals right now and we have to make a place for them."³⁹

Stanky predicted that if Moon lived up to his potential, he would soon make the fans forget about Slaughter. "Moon has some flaws like the rest of us," Stanky said. "But he is the best prospect I've seen here in three years outside of [Rip] Repulski. If he hits or makes the great plays, he'll have his own following too."⁴⁰

Meanwhile news of the trade had not yet filtered down to the players. Moon had taken his time leaving the field after the final exhibition game, fearing it might be his last time wearing a baseball uniform. As he sat in the clubhouse at Sportsman's Park, he slowly undressed and clung tightly to his No. 20 Cardinals jersey before finally tossing it in a pile of soiled uniforms. He had come so close. He had played hard in spring training and played well, but none of the signs looked good. He had received less and less playing time as the season opener drew close. "With the regular season opener just two days away, all I'd gotten from team management regarding my future with the club was a half-hearted 'we'll see,'" Moon recalled.⁴¹

Then one of the locker room attendants came up to him and told him, "Stanky wants to see you." A few teammates looked at him as he got up to walk to the manager's office. He felt like "a dead man walking to his baseball doom."⁴² Moon was sure the manager was going to tell him that he didn't make the team. Moon and his wife had already discussed the options if the Cardinals chose to send him back to the minor leagues. He had a wife and a young son to support which was difficult on a minor league salary of only \$300 a month. But with a college diploma and a master's degree, they were prepared to return to Arkansas where he could teach and coach. "Bettye was in full

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Enos Slaughter had no idea that as he played preseason exhibitions against the Browns, it would be the last time he would wear the Cardinals uniform.

agreement,” Moon recalled. “If I didn’t make the Cardinals opening day roster I’d give up the dream and devote myself full time to a career in education.”⁴³ Fearing the worst, Moon closed his eyes, took a deep breath, and walked into Stanky’s office.

“Well,” Stanky said. “You’ve made the team.” “Thanks Eddie,” Moon replied. “I won’t let you down.”⁴⁴ Stanky had one more bit of news. Not only had he made the team, the club had traded Enos Slaughter and he would be taking his place in right field. “That’s it,” Stanky said. “Congratulations.” Walking back to the locker room Moon was congratulated by several of his teammates. But there was a somber silence that hung in the atmosphere as the club digested the news that Slaughter had been traded.

One veteran quipped, “It looks like the manager is giving up the stars and reaching for the moon.”⁴⁵ Stan Musial saw Slaughter in the parking lot and the two men looked at each other and cried. “We had spent a lot of years together in the heart of the Cardinals lineup and it was really sad for both of us to know that our one-two punch had been broken up,” Slaughter recalled.⁴⁶

Cardinals fans were used to management trading away good players. General Managers Dick Meyer, Frank “Trader” Lane, and Bing Devine were forever trying to pull off the one deal they thought would make a difference. But as Cardinal historian Bob Rains wrote,

“Unfortunately, at least until the end of the decade, almost every deal the Cardinals had attempted turned out to be a mistake.”⁴⁷ In 1951, the Cardinals traded Joe Garagiola, Howie Pollet, and Ted Wilks and two other players to Pittsburgh for Wally Westlake and Cliff Chambers. The trade backfired as Garagiola had several good seasons for the Pirates, while neither Westlake nor Chambers turned out to be effective for the Cardinals.⁴⁸ But the trade that produced the biggest fan reaction was Slaughter’s. Furious callers flooded the Cardinals’ switchboard, many threatening to cancel their season tickets. Some cried as much as Slaughter. Busch had to take the phone off the hook at his Grant’s Farm estate.⁴⁹

Stanky also had to endure the barbs. “I’ve been a so-and-so before and I guess I am a bigger so-and-so now,” Stanky said. “But I can take it.”⁵⁰ Fan reaction was overwhelmingly negative. “I’m surprised and I definitely think it will hurt the Cardinals,” said a bartender. “I think it is a very good move for the Yankees.” A salesman said the club was “crazy.” One taxi driver called the Cardinals “stupid” and another said “that’s a dirty deal.” The second cab driver went further: “Since they got rid of Slaughter they just might as well get rid of Stan Musial and the rest of the good hitters and give up baseball.” One of the briefest comments came from a cashier who said, “It’s lousy.”⁵¹ Bob Burnes, a columnist for the *Globe-Democrat*, wrote that while the Cardinals could find reasons to justify the trade, none of them would satisfy the fans. “Enos Slaughter was more than a ballplayer, as any Cardinals fan could tell you,” Burnes wrote. “He was an institution—not only among the fans, but among the players as well. Enos was the ballplayer’s ballplayer—he played the game the way it should be played.”⁵²

The day after the trade, Moon made his first official appearance as a Cardinal, in the aforementioned parade, during which the fans expressed their displeasure.⁵³ “As the motorcade revved to a start, it was now official before God and thousands of Cardinals fans. I was the player designated to fill the spiked shoes of the legendary Enos Slaughter,” Moon recalled.⁵⁴

During the Cardinals’ final pre-season workout Moon seemed “nervous, even a bit embarrassed as he vigorously chewed gum during an interview at the batting cage.”⁵⁵ Moon told reporters that although he’d had offers from sixteen major league clubs—several for the \$6,000 that would have made him a Bonus Baby—he chose to sign with the Cardinals “because they were my favorite team and Slaughter my favorite player. I admired the way he hustled and how hard he played.” When asked about the mental pressure of replacing a popular player like Slaughter, Moon replied: “It’s an

honor to replace a player like Slaughter. Yes, I was surprised—surprised that he was traded and surprised I got the chance—but I’m happy. No, I don’t think I’ll be nervous in the game.”⁵⁶

It wasn’t until Monday, the day before Opening Day that Moon was called into the front office. “I guess you better sign a contract,” he was told. “I guess so,” Moon agreed. “I would have signed anything after all those weeks.”⁵⁷ Things weren’t any better the next day for Moon as the Cardinals opened the season against the Chicago Cubs. With a crowd of 17,027 on hand, it was the first afternoon opening game at home for the Cardinals since 1950. Prior to the game as he took batting practice or warmed up on the field, Moon could hear the hecklers in the stands. “For many in attendance that day I was already the team villain, and I hadn’t said or done a thing.”⁵⁸ Moon was scheduled to hit second in the lineup that day. Minner was a 6-foot-5 lefty. As Moon knelt in the on-deck circle he felt like the most despised player in baseball. But, he said over and over to himself, “‘You can’t let this bother you. This is what you’ve been waiting for. This is the one chance you have been asking for.’ I pep-talked myself.”⁵⁹

As soon as Moon stepped into the batter’s box, chants of “We want Eno! We want Eno!” echoed throughout the ballpark. Minner’s first pitch, a curveball, missed the outside of the plate for ball one. His second pitch, an off-speed pitch, came in for ball two. “Take the bat off your shoulder,” Moon heard someone shout.⁶⁰ With a 2–0 count, Moon expected the fastball and he sent it over the roof of the right field pavilion to give the Cardinals a 1–0 lead. The chorus of boos quickly turned into cheers. “It’s still my biggest thrill in baseball,” Moon recalled. “All I remember about the homer is coming back to the bench after I hit it and seeing Gussie Busch in his box near the dugout, jumping up and down.”⁶¹ The game was also notable because it marked the debut of twenty-three year-old first baseman Tom Alston, who was the Cardinals’ first black player.⁶² The Cubs got 16 hits however, and won the game 13–4. It was the Cardinals’ worst home opener in years. But as Moon recalled, it wasn’t a complete loss for him because, when he didn’t wilt under the pressure, “from that afternoon forward St. Louis fans held me in much higher esteem.”⁶³

As previously mentioned, Moon became only the second Cardinal to hit a home run on his first major league trip to the plate. Eddie Morgan accomplished the feat on April 14, 1936, in the season opener against the Cubs at Sportsman’s Park in St. Louis.⁶⁴

Moon continued to hit the ball well the rest of the season and did his best to make St. Louis fans forget

Enos Slaughter. On April 23, Moon collected five hits in a 7–5 loss in 11 innings at home to the Milwaukee Braves, in a game that saw Hank Aaron hit his first major league home run. Moon had another five-hit performance against Pittsburgh on May 12. On May 25, Moon stole four bases against the Cubs, coming within one of what was then believed in the press to be the National League record of five. (The actual NL record was seven, albeit with a different definition of stolen base. Under the definition in effect in 1954, the record was actually four.) By midseason Moon’s batting average was hovering around .325 and sports-writers were already talking about him as a sure candidate for Rookie of the Year.

Musial was impressed: “I’ve never seen a rookie who is less concerned when he has two strikes on him. He always knows he had a third coming.”⁶⁵ Stanky added that “he controls the strike zone better than any first year player I’ve ever seen. He’s as familiar with that strike zone as he is with the palm of his hand.”⁶⁶ Moon hit well over .300 most of his rookie season and was in the thick of the race for the NL batting championship, but fell into a slump during the final two months of the season that dropped his average some 35 points. He hit only .239 in August and .227 for the month of September. “One reason is that I wasn’t beating out those infield hits,” Moon said. “I had played in winter ball and I was tiring badly at the end of the season.”⁶⁷ Moon still finished with a .304 average and ended the year the same way he started it—with a home run. In the 11th inning of a game in Milwaukee, Moon belted a pitch from Ernie Johnson 400 feet into the center-field bullpen for a two-run home run, handing the Cardinals a 2–0 win over the Braves.

Despite topping the league in just about every offensive category, the Cardinals finished 72–82, sixth in the league. But as *Time* pointed out in its August 23, 1954, edition, the good news for the Cardinals was that Wally Moon had made the grade. “He is filling in so well for Slaughter that the fans have almost forgiven the Cardinal management for selling Old Enos to the Yankees. Unless he suddenly picks up the habit of catching fly balls on his head, Wallace Wade Moon is a sure bet to be selected National League Rookie of the Year.”⁶⁸ Moon got 17 of 24 votes from a committee of sports-writers, beating out future Hall of Famers Ernie Banks and Hank Aaron for Rookie of the Year honors in the National League. The writers noted that Moon did a “whale of a job all year,” collecting 193 hits, scoring 106 runs, and batting a respectable .304. “The lean, serious-minded outfielder with a masters degree from Texas A&M proved a triple threat man with the Cardinals.

Besides his outstanding hitting and fielding, he also proved adept on the bases, stealing 18 sacks.”⁶⁹ For Moon, it was a dream come true. “All of my life I knew I would make it someday,” Moon said. “I had faith in myself. But I never would have foreseen it happening the way it did.”⁷⁰

Moon followed his sensational rookie year with four more productive seasons for the Cardinals, batting .295 with 19 home runs and 76 RBIs in 1955, .298 with 16 home runs and 68 RBIs in 1956, and .295 with 24 home runs and 73 RBIs in 1957, but slumped in 1958, playing in only 108 games and batting only .238 with 7 home runs and 38 RBIs—all career lows. He had injured his left elbow in May when he leaped for a fly ball off the bat of San Francisco’s Orlando Cepeda and collided with the unpadded concrete wall in left-center field, and then with teammate Joe Cunningham, who fell on top of him.

After his disappointing 1958, the Cardinals traded Moon, along with pitcher Phil Paine, to the Dodgers for outfielder Gino Cimoli. The right-handed hitting Cimoli wasn’t much better that year. Cimoli’s batting average had dropped from .293 in 1957 to .246 in 109 games and he was in and out of the lineup all year long. Moon was upset and bitter about the news. Not only did he hear about the trade first from the Dodgers, but his pride was hurt when he found out it wasn’t a straight-up trade. “The trade rocked me to the core,” Moon wrote in his autobiography. “My employer, my favorite team since childhood, had given up on me for someone I considered a lesser talent.”⁷¹

“The Dodgers made a helluva deal,” Moon told Dodgers GM Buzzie Bavasi. “A lot better one than the Cardinals made.”⁷² The Cardinals, however, felt they were getting a defensive upgrade from Moon and that Cimoli’s “ability to hit to right center will be useful at Busch Stadium.”⁷³ Cards manager Solly Hemus told reporters that while Cimoli probably wasn’t the .293 hitter of 1957, he was better than the .246 batter of 1958.⁷⁴ Cimoli was “an excellent outfielder with an outstanding throwing arm.” Sportswriter Bob Broeg wrote that “we wish Wally well, but a reporter who travels with the Redbirds these last several seasons would not be hypocritical if he didn’t acknowledge disappointment in the athlete from Texas.”⁷⁵ Broeg continued, “Even though he fell off to .238 last season, Moon is basically a good hitter, a man of power at the plate when he connects, but he disappointed consistently afield, both fly chasing and throwing. He seemed so satisfied with his inadequacies that his lean and hungry look appears merely an unfortunate illusion.” Dodgers Vice-President Fresco Thompson saw it differently, commenting, “Moon’s got 80 percent ability and gives you 100 percent. Cimoli’s

got 90 percent ability and gives 75. In the end, we’re ahead with Moon.”⁷⁶

Thompson was right: Moon would turn out to be a great pickup by the Dodgers. He rebounded to hit .302 with 19 home runs and became a fan favorite by hitting “Moon shots” over the Coliseum’s left field screen. He was a critical part of the Dodgers’ 1959 World Series championship team. He was initially concerned about playing in the Dodgers’ temporary home—the Los Angeles Memorial Coliseum where the right field foul pole was 440 feet away and where fly balls went to die. He had little success there in 1958, going 2-for-22. But thanks to advice from former teammate Stan Musial, Moon learned how hit the ball the opposite way over the 42-foot-high left field fence, which was only 251 feet away. “He set me down and told me I could use that screen to my advantage,” Moon recalled. “I was just going to have to put more emphasis on hitting to left. I knew pitchers in the Coliseum threw inside to left-handed hitters hoping to get them to hit to right or center where they couldn’t get the ball out very often. What I did was get my hands inside of the ball, leading the bat through and extending it for power. I tried to hit the bottom half of the ball to produce high fly balls.”⁷⁷

Of the 19 home runs Moon hit that year, 14 were at the Coliseum and nine of them were over the screen. At one point, Moon hit safely in 17 straight games and showed some of the old spark and daring on the basepaths, stealing 15 bases. “He is just the type of player we thought we were getting,” Bavasi said.⁷⁸ Moon was named to play in both All-Star Games and finished fourth in the National League’s Most Valuable Player balloting. The Los Angeles writers voted Moon the Most Valuable Player of the 1959 World Champion Dodgers, and he finished second in the Associated Press Comeback Player of the Year to Philadelphia’s Gene Conley. Moon was also the choice of United Press International for the No. 1 Comeback Player of the Year in the National League. “Certainly in a year in which so many Dodgers stood out at various stages of the campaign, Moon must be singled out,” Bavasi said. “No player was more consistent throughout the campaign and no one man was more a team player than Wally.”⁷⁹

Although he would go on to be a part of three World Series winning teams, Moon always considered that first storybook home run to be the greatest thrill of his baseball career. Speaking to the Craighead County Historical Society in 2012, Moon reflected, “Everyone from Northeast Arkansas dreamed of playing for the Cardinals. And there I was in the lineup and hitting a home run. It is hard to beat anything like that.”⁸⁰ ■

Notes

1. Moon, Wally with Tim Gregg. *Moon Shots: Reflections on a Baseball Life*. San Antonio, TX: Moon Publishing, 2010. 1.
2. Ibid., 1.
3. Gross, Milton. "Rookie of the Year." *Sport*, January 1955, 49.
4. "Wally Moon Senior League Rookie of Year." *St. Joseph Gazette*, December 20, 1954.
5. Gross, 70.
6. "Wally's Reflections: Wally Moon's First Big League Home Run." www.wallymoon.com/ahomerun.htm.
7. Bock, Gabe. "Aggie Flashback: Reflections from A&M Legend Wally Moon." September 20, 2011. <http://v4.texags.com/Stories/2978>.
8. Moon, vii.
9. Ibid., 65.
10. Creamer, Richard. "Hope of St. Louis." *Sports Illustrated*, April 22, 1957. <http://sportsillustrated.cnn.com/vault/article/magazine/MAG1132365/index.htm>.
11. Moon, 74.
12. Fraley, Oscar. "Moon Not Worried by Sophomore Jinx." *United Press*, February 5, 1955.
13. Creamer <http://sportsillustrated.cnn.com/vault/article/magazine/MAG1132365/index.htm>.
14. Bock <http://v4.texags.com/Stories/2978>.
15. Moon, 75.
16. Gross, 49.
17. Moon, 115.
18. Honig, Donald. *The St. Louis Cardinals: An Illustrated History*. New York: Prentice Hall, 1991. 142.
19. Ibid., 142.
20. Gross, 78.
21. Slaughter, Enos with Kevin Reid. *Country Hardball: The Autobiography of Enos 'Country' Slaughter*. Greensboro: Tudu Publishers Inc., 1991, 153.
22. Musial, Stan as told to Bob Broeg. *The Man Stan Musial... Then and Now*. St. Louis: The Bethany Press, 1977. 151.
23. Slaughter, 153.
24. Ibid., 153.
25. Creamer <http://sportsillustrated.cnn.com/vault/article/magazine/MAG1132365/index.htm>.
26. Ibid.
27. Bock <http://v4.texags.com/Stories/2978>.
28. Moon, 78.
29. "Stanky Is Cautious in Trimming Squad." Associated Press, March 24, 1954.
30. Moon, 81.
31. Ibid., 82.
32. Slaughter, 154.
33. Ibid., 154.
34. Ibid., 154.
35. Honig, 144.
36. "Yanks Sought Enos in Rashi Deal." *St. Louis Post-Dispatch*, April 12, 1954.
37. Broeg, Bob. "Trade of Slaughter Puts Rookie Moon and Cardinal Office on Spot." *St. Louis Post-Dispatch*, April 12, 1954.
38. "Cards Deal War Horse to Yanks. Slaughter, Mates, Fans Shocked." Associated Press, April 12, 1954.
39. Ibid.
40. "Yanks Sought Enos in Rashi Deal." *St. Louis Post-Dispatch*, April 12, 1954.
41. Moon, 2.
42. Ibid., 2.
43. Ibid., 3.
44. Ibid., 4.
45. Gross, 49.
46. Slaughter, 155.
47. Rains, Bob. *The St. Louis Cardinals: The 100th Anniversary History*. New York: St. Martins Press, 1992. 134.
48. Ibid., 134.
49. Ibid., 135.
50. "Yanks Sought Enos In Rashi Deal." *St. Louis Post-Dispatch*, April 12, 1954.
51. Cards Deal War Horse to Yanks. Slaughter, Mates, Fans Shocked." Associated Press, April 12, 1954.
52. Rains, 135.
53. Moon, 5.
54. Ibid., 6.
55. Broeg, Bob. "Wally Moon Replacing His Idol; Says Admiration for Slaughter Inspired Signing with Redbirds." *St. Louis Post-Dispatch*, April 13, 1954.
56. Ibid.
57. Creamer <http://sportsillustrated.cnn.com/vault/article/magazine/MAG1132365/index.htm>.
58. Moon, 1.
59. Gross, 49.
60. Moon, 8.
61. Creamer <http://sportsillustrated.cnn.com/vault/article/magazine/MAG1132365/index.htm>.
62. Snyder, John. *Cardinals Journal: Year by Year and Day by Day with the St. Louis Cardinals*. Covington, KY: Clerisy Press, 2010. 405.
63. Moon, 11.
64. Tomasik, Mark. "Oscar Taveras, Eddie Morgan: Flashy Start to Cards careers." June 18, 2014. <http://retrosimba.com/2014/06/oscar-taveras-edie-morgan-flashy-starts-to-card-career>. With the Cards trailing 12-3, Manager Franke Frisch sent in Morgan in the seventh as a pinch-hitter for reliever Bill McGee. The left-handed rookie connected on the first pitch he saw from Lon Warneke, sending the ball over the right-field wall for a two-run home run.
65. Gross, 79.
66. Ibid., 79.
67. Fraley, Oscar. "Moon not Worried by Sophomore Jinx." *United Press*, February 5, 1955.
68. Moon, 99.
69. "Wally Moon Senior League Rookie of the Year." *St. Joseph Gazette*, December 20, 1954.
70. Gross., 79.
71. Moon, 146.
72. "Wally Moon Now Rated Top Prophet with Dodgers." Associated Press, June 22, 1959.
73. Broeg, Bob. "Cards Trade Moon for Cimoli." *St. Louis Post-Dispatch*, December 4, 1958.
74. Broeg, Bob. "Moon Gone, Cards May Use Cimoli as Bait for Moryn." *St. Louis Post-Dispatch*, December 5, 1958.
75. Ibid
76. Moon, 146.
77. Springer, Steve. "Dodger's Moon Found Success in Coliseum." *Los Angeles Times*, March 23, 2008.
78. "Wally Moon Now Rated Top Prophet with Dodgers." Associated Press, June 22, 1959.
79. "Moon Voted No. 1 Comeback in National Loop." *United Press International*, October 22, 1959.
80. "Former Cardinal Moon Recalls Playing Days." *Jonesboro Sun*, July 24, 2012.

A Season-Ending Doubleheader and its Impact on the 1966 World Series

David E. Skelton

Seldom are the occasions when a team emerges as back-to-back champions in the National League. Rarer still when that team's manager could call upon a well-heeled mound corps that includes three future Hall of Famers.

These were the well-earned privileges of Walter Alston as his Los Angeles Dodgers entered as 8–5 favorites against the Baltimore Orioles in the 1966 World Series. Yet despite these advantages, the events of October 2, 1966, would cause Alston to enter Game One without the immediate services of reigning Cy Young Award winner Sandy Koufax. Did this setback affect the outcome of the Series? If the lefty described by Jackie Robinson as “the greatest pitcher in the history of baseball”¹ had started the first match, would it have magically transformed a Dodgers team that set numerous records for offensive futility?

Though Koufax's presence in Game One may have altered the eventual outcome—ensuring a second start that, at a minimum, might have avoided a four game sweep—the purpose herein is not to dwell on the counterfactual Dodgers championship. The narrative instead seeks to chronicle the waning days of the 1966 season that eventually tied Alston's hands, including the event-filled season-ending doubleheader in Philadelphia three days before the start of the World Series. Connie Mack Stadium's twin-bill witnessed three Hall of Fame pitchers in starting roles, a fourth hurler becoming the Phillies' first 20-game winner in more than a decade, and a peculiar ongoing dominance over one of the future Hall inductees. The nail-biting finish was the pinnacle of the long-fought three-team National League pennant race.

“IT DOESN'T LOOK AS THOUGH ANYONE WANTS TO WIN IT.”²

The frustration was expressed by Alston as his team was concluding August with a pedestrian 15 wins in 30 contests. He found solace in the knowledge that his closest competitors—the San Francisco Giants and Pittsburgh Pirates—were struggling similarly across the 162-game campaign. Solidly built around speed, fielding, and superb pitching, the Dodgers limped into

September with righty stalwart Don Drysdale sporting a record of 9–15. Seeking to describe his struggles, Drysdale alluded to his prominent role in a popular television ad when stating, “The way I've been pitching I couldn't get a commercial stitching baseballs. Maybe I could work up a show on how to unstitch them. I've had a few unstitched on me this season.”³ For his part, general manager Buzzie Bavasi cited an out-of-condition Drysdale for these struggles. He bitterly recalled the much-chronicled Koufax-Drysdale pre-season holdout, and rumors emerged that Bavasi was dangling the righty on the trade block.^{4,5}

But the team's malaise could hardly be laid solely on the doorstep of one hurler. Despite a slow start to the season, Drysdale had strung together 17 consecutive outings with a 3.25 ERA (league average: 3.61). In that stretch of 17 starts, which ended on August 31, he garnered a scant five wins. The world champions were often plagued by an anemic offense. Among the bottom-feeders in runs scored 1964–66, they would become the first pennant winner from either league to be shut out 17 times (a dubious feat matched only by the 2005 Houston Astros). As the Dodgers entered September trailing the pace-setting duo of the Pirates and Giants by three games, the ongoing struggles hardly appeared conducive to a repeat championship. A September surge from outfielders Lou Johnson (.308) and Ron Fairly (.397)—neither of whom threatened memories of Murderers Row—helped propel the Dodgers toward a Series berth. But they were assisted mightily by the struggles of their closest competitors.

“IF YOU BLOW THE PENNANT, [IT] WILL BE A COLLECTOR'S ITEM.”⁶

A quotation delivered in late-August by a New York sportswriter to Pittsburgh manager Harry Walker, the “it” was a picture of Pirate players adorned in oddball hats sporting the relaxed atmosphere of a team seemingly destined for postseason play. The Pirates had recently (August 26) rewarded their sophomore skipper with a new one-year contract. At approximately the same time the team's traveling secretary was busy booking hotel reservations in Baltimore in anticipation

of a Fall Classic against the Orioles, while former manager Danny Murtaugh began scouting the Birds. A team makeup nearly the complete opposite of the defending champions, the Pirates vaulted into contention primarily from offensive heft. Among the league leaders in runs scored, they managed this feat with a major-league leading .279 average. Having seized a stake in first place through 40 percent of the season, the Pirates never built more than a two-game lead over their fiercest competitor, the Giants. But their sizzling start would yield to a 32–30 finish that doomed their pennant pursuits.

The team's shortcomings were plentiful. Though they showed themselves quite capable of beating up on less-talented clubs, possessing a .722 winning average over the second-division trio of the Houston Astros, Chicago Cubs, and New York Mets, they fared less well (53–55) against the rest of the league. This trend was mirrored by slugger Willie Stargell who feasted on the bottom-dwelling trio (.392, 20 homers) but struggled against the Dodgers and Giants (.259, two homers). As second half losses mounted, the manner in which defeat presented itself became ever more striking. For example, on August 17 lefty ace Bob Veale (who yielded 18 homers in 1966, 13 more than the preceding year) was staked to a 7–1 lead over New York when he surrendered the Mets' first franchise pinch grand slam,⁷ a blow that contributed to an eventual 8–7 Pirate loss. The next day third baseman Jose Pagan committed four errors—three in one inning—that only added to the enduring losses. Rotation members Veale, Woodie Fryman, and Steve Blass combined for a 14–18 record after July

9, prompting the team to pursue a desperate search for additional hurlers—inquiring of the California Angels and Washington Senators for veterans Jack Sanford and Mike McCormick, respectively.^{8,9} The offense was crippled when a knee injury limited Stargell to two plate appearances in the final six games. Further insult was inflicted when Phillies ace Jim Bunning earned his first relief win in nine years in a victory over the Pirates on September 26.

The death knell arrived October 1 when the Pirates were swept by the Giants in a doubleheader at home, putting the final touch on the second-half collapse. Unknown is whether the picture of the players sporting oddball hats was preserved.

UNEARNED RUNS ALLOWED: 95

Though no quotation exists to encapsulate the Giants' ill-fated campaign, the above number says it all. Only the Astros exceeded the error total of the Giants' porous defense, which haunted the team by season's end. Seemingly poised to overcome this deficit with the combined best features of the Dodgers (two superb front line pitchers) and Pirates (ferocious hitting) the Giants were considered preseason favorites with an All-Star cast of future Hall of Famers Juan Marichal, Gaylord Perry, Willie Mays, and Willie McCovey. But the team's glove play had a direct impact on at least 10 of the team's 68 losses, some of which were excruciating. For example, an opportunity to place distance between themselves and Los Angeles went awry as far back as May 17 when a throwing error in the 13th inning led to a Dodgers victory, whereas three errors on June 10 resulted in three unearned runs that provided an additional margin for a Koufax win. Lacking the killer instincts of the Pirates, the Giants did not fare nearly as well against the Mets and Cubs. Nursing an early 2–1 lead over New York on July 21, a fourth-inning error resulted in a rare five-run Mets explosion and an eventual 14–3 loss. On September 9, after an extended road trip in which they lost a stake in first place, the Giants had an opportunity to make up ground with a home series against the Cubs. Ten errors—including five in the series opener—contributed to three straight losses against the last-place team and pushed the Giants further south in the standings (third place). If the Giants had prevailed in any one of these lead-gloved affairs, the World Series might have seen a different National League contender, as a win would have put them only a half-game out of first place.

In the end, pitching also proved a liability despite two 20-game winners, the first such franchise occurrence since the New York Giants in 1951. They made



In his previous World Series appearances, Sandy Koufax held a 0.88 ERA and a 4–2 record. But going into the 1966 Series, in order to get two starts, he would have had to make two consecutive starts on two days' rest.

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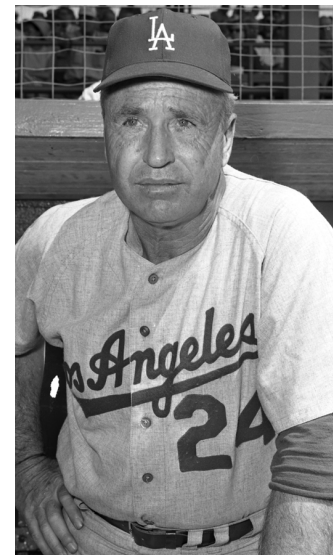
an attempt to bolster the rotation by acquiring former 20-game winner Ray Sadecki from the St. Louis Cardinals nine days after the lefty hurler handcuffed the Giants on April 29 with a five-hit, complete game victory. The acquisition came at a dear cost—Hall of Famer Orlando Cepeda—while Sadecki would garner a mere three wins in 26 appearances for the Giants. The mound problems were further compounded when Perry, 1966’s first 20-game winner in the majors, collapsed to 1–6 in his final ten starts, mirroring the team’s 6–11 crash that began August 24. The Giants were forced to scramble with a six-game winning streak at season’s end just to make things cozy. Having disposed of the Pirates in Forbes Field on October 2—a dramatic extra-inning affair worthy of its own chronicle, the winning run coming on a pinch-hit homer by McCovey—the Giants waited in the Pittsburgh airport for a hopeful doubleheader sweep of the Dodgers in Connie Mack Stadium. If the Phillies held up their end of the bargain, the Giants would be forced to play a make-up game washed out August 10 in Cincinnati. A postponed win—not a sure bet after Reds manager Dave Bristol chose to hold back two-time 20-game winner Jim Maloney for just such an event—would result in the second Giants-Dodgers playoff pairing in four years. That series had evolved from a late-season collapse of the 1962 Dodgers. In 1966, after a lethargic August, there were no signs of a similar fall from the boys in blue.

A Weather-Induced Doubleheader

	W	L	GB
Los Angeles Dodgers	94	65	—
Pittsburgh Pirates	92	67	2
San Francisco Giants	90	68	3.5

When the Pirates were taking a final account of the concluded 1966 season, manager Harry Walker pointed to a September 1 loss to the Dodgers “as the turning point for his club. ‘The score was tied 1–1 [at home] going into the ninth and we lost. We would have been four games out in front, but we ended with a two-game lead instead.’”¹⁰ (Note that although they would have been four games ahead of the Dodgers, they would only have been one game ahead of the Giants.) On that date, rookie Don Sutton had hurled an inspiring nine innings of four-hit ball that helped ignite a month-long surge for Los Angeles. Entering the season’s last weekend, the Dodgers had raced to a 20–8 mark—including a club-record four consecutive shutouts—that pushed the team to the top of the standings (see above). One win in the three-game

To avoid a potential Dodgers-Giants playoff series, Dodgers manager Walter Alston was faced with a must-win situation in the second game of the doubleheader in Philadelphia.



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series in Philadelphia guaranteed elimination of the Giants and, at a minimum, a playoff series versus the Pirates. In the past Philadelphia had proven to be of little challenge, having lost 10 of 15 to the Dodgers that season. But on this weekend the Phillies suddenly exhibited an Alamo-like stand.

Relishing the role of spoiler, Phillies manager Gene Mauch took a page from Dave Bristol by ensuring that his ace, Jim Bunning, would be on the mound for a potentially decisive third game. To make it so, the Phillies would have to win both of the preceding two games. In the first match lefty Chris Short, after escaping a bases loaded first inning jam, handcuffed the Dodgers to earn his 19th victory of the season. The win placed focus on the next day, but weather would play its own part in the developing drama.

Philadelphia struggled throughout September attempting to complete its scheduled home games. In 1966 the region experienced its second wettest September—and wettest October—in 50 years and rain had forced the club into a doubleheader against the Pirates just three evenings earlier. October 1 would not be spared when yet another deluge set the stage for the season-ending twin bill. Though precipitation afforded Alston’s next starter an additional day’s rest, the selection itself was wrought with its own challenges.

OCTOBER 2, DOUBLEHEADER: GAME ONE

It was Drysdale’s turn in the rotation. A miserable season’s start flourished into a far more profitable 8–5, 2.51 mark in his preceding 20 starts that successfully quieted the trade rumors. With sound reasoning, a victory from his star hurler would allow Alston to enter the World Series with the lefty who made the Cy Young Award a staple of his personal effects.



Odd things happen during pennant races. Phillies ace Jim Bunning earned his first relief win in nine years in a victory over the Pirates on September 26.

The illustrious 14-year career of Don Drysdale was witness to nine All Star selections, two 20-win campaigns and a 1962 Cy Young Award. A well-earned reputation for sending hitters sprawling should they dare claim a too-healthy stake in the batter's box, this fierce competitor found eventual reward with a 1984 Hall of Fame induction. But despite this success, the righty was oft-tested by the Phillies, a team that was hardly considered "world beaters." Starting in 1963, he suffered nine consecutive losses to the Quakers that contributed to a 6-12 record throughout the remainder of his career. When he added to his Hall resumé a record-setting scoreless streak in 1968, it was the Phillies that would bring the streak to a halt. This peculiar hex continued when the first batter in the October 2 match parked a pitch into the seats. The next batter walked and two singles later the Phillies grabbed a 2-0 lead. With the quick indication that the jinx was still very much alive, Drysdale was lifted in the third inning as reliever Ron Perranoski successfully extinguished another scoring threat with three successive strikeouts.

But the feeble Dodger offense, held to two hits through five innings, rallied in the sixth. Following a walk and a groundball single, left-handed hitter Ron Fairly connected with a massive drive over the stadium's right field steel wall that provided a 3-2 Dodger lead. Though both teams threatened—including a right field-to-second baseman-to-catcher relay that nabbed Dodger second baseman Jim Lefebvre at the plate—the score remained in LA's favor until the bottom of the eighth.

In 1965-66 the Dodgers placed among the league leaders in fewest errors committed, a strength that unraveled this day. Reliever Bob Miller, who had

succeeded Perranoski on the mound, survived a sixth-inning boot but he and Phil Regan would not be as fortunate in the eighth. Two errors sandwiched around an intentional walk contributed to two Phillies runs with more seemingly on the horizon. With the bases loaded and no outs, Regan managed a strikeout, a force at home, and a fly out to quell further damage. The strikeout was against opposing pitcher Chris Short, and sentimentality may have played a factor in Mauch's decision not to pinch-hit for the lefty hurler.

The hometown crowd cheered when Short, a long-time fan favorite, began warming in the bullpen before the eighth inning. Emerging on the Philadelphia scene in 1959, he suffered through many lean years when last place remained the sole possession of the Phillies. As he entered the eighth inning on one day's rest—Mauch obviously pulling out all the stops—every fan knew the import. Having captured the lead, if Short could set down the Dodgers in the ninth he would become the Phillies' first 20-game winner since Hall of Famer Robin Roberts in 1955. With the crowd standing on each pitch, Short disposed of the Dodgers three-up, three-down, providing the stubborn Phillies with the hard-fought victory. Mauch would turn to his ace, Jim Bunning, to duplicate Short's 20-game feat and upset the Dodgers' pennant pursuits.

OCTOBER 2, DOUBLEHEADER: GAME TWO

In order to avoid a potential Dodgers-Giants playoff series, Alston was now faced with a must-win situation. In the clubhouse between games he urged his team on, stating "[W]e don't want to back into the World Series."¹¹ To ensure against this, he turned to his lefty ace on two days' rest.

Koufax entered the game lacking the difficulties encountered by his righty teammate. He possessed a .724 winning percentage against Philadelphia—highest against non-expansion teams. Impressive as this was, he was going up against an equally formidable opponent.

Since his debut in the National League in 1964, future Hall of Fame inductee Jim Bunning had faced the Dodgers ten times. His 2-4 record was accompanied by an impressive 2.33 ERA. His league resumé entering the game included two All-Star berths, a perfect game, and an overall mark of 57-20. Meanwhile the Phillies, with the second-best home record (a .600 winning percentage, trailing only the Dodgers), were closing out the season with a remarkably strong run—.630 winning average in its preceding 27 outings.

Bunning appeared to throw down the gauntlet early by striking out the first two batters in a one-two-three

first inning. The Phillies then threatened to score immediately with runners on first and third with one out. Koufax quickly rallied, striking out feared slugger Dick Allen and inducing the next batter to ground out to end the inning. The Dodgers drew first blood with a three-run third, then added another in the fourth. A Dodger error in the Phillies half of the fourth opened another scoring opportunity that was lost when Koufax reared back to strike out first baseman Bill White and end the threat.

Trailing 4-0 with one out in the fifth, Mauch pinch-hit for Bunning in an at-bat that added yet another incredulous chapter to the career of Koufax: "Sandy was firing to Gary Sutherland when suddenly something popped high in his back, at the base of his neck. Koufax finished the inning and was rushed into the clubhouse...and had the slipped vertebra popped back in place. 'You can sometimes pitch with something like that,' said [trainer Bill] Buhler, 'but you can't move your head to check a man at first base.' 'Yeah,' said Sandy. 'It makes for great control.'"¹²

Great control was precisely what he delivered in yielding one hit over the next 3⅓ innings, entering the ninth with a 6-0 margin. But an error followed by three consecutive hits brought the tying run onto the on-deck circle. Koufax reached back again to strikeout two of the next three batters and deliver the pennant to the boys in blue.

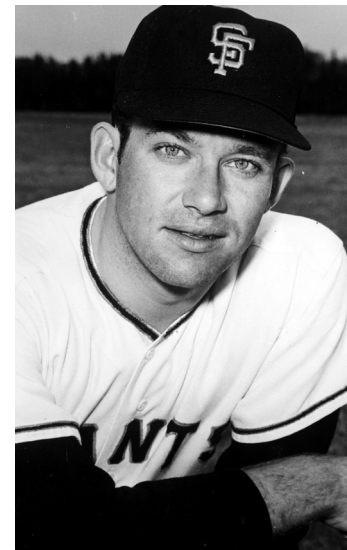
In the clubhouse afterward, Alston exclaimed, "If you don't feel pressure in this situation, you're not human,"¹³ while Koufax added, "It was the biggest ball game of my life...bigger than my pennant clincher [in 1965], or winning the seventh game of the World Series."¹⁴ After a well-deserved celebration for having won back-to-back National League titles for the first time in eight years, the team soon witnessed the price paid.

SERIES SWEEP

Baltimore manager Hank Bauer anticipated a hard-fought match of at least six games. Alston echoed the sentiment stating, "The only way we can play the [Orioles] is the same way we played everyone else all year. We'll peck away with singles and doubles and hope that our pitching can hold them."¹⁵ Koufax had earned a World Series mark of 4-2, 0.88 entering the 1966 Series. Despite this impressive record Alston was reluctant to turn the lefty loose for what would have been two consecutive starts on two days' rest.

Alston instead turned to Drysdale for the Series opener, seemingly well-rested after facing a scant 11 batters three days earlier. Big D possessed his own impressive post-season resume of 3-1, 2.43, but as

The Giants tried to bolster their rotation by acquiring former 20-game winner Ray Sadecki for future Hall of Famer Orlando Cepeda. But Sadecki would garner a mere three wins in 26 appearances after the trade.



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evidenced above, 1966 had not looked kindly upon him. Identical to his Philadelphia outing, he induced a mere six outs as the Dodgers absorbed a 5-2 loss. His brilliant effort in Game 4 was not sufficient to stem the four-game sweep that handed the Orioles their first world championship.

Evidenced by his start in Game Two Koufax was not invincible, and the short turnaround four days earlier may already have taken its toll. Koufax "showed signs of weariness and loss of his rhythm in the fourth"¹⁶ inning of his October 6 start against Baltimore, and over the next two frames he surrendered a multi-error-aided four runs that contributed to the Baltimore sweep.

The team's inability to dispose of the Phillies without assistance from Koufax robbed the Dodgers from entering the Fall Classic with their ace well-rested. Sandy accounted for more than 28 percent of Dodger wins in 1966, and his 27 victories could easily have been a 30-win campaign with a more productive offense—he absorbed six losses and three no-decisions while hurling a 2.21 ERA (league average: 3.61). Few pitchers have ever laid claim to such an enormous impact. The events of October 2 in Philadelphia prevented the Dodgers from opening the Series with "the greatest pitcher in the history of baseball."¹⁷ Historians can argue the impact.

EPILOGUE

Six weeks after his World Series outing of October 6, 30-year-old Sandy Koufax announced his retirement from the game. The Dodgers would collapse to a distant eighth-place finish the next season and not witness postseason play again until 1974, when a fine rotation anchored by Hall of Famer Don Sutton was

accompanied by a hard-charging offense (a luxury the mid-'60s Dodgers lacked). In 1976 Walt Alston ended his successful 23-year run. He turned the managerial reins over to Tommy Lasorda whose own 21-year stint resulted in two world championships.

As the brilliant careers of Willie Mays and Juan Marichal began winding down, the Giants continued playing the role of bridesmaids. The duo experienced a measure of success when San Francisco faced Pittsburgh in the 1971 NLCS, but the Giants would not witness World Series play until 1989, while a championship wait lasted until 2010.

Following the 1966 campaign the Pirates experienced a brief collapse but emerged as one of the most dominant teams of the 1970s—with two championships in 1971 and 1979. A successful three-year run of post-season play 1990–92 yielded to a record 20 consecutive losing campaigns. They escaped this extended drought with a playoff appearance in 2013.

A seventh-grade classmate thought he saw me on the televised broadcast October 2 in the left field bleachers of Connie Mack Stadium. He claimed the camera panned to the “enthused youngster” egging his beloved hometown team to victory. That same enthusiasm—undoubtedly a necessary ingredient to any Phillies win—came up short in the second game of the season-ending doubleheader, but this 12-year-old took solace in the knowledge that Gene Mauch’s maneuvers had pressed the reigning world champions to the wall. That same solace would soon turn to regret.

A Phillies fan first, I was also a devoted National League fan and eager admirer of the Dodgers following their success in 1963 and 1965. Decades passed before I forgave the Orioles for the 1966 sweep. ■

Acknowledgments

The author wishes to thank Ryan Pollack and Bob Timmermann for invaluable input. Further thanks extended to Clifford Blau for editorial and fact-checking assistance.

Sources

Books

Leavy, Jane. *Sandy Koufax: A Lefty's Legacy* (New York, NY: Harper, 2002).

Periodicals

The Sporting News

Websites

Baseball-reference.com

sabr.org/bioprospect

weather-warehouse.com/WeatherHistory/PastWeatherData_

PhiladelphiaIntlArpt_Philadelphia_PA_September.html

weather-warehouse.com/WeatherHistory/PastWeatherData_

PhiladelphiaIntlArpt_Philadelphia_PA_October.html

Notes

1. “Jackie Robinson Cites Koufax as Fitness Example,” *The Sporting News* (October 15, 1966): 21.
2. “Dodgers Pack New TNT, But Who’ll Provide Spark,” *The Sporting News* (September 3, 1966): 11.
3. “Major Flashes—Big D Can Still Smile,” *The Sporting News* (September 24, 1966): 27.
4. “National League: Games of Thursday, August 18,” *The Sporting News* (September 3, 1966): 22.
5. Young, Dick. “Young Ideas: With Sandy Ailing, Dodgers Won’t Sell Don,” *The Sporting News* (October 14, 1966): 14.
6. “Who’s Buc Belter With Most? That’s Easy—Handyman Mota,” *The Sporting News* (September 3, 1966): 12.
7. “Mets’ First Pinch-Slam,” *The Sporting News* (September 3, 1966): 21.
8. “Angels Ponder No. 1 Mystery: Chance’s Flop,” *The Sporting News* (September 10, 1966): 18.
9. “When Nats Hit Road, Even AAA Unable to Help,” *The Sporting News* (October 1, 1966): 17.
10. “Walker Proud Of His Buccos’ Stretch Battle,” *The Sporting News* (October 15, 1966): 8.
11. “Covington Douses Koufax and Alston With Champagne in Flag Celebration,” *The Sporting News* (October 15, 1966): 10.
12. Young, Dick, “Young Ideas by Dick Young,” *The Sporting News* (October 15, 1966): 14.
13. “Ducky Was No Quack at Hot Sack, Dodgers Discovered,” *The Sporting News* (October 15, 1966): 10.
14. Ibid.
15. “First Game Flashes,” *The Sporting News* (October 22, 1966): 8.
16. “Davis’ Three Boots Help Palmer Put Birds Two Up,” *The Sporting News* (October 22, 1966): 9.
17. “Jackie Robinson Cites Koufax as Fitness Example,” *The Sporting News* (October 15, 1966): 21.

High Altitude Offense

An Empirical Examination of the Relationship Between Runs Scored and Stadium Elevation

Eliza Richardson

Although calculations have been made, computer simulations have been analyzed, and the coefficients of restitution and drag of baseballs in flight have been measured in laboratories, the actual relationship between number of home runs hit and stadium elevation has not been empirically observed over a wide range of elevations in order to compare with predicted values.^{1,2,3,4,5} In general the distance of the flight of a batted ball is governed by its initial launch angle and velocity. These are the two most important factors by far (and are not dependent on altitude or any other external condition). However, this simple calculation of projectile motion is complicated by additional real-world factors such as drag caused by air resistance, which decreases the distance traveled, and the Magnus force, caused by backspin-induced lift which can increase the distance traveled.

Drag can be measured in a wind tunnel with a stationary ball, and the Magnus force can be calculated based on assumptions regarding rotation speed, but both of these kinds of studies have to rely on educated guesses because baseballs are not smooth and may rotate differently depending on the batter and the type of pitch being hit. Because the density of air decreases with increased altitude, there is less drag on an object in flight at high altitudes. This effect will increase the distance traveled by a batted ball at high altitude, as long as other atmospheric effects—wind, humidity, and temperature—are also constant.

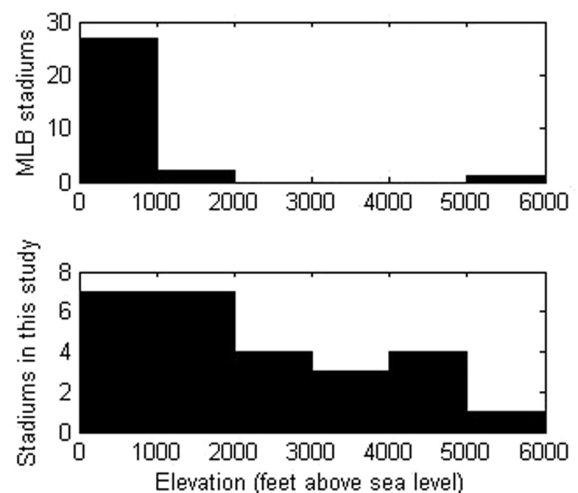
In practice, wind has the largest effect of the three.⁶ Robert Adair estimates that a 10 mile per hour following wind can add 30 feet to the flight of a baseball, whereas the decreased air density between sea level and Denver alone adds only 20 feet.⁷ If all other factors are constant, humidity in the air is expected to increase the distance of a batted ball since water vapor is less dense than air, but balls stored in humid or cold conditions don't travel as far because their coefficient of restitution has been compromised.^{8,9} In practice, there is no simple way to characterize by simulations and calculations the competing effects of the atmosphere at different altitudes with different weather

patterns and seasonal changes. In this study I use data from minor league baseball games to determine the relationship between home runs and stadium altitude.

Statistical data collected from Short Season A and Rookie League A stadiums provide a better means to determine the relationship between home runs and altitude, if one exists, than from major league stadiums for three important reasons: elevation range, roster turnover, and stadium dimensions.

- 1. Elevation range.** There is only one Major League Baseball stadium whose elevation is appreciably higher than sea level: Coors Field in Denver. There are zero MLB stadiums between 2000 and 5000 feet above sea level (see Figure 1). On the other hand, there are eleven Short Season A stadiums in this elevation range, and five that are higher than 4000 feet.
- 2. Roster turnover.** Even if data are collected over many seasons, offensive output on a major league team is often skewed by a small number of prolific hitters. Likewise, home-run totals can be depressed by a strong core of ground-ball pitchers who may

Figure 1. Histograms of stadium elevations, comparing the 30 major league stadiums with the 26 Short Season A stadiums in this study.



be on the roster for years, making it difficult to separate stadium effects from the effects of a few players with great ability. Even if only players from the visiting teams are considered when compiling statistics on home run production at Coors Field, it is still difficult to assess whether this correction is working since Coors Field is the only high-elevation stadium in the majors.

Short Season and Rookie League teams have an almost entirely different roster each season. When several seasons are analyzed, the effects of a particularly strong batter or pitcher do not influence the results significantly. Furthermore, exceptionally talented players do not spend very much time at the Short Season/Rookie level in professional baseball, so what effects their presence might have are mitigated.

- 3. Stadium dimensions.** The stadiums in this study have reasonably uniform outfield dimensions. (No Green Monster! No Tal's Hill in center field!) Notable exceptions are Calfee Park in Pulaski,

Virginia, whose right field corner is only 301 feet from home plate but has a 19-foot wall, and Scotiabank Field at Nat Bailey Stadium in Vancouver, British Columbia, whose center field is only 385 feet from home plate but has a 20-foot wall. The following are average outfield dimensions for stadiums in this study: left field is 331 ± 11 ft, center field is 401 ± 9 ft, and right field is 328 ± 13 ft from home plate (See Table 1 for exact dimensions). One caveat is that all of them are open air stadiums which does mean that humidity, wind, and temperature can vary; these effects were not accounted for in this study but have been measured in the lab and calculated based on reasonable estimated values.^{10,11}

METHOD

Number of home runs hit and runs scored were compiled for 26 Short Season A and Rookie League teams in the Pioneer, Northwest, and Appalachian Leagues 2008–12. The only exception is for Casper, Wyoming, in which data were compiled from 2007 through 2011

Table 1. Location, Elevation, and Dimensions of Minor League Stadiums

City	Elevation (feet)	Parent	League	Left	Center	Right
Casper, Wyoming	5150	Rockies	Pioneer	350	400	350
Orem, Utah	4734	Angels	Pioneer	305	408	312
Idaho Falls, Idaho	4705	Royals	Pioneer	340	400	350
Ogden, Utah	4376	Dodgers	Pioneer	335	399	335
Helena, Montana	4068	Brewers	Pioneer	335	400	325
Great Falls, Montana	3300	White Sox	Pioneer	350	400	350
Missoula, Montana	3232	Diamondbacks	Pioneer	335	414	335
Billings, Montana	3153	Cincinnati	Pioneer	330	410	330
Boise, Idaho	2842	Cubs	Northwest	330	400	330
Princeton, West Virginia	2460	Rays	Appalachian	330	396	330
Bluefield, West Virginia	2389	Orioles/Blue Jays	Appalachian	335	365	335
Spokane, Washington	2376	Rangers	Northwest	335	398	335
Pulaski, Virginia	1917	Mariners	Appalachian	338	405	301
Elizabethton, Tennessee	1653	Twins	Appalachian	335	407	320
Johnson City, Tennessee	1635	Cardinals	Appalachian	320	410	320
Bristol, Virginia	1615	White Sox	Appalachian	325	400	310
Greeneville, Tennessee	1531	Astros	Appalachian	331	400	331
Kingsport, Tennessee	1208	Mets	Appalachian	330	410	330
Yakima, Washington	1066	Diamondbacks	Northwest	295	406	295
Burlington, North Carolina	610	Royals	Appalachian	335	410	335
Pasco, Washington	550	Rockies	Northwest	335	400	335
Danville, Virginia	531	Braves	Appalachian	330	400	330
Eugene, Oregon	412	Padres	Northwest	335	400	325
Keizer, Oregon	157	Giants	Northwest	325	400	325
Everett, Washington	135	Mariners	Northwest	330	395	330
Vancouver, British Columbia	13	Blue Jays	Northwest	335	385	335

Note: Elevation is reported based on United States Geological Survey quadrangle topographical maps at each stadium's location.

because that franchise moved to Grand Junction, Colorado, after the 2011 season. Using data from 2007 for Casper ensured that five seasons' worth of data were recorded at each location. These represent 4802 total box scores. Number of hits, walks, and errors were compiled for one season's worth of data at each of the same stadiums (938 total box scores). See Figure 2 for a map of the locations of stadiums in this study.

The 26 stadiums in this study range in elevation from 13 feet above sea level (Vancouver, British Columbia) to 5,150 feet above sea level (Casper, Wyoming). Data from at least 150 normalized games per stadium were collected (minimum was 155.5 games at Princeton, West Virginia and maximum was 196.11 at Ogden, Utah). I normalize the values of home runs, runs scored, home run fraction, hits, walks, and errors to "per game" which means 18 half-innings in which each team has nine chances to bat. This normalization thus correctly weights extra-innings games in which teams had more plate appearances, and also takes into account the fact that games postponed due to weather in all three of these leagues are most often made up with a double header in which each game only lasts 7 innings; therefore, teams have fewer chances to hit in these games. It further corrects for teams who play well at home and often only have eight chances to bat in a home game.

In the Pioneer League and Northwest League each stadium hosts about 35 actual games per regular season; the Appalachian League has a slightly shorter season: each stadium hosts about 33 regular season games. I also include playoff games in this analysis which accounts for most of the variation in number of box scores analyzed among teams in the same league.

Each league's season begins in late June and ends in early September. One minor drawback to using data from these leagues is that because they do not experience the dramatic differences in temperature and humidity experienced at MLB stadiums from early April through the end of September, we're unable to corroborate predictions relating to those extremes with the empirical dataset from this set of stadiums.

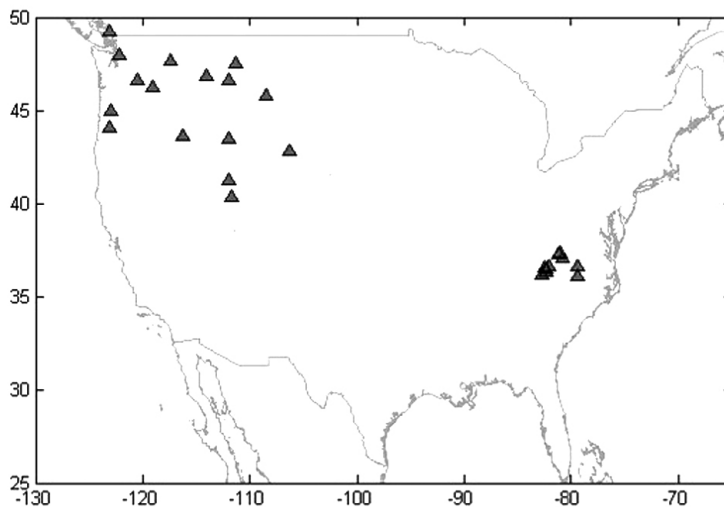
All metrics reported in this study are with respect to the stadium where the games were played, not with respect to any one team. For example, the statistic "mean home runs per game" refers to the average number of home runs hit at that stadium by both teams combined in a normalized game consisting of 18 half-innings. Home run fraction is the number of runs scored via a home run as a fraction of the total runs scored in a normalized game. The value of the home run fraction ranges between zero (no home runs in the game) and one (every run scored via a home run).

RESULTS

The most striking result of this study is that home runs hit per game is an even stronger function of stadium elevation than calculations based on reasonable estimates predict. A least-squares best fit to the home run data has a slope of 1.20×10^{-4} home runs/feet above sea level which translates to an extra 0.6 home runs per game at 5000 feet above sea level (Figure 3). For a season in which a stadium hosts 35 games, fans will see an extra 21 home runs per season at the very highest altitude. Robert Adair makes an educated guess with reasonable assumptions about average air density and temperature and concludes that an average player's probability of hitting a 400-foot home run is

increased by about 3.5% for every 550 feet of altitude.¹² We should therefore expect about 35% more home runs at 5500 feet than at sea level assuming a linear relationship between 400-foot flies and home runs in this educated guess. The average number of home runs per game at sea level in this study is 1.10, so Adair's calculations predict 1.49 home runs per game at 5500 feet. In fact, an extrapolation of the best fit line relating home runs to elevation using these data says that at 5500 feet we will see 1.76 home runs per game. That's an increase of 65%, nearly double Adair's prediction. Pre-humidor Coors Field saw an average of 3.20 home runs per game as opposed to 1.93 home runs per game by Rockies batters at other stadiums, which is

Figure 2. Location of the 26 Pioneer, Northwest, and Appalachian League stadiums in this study.



an increase of 66%, just about the same as this dataset, and so we may consider Adair's prediction of 35% to be a lower bound.

Runs scored per game also correlates strongly with elevation (see Figure 3). The runs data have appreciable scatter, but a least-squares best fit to the runs per game data has a slope of 5.61×10^{-4} runs per game per foot above sea level which translates into an extra 2.8 runs per game at 5000 feet (see Figure 3). Over the course of a season this is an extra 98 runs, quite a significant number. In fact, even though there are more home runs hit at high altitudes than calculations predict, the increase in runs scored is even more dramatic. The excess of runs scored cannot be accounted for entirely by home

Figure 3. Home runs and runs scored plotted as a function of stadium elevation.

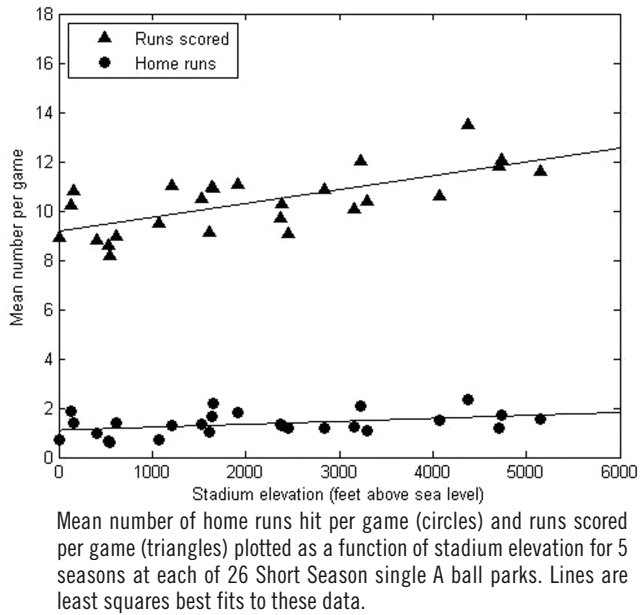


Table 2: Stadium Data, 2008–12

City	Elevation (feet)	Box scores	Normalized games	Home runs	Runs	Home run fraction
Casper, Wyoming	5150	183	181.00	1.561	11.618	0.212
Orem, Utah	4734	198	195.94	1.730	12.063	0.238
Idaho Falls, Idaho	4705	189	187.00	1.196	11.829	0.163
Ogden, Utah	4376	200	196.11	2.348	13.514	0.288
Helena, Montana	4068	192	192.06	1.487	10.630	0.230
Great Falls, Montana	3300	198	194.67	1.104	10.392	0.173
Missoula, Montana	3232	196	194.17	2.090	12.046	0.292
Billings, Montana	3153	191	187.61	1.223	10.103	0.202
Boise, Idaho	2842	194	192.33	1.188	10.886	0.190
Princeton, West Virginia	2460	159	155.50	1.204	9.016	0.208
Bluefield, West Virginia	2389	171	165.00	1.277	10.276	0.210
Spokane, Washington	2376	194	192.50	1.331	9.702	0.226
Pulaski, Virginia	1917	173	168.94	1.801	11.073	0.257
Elizabethton, Tennessee	1653	171	165.61	2.173	10.939	0.329
Johnson City, Tennessee	1635	175	168.67	1.672	11.000	0.235
Bristol, Virginia	1615	169	162.11	1.003	9.077	0.177
Greeneville, Tennessee	1531	173	171.06	1.341	10.537	0.197
Kingsport, Tennessee	1208	166	162.33	1.283	11.044	0.193
Yakima, Washington	1066	192	191.67	0.703	9.489	0.129
Burlington, North Carolina	610	175	172.78	1.373	8.960	0.239
Pasco, Washington	550	193	191.22	0.588	8.168	0.116
Danville, Virginia	531	173	167.56	0.683	8.690	0.121
Eugene, Oregon	412	192	189.17	0.990	8.787	0.185
Keizer, Oregon	157	194	192.72	1.384	10.838	0.212
Everett, Washington	135	194	189.28	1.881	10.233	0.297
Vancouver, British Columbia	13	197	194.61	0.698	8.906	0.132

includes city, elevation (feet above sea level) number of box scores analyzed, equivalent number of normalized games, average home runs, runs scored, and home run fraction from 2008–12. Elevation is reported based on United States Geological Survey quadrangle topographical maps at each stadium's location. Home runs, runs scored and "home run fraction" (number of runs scored via a home run as a fraction of the total runs scored in a game) are reported as mean number per normalized game in which a normalized game is 18 half-innings played by both teams combined. Maximum and minimum values of games, home runs, runs, and home run fraction are bolded.

runs because the home run fraction does not vary with altitude (see Figure 4). The average home run fraction is 0.21 so of the extra 98 runs scored per season at 5000 feet, only 20.6 of them can be explained by extra home runs. How do we account for the other 77.4 runs? Answering this question is the topic under discussion for the rest of this paper.

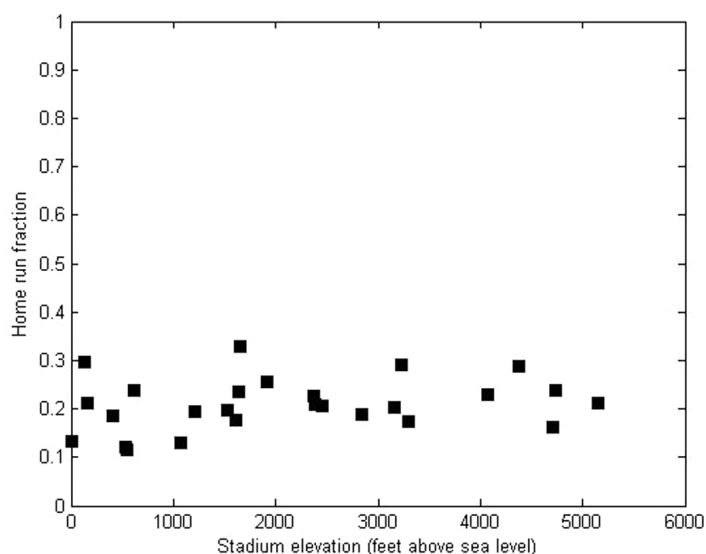
Clearly, the strong relationship between runs scored and elevation means that on-base percentage is increased at high altitudes. Batters have to reach base to eventually score a run, so it makes sense to examine all the ways a hitter can reach base safely and determine which of these correlate with altitude. Home runs we have already analyzed—and in any case, home runs are a special category of hits. In general, to reach base a batter must do one of the following: hit safely, walk, reach on an error, get hit by a pitch, reach base on a fielder's choice, be awarded first base on catcher's interference or a dropped third strike. In practice, these last two are rare enough that there were no instances of either of them happening in the five years of data collected (4802 total box scores). Furthermore, the sample size of hit-by-pitches was too small to allow for meaningful analysis. Therefore, I limit this discussion to hits, walks, and errors.

I collected one year of these data (2012 for all stadiums except 2011 for Casper, Wyoming) for each stadium. Results are given in Table 3 and plotted in Figure 5. The slope of the least squares best fit line to hits per normalized game as a function of elevation (filled circles in Figure 5) is 8.09×10^{-4} hits/foot. At 5000 feet that translates to an average of four more hits per game than at sea level. For a single season in which a stadium hosts 35 home games, fans will see 140 additional hits per season at 5000 feet compared to what they would see at sea level. The slope of the best fit of walks per game as a function of elevation is 4.14×10^{-5} walks/foot which translates to 0.2 extra walks per game at 5000 feet and therefore 7.2 extra walks per season. The best fit line relating errors per game to elevation has a slope of 1.68×10^{-4} errors/foot, so at 5000 feet that is 0.8 extra errors per game and 28 extra errors per season.

DISCUSSION

Results are unequivocal. There are more home runs hit at high altitude than low altitude, and nearly double the calculated prediction. However, Adair's prediction of 35% more home runs at 5500 feet is most likely a lower bound. Note that when home runs and runs scored are plotted on the same axes, it is quite obvious

Figure 4. Mean home run fraction as a function of stadium elevation for five seasons of data at 26 Short Season A stadiums.



Todd Helton played all 17 years of his career in the major leagues with Colorado, giving him 4841 plate appearances at an elevation of 5,200 feet.

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Table 3: Stadium Data, 2012

City	Elevation	Box scores	Normalized games	Hits	Walks	Errors
Casper, Wyoming	5150	37	37.389	20.059	7.302	3.156
Orem, Utah	4734	37	37.556	20.450	7.882	3.142
Idaho Falls, Idaho	4705	37	38.278	20.978	6.897	3.710
Ogden, Utah	4376	41	40.278	21.228	9.137	3.550
Helena, Montana	4068	37	37.944	19.212	6.905	3.163
Great Falls, Montana	3300	39	39.444	17.645	7.200	3.372
Missoula, Montana	3232	39	40.000	19.825	7.400	2.975
Billings, Montana	3153	37	36.611	18.109	6.883	3.168
Boise, Idaho	2842	40	40.333	20.876	6.099	3.074
Princeton, West Virginia	2460	32	32.333	16.608	6.000	3.00
Bluefield, West Virginia	2389	30	28.833	17.133	6.624	3.191
Spokane, Washington	2376	37	38.722	14.953	7.463	2.634
Pulaski, Virginia	1917	32	33.778	17.734	6.750	2.635
Elizabethton, Tennessee	1653	34	33.722	17.377	8.689	2.579
Johnson City, Tennessee	1635	34	32.722	20.048	6.448	3.545
Bristol, Virginia	1615	32	30.667	16.793	7.337	2.511
Greeneville, Tennessee	1531	34	34.889	17.398	6.248	2.293
Kingsport, Tennessee	1208	31	30.389	18.033	7.700	3.718
Yakima, Washington	1066	39	39.778	16.970	6.235	2.363
Burlington, North Carolina	610	37	37.167	16.386	6.996	2.368
Pasco, Washington	550	37	37.778	16.279	5.718	2.541
Danville, Virginia	531	34	32.667	17.020	5.939	2.908
Eugene, Oregon	412	37	37.944	14.416	8.354	2.635
Keizer, Oregon	157	37	38.667	18.440	8.017	2.974
Everett, Oregon	135	38	37.944	17.842	7.775	2.635
Vancouver, British Columbia	13	39	38.444	16.205	8.116	2.211

City, elevation (feet above sea level) number of box scores analyzed, equivalent number of normalized games, mean number of hits, walks, and errors per normalized game in the 2012 season. Elevation is reported based on United States Geological Survey quadrangle topographical maps at each stadium's location. Hits, walks and errors are reported as mean number per normalized game at that stadium in which a normalized game is 18 half-innings played by both teams combined. Maximum and minimum values of hits, walks, and errors are bolded.

that runs scored is of far more practical significance in terms of the correlation with altitude. The excess number of runs scored that cannot be accounted for entirely by home runs is startlingly large (Figure 3).

Number of hits strongly correlates with elevation, and so does number of errors. On the other hand, number of walks varies very little. So we know there are more runs scored at high altitudes, but the more interesting question to explore is this: Why are there more runs scored at higher elevation that are not entirely due to home runs being hit more often there? There are a number of reasonable possibilities, none of which are mutually exclusive, many of which can be tested with regard to this empirical dataset. These possibilities fall under four main categories: pitching, hitting, fielding, and psychology.

1. Pitching. Numerical models predict that a 10 percent drop in air density decreases the break of a curveball by as much as nine percent.¹³ Curve-

balls that don't curve and breaking balls that don't break fool fewer hitters, leading to more hits. This scenario leads to higher on-base percentage without needing home runs to do it, which is what we require to be consistent with our dataset. This dataset further indicates that walks do not contribute to the higher on base percentage at high altitudes (Figure 5). This observation is also not inconsistent with computer models that show little if any horizontal change in the trajectory of pitched balls, but significant changes in vertical location.¹⁴ A pitcher who is most likely to miss his spot by leaving a pitch in the strike zone (missing high) when he intended not to throw a strike would throw more hittable pitches without increasing the number of walks, consistent with these data.

A pitcher who consistently misses the strike zone in the horizontal dimension has his own

mechanics or psychology to blame rather than the altitude of the stadium. What I mean by this is that pitchers who put a left-to-right or right-to-left curve on the ball should not be affected by the altitude of the stadium. If they are, it is probably due to psychology (see point 4 below). Pitchers who rely on a pitch that breaks out of the strike zone will have the most trouble because their pitches may tend to come in high and hittable.

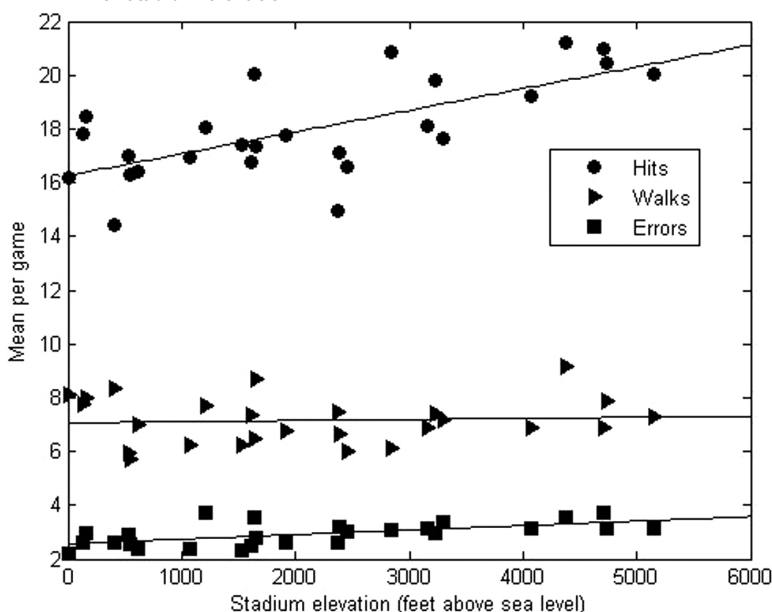
2. Hitting. A batted ball hit at high altitude travels farther and gets to the fielders more quickly.¹⁵ Computer simulations have shown that the increase in distance traveled as a function of altitude is greater for line drives than for home run balls, the majority of which are fly balls (Bahill, et. al. studied home runs in specific). We presume this is because the trajectory of a line drive maximizes the reduction in drag that comes from reduced air density while minimizing the reduction in the Magnus coefficient that decreases lift.¹⁶ On the other hand, more recent work involving statistical analysis of batted balls during actual major league baseball games using the TrackMan doppler system shows that line drives are affected less than fly balls at high temperatures, which can be taken as a proxy for high altitude since the effect on projectile motion of a

baseball is the same for increased temperatures and increased elevation.¹⁷

My study cannot speak to the conflict between these two previous studies as I can only state that more hits are recorded at high altitude stadiums, not whether those were bloop, short flies, or line drives. In whatever way it happens, an increase in non-home run hits that is more dramatic than the increase in home runs is perfectly consistent with this dataset. If fielders play back expecting batted balls to sail, then more bloop can drop in front of them for hits, consistent with this dataset and consistent with Alan Nathan's analysis using the TrackMan system. A line drive to an out-of-position player who can't get to the ball fast enough is consistent with this dataset and consistent with Bahill et al.'s simulations. Further analysis of batted balls during games at the ball parks in this study may be warranted to determine which of these two scenarios is more common.

An educated guess also is that high altitudes have more detrimental effects on aerobic activities (running) than anaerobic activities (swinging a bat), further compounding the likelihood of an average batter collecting more hits at high elevation because the fielders can't get to the ball fast enough.

Figure 5. Hits, walks and errors per normalized game as a function of stadium elevation.



Mean number of hits, walks and errors per normalized game as a function of stadium elevation for one season of data at each of 26 Short Season A stadiums. Lines are least squares best fits to the data.

3. Fielding. Thrown balls are more likely to sail at higher elevation, increasing the number of errors. If a player is slightly out of position or loses track of a fly ball, he will have less time to correct his mistake because the ball will arrive more quickly at high elevation. If a player doesn't get to a ball at all, that will probably be scored a hit (see point 2 above) but if he just barely gets there and the ball glances off his glove, that will most likely be an error, even though the real culprit is the enhanced flight of the ball at altitude. Both sailing throws and missed catches will lead to more men on base due to errors, again consistent with this dataset.

4. Psychology. The possibilities examined so far, namely pitching, hitting, and fielding, are mutually consistent and probably all contribute to the enhanced on-base

percentage observed at high altitude stadiums. In addition, I believe there is a fourth important factor, and that is the psychology of the baseball players. Confirmation bias—the practice of unconsciously collecting a mental dataset that is consistent with pre-conceived notion about a topic—is a well-known human tendency and has been studied in fields as diverse as science and intelligence analysis.¹⁸ In practice, it means that people have a tendency to remember observations that agree with what they already think is true and ignore all data to the contrary.

Confirmation bias can manifest itself in a variety of ways in a baseball game, especially for inexperienced players who populate the Short Season A rosters. Outfielders “know” that there will be more home runs at high elevation so they play back farther, which allows hitters to dump singles in front of them all game long. Pitchers “know” their curveball doesn’t work well at altitude so they pitch tentatively or leave balls over the middle of the plate that they intended to break out of the strike zone resulting in more hits (but not necessarily more walks). Batters “know” they will hit better at high altitude and arrive at the plate full of confidence, resulting in better batting performance. All of these scenarios are likely, and they can’t be easily separated from the physics of the flight of a batted ball with the dataset at hand, but confirmation bias can help to explain why offensive statistics are even more enhanced than calculations predict they should be.

It would be an interesting follow-up to take an overhead photo of each field in this study at the end of the season to see whether there is a significant difference in the distance between the outfield fence and the bare spots where the outfielders prefer to play that correlates to the elevation of the stadium. Another psychological point that is impossible to disentangle from the effects of stadium elevation is player fatigue. High altitude is fatiguing by itself, and the stadiums at the highest elevations are also the farthest away from each other (see Figure 1). Players in the Pioneer League spend long bus rides between series to get from one town to another, and this probably has an effect on performance. A useful follow-up study might try to isolate this effect by examining the differences in game statistics between the first game of a home stand and later games. If the “travel fatigue effect” is significant, than

we might expect the first game of a home stand to involve the biggest enhancement to on-base percentage.

One might also expect that a league in which some teams are at sea level and some are at very high elevation might provide clues about psychology because players would have to recalibrate often during a season as they travel back and forth between low and high elevations. The California League (high A) is a good candidate for a follow up study in this regard because there are some low and high stadiums. The Pacific Coast League (AAA) has the biggest vertical relief with some stadiums at sea level and the Albuquerque Isotopes playing at about 5300 feet, but collecting data from any league higher than class A ball will taint the analysis with roster effects that are probably too important to ignore.

CONCLUSIONS

Knowing which factors are most likely to contribute to high offensive output would help scouts, coaches and managers select and mentor the players who are going to play in stadiums located at high elevations. In this study it is evident that all the factors contributing to on-base percentage are enhanced as a function of stadium altitude, with the exception of walks.

Is it important to limit the offense at high altitude stadiums? An argument may be made that the psyches of young pitchers could be affected adversely by playing in conditions that lead to so much offense. An equally strong counter-argument could be made that the caliber of fielding might be improved if players are forced into situations where they need to track the trajectory of a ball in flight and get to it faster. This can be negated if they have to compensate by using throwing mechanics that are different at different stadiums.

Crucially, this dataset shows that merely moving the outfield walls back will not decrease offense: most of the excess runs scored come from additional base hits and fielding errors as opposed to home runs. All those in attendance on June 18, 2012, in Idaho Falls, Idaho who watched the hometown Chukars defeat the Orem Owlz 16–14 can attest to this. Of the 30 runs scored in the game, only two can be attributed to home runs—both solo shots. However, that game featured 29 hits, nine errors, and 14 walks between the two teams. This example is on the high end of offensive output at high elevations in this dataset, but is by no means an outlier.

Keeping the walls in the same place but building them higher is an option that can limit home runs and might keep the outfielders from having to play so far back that base hits drop safely in front of them

throughout the game. Fielders will be forced to pick up the additional skill of fielding off a high outfield wall that collects all the extra line drive hits. However, at present not a single team in this data set is affiliated with the Red Sox, who arguably have the strongest need to develop this skill, given the particulars of Fenway Park. Storing the balls in a humidifier as has been done at Coors Field since 2002 has likely limited the number of home runs there.^{19,20} Building higher outfield walls might be a more cost-effective solution at minor league ballparks, if a solution is deemed necessary. ■

Acknowledgements

I thank George Skornickel and the rest of the SABR Forbes Field chapter for encouraging feedback and speculations regarding this research. Thanks also to the past and present members of the PSU Rock Mechanics lab for the discussions and the beer.

Notes

1. Robert K. Adair, *The Physics of Baseball* (HarperCollins, NY, NY, 2002).
2. Cliff Frohlich, "Aerodynamic drag crisis and its possible effect on the flight of baseballs," *American Journal of Physics*, 52 (1984): 325–34.
3. A. Terry Bahill, David G. Baldwin, and John S. Ramberg, "Effects of Altitude and Atmospheric Conditions on the Flight of a Baseball," *International Journal of Sports Science and Engineering*, 3 (2009): 109–28.
4. David T. Kagan and D. Atkinson, "The coefficient of restitution of baseballs as a function of relative humidity," *Physics Teacher*, 42 (2004): 330–3.
5. Alan M. Nathan, J. Hopkins, L. Chong and H. Kaczmariski, "The effect of spin on the flight of a baseball," SABR conference, Seattle, June 2006.
6. Frederick Chambers, Brian Page and Clyde Zaidins, "Atmosphere, weather, and baseball: how much farther do baseballs really fly at Denver's Coors Field?" *The Professional Geographer*, 55 (2003): 491–508.
7. Adair, 19.
8. Ibid, 21.
9. Edmund. R. Meyer and John L. Bohn, "Influence of a humidifier on the aerodynamics of baseballs," *American Journal of Physics*, 76 (2008): 1015–21.
10. Kagan and Atkinson.
11. Adair, 20–22.
12. Adair, 27.
13. Bahill et al.
14. Ibid.
15. Adair, 21.
16. Bahill et al.
17. Alan M. Nathan, "What New Technologies Are Teaching Us About the Game of Baseball," <http://baseball.physics.illinois.edu/TrackingTechnologiesBaseball.pdf>, (2012)
18. Richards J. Heuer, *Psychology of Intelligence Analysis*, (Central Intelligence Agency, Washington, D.C., 1999).
19. Meyer and Bohn.
20. Alan M. Nathan, Lloyd V. Smith, Warren L. Faber and Daniel A. Russell, "Corked Bats, Juiced Balls, and Humidifiers: The Physics of Cheating in Baseball," *American Journal of Physics*, 79 (2011): 575–80.

Do Hitters Boost Their Performance During Their Contract Years?

Evidence from the 2006–11 Collective Bargaining Agreement’s Years Says “Yes”

Heather M. O’Neill, PhD

Each season, baseball fans and journalists alike identify which players are in the final years of their contracts because a lot rides on how the players produce in their “contract year.” Will a player boost his effort and performance in an effort to improve his value and bargaining power? Or will he crumble under the pressure? Or are players’ performances uncorrelated with where they stand in their contract cycles? Legendary manager Sparky Anderson believed players rose to the occasion in their contract years, declaring, “Just give me 25 guys on the last year of their contract; I’ll win a pennant every year.”¹ Although anecdotal evidence abounds, this paper uses a robust data set and appropriate player-specific econometric modeling highlighted in O’Neill to show that Anderson was right—players’ performances improve during their contract years.² To find the answer requires following players throughout their careers to tease out changes predicated on contract status, rather than comparing players to one another given their contract status.

For example, in the last year of a three-year contract with the Mariners in 2006, Raul Ibañez sported an .869 OPS (on-base plus slugging percentage), up from .792 OPS the previous year.³ He subsequently signed an \$11 million, two-year contract with the Mariners. In his next contract year, 2008, his OPS of .837 slightly exceeded his 2007 OPS of .831. Ibañez then signed a \$31.5 million, three-year contract with the Phillies. At the end of that deal, in 2011, Ibañez’s .707 OPS dipped lower than his previous year’s OPS of .793 and the Yankees signed him to a one-year deal at \$1.1 million. Two of Ibañez’s three contract years show boosts in performance, while the third demonstrates a significant drop. He was also 39 years old in 2011, suggesting age must be accounted for while searching for the answer.

The parties in contract negotiations—players, agents, and team owners—understand that incentives affect performance and that performance impacts pay and contract length. Players seek job security, income, and championships, while profit-seeking owners want

players to perform well to win games and championships and secure fan enthusiasm. In contract negotiations, how a player has performed over his career serves as an imperfect predictor of his future performance. If players believe that team owners weigh a player’s most recent season more heavily than preceding years, it sets the stage for the contract year phenomenon. The attraction of a lucrative future contract provides ample incentive for a player to put in additional time and effort to boost performance in his contract year. After signing a new guaranteed contract, both pay and contract length are set regardless of actual performance, which removes the previous incentive.⁴ For longer-term contracts, this may lead to shirking. Eventually, a new contract year arrives and the incentive to boost performance reappears.

Difficulty arises in separating the individual performance of a baseball player from his team’s capabilities. This proves especially true for pitchers since decisions made about their pitch selection, pitch location, and strategy may depend on their team’s fielding proficiency and the strength of the bullpen. For a hitter, the type of pitch he sees may depend in part on the hitters adjacent to him in the lineup and the situation. This paper analyzes individual data on hitters (position players), rather than pitchers, while cognizant of the potential measurement errors. Adjusted OPS (OPS100) serves as the measure of the hitter’s performance. Although random variations in OPS100 from one year to the next can occur, it is unlikely for a large group of players that above average performances would randomly occur during contract years. I contend that effort and performance change from one year to the next depending upon where the player sits in his contract cycle.

Major League Baseball’s use of salary arbitration, contract extensions, and free agency provides avenues for enhanced contract conditions for players. This paper focuses on free agents with six or more years of MLB service for the following four reasons:

- (1) free agency is associated with the greatest financial gains for players as teams bid for players' services;
- (2) at least six years of service enable more observations per player to capture more robust results;
- (3) free agents with fewer than six years are those who have been demoted to the minors or released; and
- (4) there will be a sufficient number of players who may retire at the end of their contract year, an intention that is expected to impact contract year performance.

PREVIOUS RESEARCH FINDINGS

Previous research on MLB contract year performance shows mixed results. As detailed in O'Neill, the choice of performance measure and statistical technique employed often creates contradictory results.⁵ Researchers generally analyze hitters, believing hitting statistics are less contaminated by team play than pitching statistics. The use of slugging percentage (SLG), at bats (ABs), days on the disabled list (DL), wins above replacement player, OPS, and runs created per 27 outs (R27), shows the range of offensive performance measures investigated. Given differences in players' abilities, changes in a player's output should be relative to his ability, indicating why several studies use the deviation between current and three-year moving average of a player's offensive statistics to capture changes in a player's output. A deviation-based model by Maxcy et al. finds no significant change in SLG for players in their contract year.⁶ Maxcy et al. does find that players seeking new contracts spend fewer days on the DL and have more ABs, contending they do so to make themselves more attractive to team owners. Birnbaum does not find a boost in R27 during contract years, whereas Perry does using WARP.^{7,8}

Using ordinary least squares (OLS) regression enables one to predict changes in output during the contract year while controlling for observable player traits, such as age, years of MLB experience, team success, etc. However, compiling data on many players (cross sectional data) over several years played (time series data) creates a "panel" dataset. OLS estimation leads to biased results with panel data. Previous studies show robust statistical evidence of the contract year boost when using appropriate panel data estimation techniques, whereas those applying OLS models do not,

as discussed in O'Neill.⁹ Analyzing data on hitters between 2001 and 2004, Dinerstein uses seemingly unrelated regression (SUR) and finds statistically significant increases in a hitter's SLG during his contract year.¹⁰ Interestingly, from the team owners' perspectives, Dinerstein finds that consistency of a player's performance mattered more than the most recent performance. If teams are seeking consistency, they will pay for it, and players will begin to aim for steady hitting performances. If Dinerstein is correct, we should see a reduction toward zero in the magnitude of the contract year boost. Hummel and O'Neill employ fixed effects estimation with data on free agents playing 2004–08 and find 4.2–5.5 percent boosts in OPS during contract years.¹¹ They note that players intending to retire no longer have financial incentive to boost effort, although they may desire to go out on top. Their results suggest the former effect dominates, shown by an 11.2–13.2 percent decrease in OPS for retiring players in the last year of their contracts, after controlling the diminishment of performance due to age and age-related injury.

ABILITY, EFFORT, AND PERFORMANCE

Team owners and general managers observe differences in players' performances through easily available statistics. The difference between innate ability and effort, however, which together account for the differences in players' performances, proves difficult to discern. In a given year, a player's ability generally remains relatively constant, but his effort can change and lead to differences in performance levels. While unlikely that effort changes much during a game, offseason effort and effort between games in-season can vary. Players can exert effort to enhance their productivity by engaging in more intense workouts, restricted leisure activities, and eating healthier diets.

Players alter their effort when their interest dictates. If players believe team owners place greater weights on more recent performances, this motivates players to increase their effort and (ideally) performance during their contract year. But if players perceive that owners value consistent performance, then boosting performance in the contract year remains unlikely. When a player intends to retire at the end of the contract cycle, the incentive to perform and acquire another contract disappears, which is expected to reduce effort and performance during all years of the final contract, including the last year.

MULTIPLE REGRESSION MODEL TO ESTIMATE ADJUSTED ON BASE PLUS SLUGGING PERCENTAGE

The dependent variable for this study is OPS100,

preferred over OPS because it accounts for league play and the player's home baseball park. This offensive measure accounts for power and reaching base frequently, two events contributing to scoring runs. OPS100 does not depend upon playing time and captures offensive prowess better than RBIs, batting average, HRs, etc.¹² Albert and Bennett find OPS a better predictor of scoring runs than its two components separately.¹³ Barry Bonds holds the single-season record for unadjusted OPS at 1.4217 in 2004 when his SLG was .812 and his OBA was .609.¹⁴ During that season he typically walked or hit a home run during a plate appearance.

The suggested regression model for OPS100 for player i in season t is

$$\text{OPS100}_{i,t} = \beta_0 + \beta_1^* \text{GAMES}_{i,t} + \beta_2^* \text{PLAYOFF}_{i,t} + \beta_3^* \text{PROBRET}_{i,t} + \beta_4^* \text{CONTRACTYR}_{i,t} + a_i + u_{i,t},$$

where: GAMES represents the number of games played; PLAYOFF is a binary variable equal to 1 when the player's team makes the playoffs and 0 otherwise; PROBRET is the estimated probability of retirement; and CONTRACTYR is a dummy variable denoting whether season t is a contract year ($= 1$) or not ($= 0$). The sign above each coefficient denotes the expected impact on OPS100 given an increase in the independent variable, holding all else constant. The stochastic error comprises two terms impacting a player's performance: a_i is the unobserved player effect representing all time-invariant factors that cannot be measured or observed, such as innate ability, work ethic, drive, etc.; and $u_{i,t}$ represents random errors, due to accidents, weather, etc.¹⁵

The GAMES and PLAYOFF variables serve as control variables to mitigate potential bias. Playing more games helps a player gain confidence at the plate, likely raising his OPS100. Similarly, players with higher OPS100 statistics likely play in more games. The expected positive association between OPS100 and GAMES implies $\beta_1 > 0$. Several reasons suggest $\beta_2 > 0$. If a player's team is in the playoff hunt, he is expected to boost his performance to help his team make the playoffs and potentially win a championship. Teams in a playoff race may trade for high-performing hitters at the trade deadline, suggesting another reason for the positive association. A financial incentive to perform better also exists, since team members earn playoff revenues. Lastly, higher OPS100 figures may lead to teams making the playoffs.¹⁶

At the end of a player's contract, he may or may not sign a new contract. He may willingly choose to retire,

retire reluctantly due to advanced age or injuries, or be forced to retire because no team is willing to hire him despite his desire to keep playing. Unfortunately, it is not feasible to know which case prevails for all players. The variable NOPLAY = 1 denotes a player is not on a MLB team the year after a contract year and NOPLAY = 0 indicates he is on a roster. If NOPLAY switches from 0 to 1 because a player willingly chooses to retire, the expected impact is a decrease in OPS100 due to the lack of incentive to sign another contract. If NOPLAY switches for one of the other reasons for retirement, it may be due to a low OPS100, in which case the impact of NOPLAY on OPS100 is biased. To mitigate the bias and introduce the potential reasons behind retirement—advanced age, injuries, and poor performance—a new variable that predicts the likelihood of retirement is created, PROBRET, following work by Krautmann and Solow.¹⁷ The estimated probability of retirement, discussed

and shown later, is used to predict the retirement intention for each player for each year. Using PROBRET instead of NOPLAY as an independent variable reduces bias. Players who choose to retire do not seek another contract, therefore are expected to have a lower OPS100. Additionally, a player with a low OPS100 is more likely to have a higher probability of retirement as he goes unsigned or reluctantly hangs up his cleats. These suggest $\beta_3 < 0$.

MLB hitters are expected to engage in opportunistic behavior and increase their performance during the contract year, thus $\beta_4 > 0$. This presumes team owners value the most recent performance as a solid indicator of future performance, making way for the contract year boost. CONTRACTYR is the only independent variable in (1) that satisfies causal inference, rather than simply correlation, since a player's contract status is known a priori.

DATA

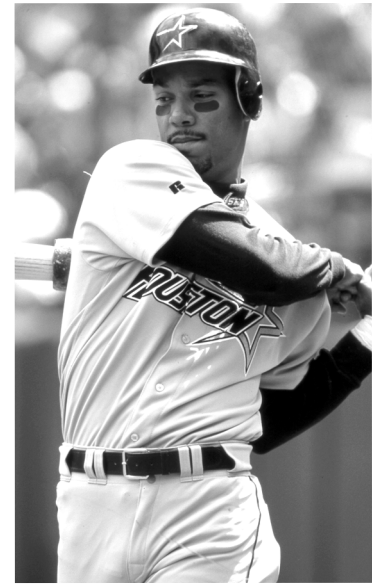
Data are collected on all free agent hitters playing during the most recently completed 2006–11 Collective Bargaining Agreement (CBA) who had six or more years of MLB experience, a minimum of two years of observation, and played in at least seven games in a year. Choosing players under the same CBA helps reduce potential impacts due to changes in CBAs, since all players and team owners are subject to the same contract and free agency guidelines, and revenue-sharing rules.¹⁸ Signing new local and national TV contracts also affect revenue-sharing streams and hence salaries, but these are not captured in the data set.

Hitters with one-year and longer-term contracts are

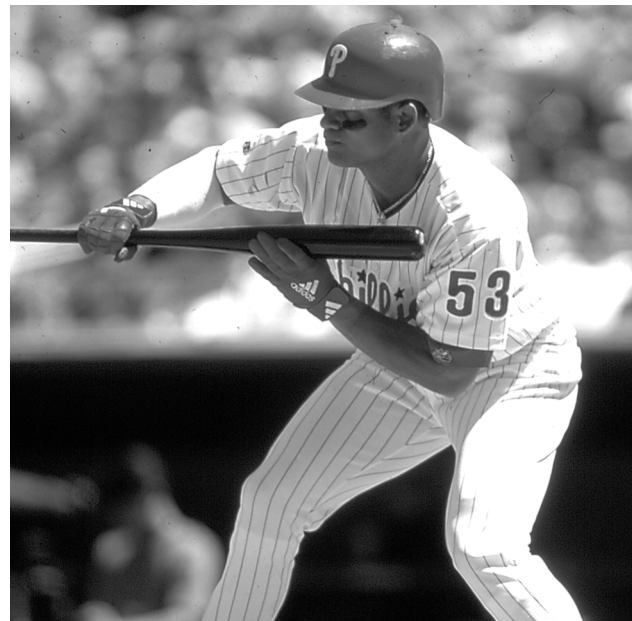
used. Players with longer term contracts generally represent those with higher ability; eliminating those with one-year contracts would potentially bias the results.¹⁹ Ultimately, 256 MLB free agent hitters meet the data selection criteria. The panel dataset is unbalanced, meaning the number of observations per player need not be the same.

ESPN.com's Major League Baseball Free Agent Tracker lists the positions played, age, current team and new team unless re-signed, for all free agents in each year. Players who do not receive another contract are listed as retired or free agent again. Baseball-Reference.com provides OPS100 statistics, the number of games played each season, and the year in which a player debuted in the major leagues. Josh Hermesmeyer unselfishly provided me with the number of days on the disabled list (DL) for all players in 2006–09 from his MLB Injury Report. Backseat Fan (2010) and Fan-Graphs (2011) provide the days on the disabled list for players in 2010 and 2011, respectively. For players who change teams via an in-season trade, the playoff status of the final team is used.

Table 1 presents the format of the unbalanced data set for two players. The first player is outfielder (POSITION=9) Bobby Abreu, given an identification code of 2, who was 32 years old in 2006. Abreu appears on MLB rosters in all six years of the 2006–11 CBA and with the Dodgers in 2012, thus NOPLAY=0 for all of his years. In his 2008 contract year and prior year, he played with the Yankees, having been traded from the Phillies in 2006. The Yankees made the playoffs in 2006 and 2007 but not in 2008, shown by PLAYOFF=1 and 0, respectively. In 2007, Abreu shows an OPS100 of 113 playing in 158 games, compared to his OPS100 of 120 in 156 games in his 2008 contract year. Abreu debuted in the majors in 1996, implying 11 years of experience (EXP) by 2006. With no days on the DL over the six years, DL=0.



Moises Rojas Alou signed as a free agent with the San Francisco Giants before the 2005 season, and with the Mets before the 2007 season. He would play 2007 and 2008 with the Mets.



Bobby Abreu moved mid-season in 2006 from the Phillies to the Yankees by trade, then went to the Angels in 2009 as a free agent.

Table 1. Unbalanced Dataset Example

NAME	CODE	YR	YEAR	TEAM	AGE	CONTEAR	OPS100	GAMES	POSITION	NOPLAY	EXP	PLAYOFF	DL
Bobby Abreu	2	1	2006	Phil/Yank	32	0	126	156	9	0	11	1	0
Bobby Abreu	2	2	2007	Yank	33	0	113	158	9	0	12	1	0
Bobby Abreu	2	3	2008	Yank	34	1	120	156	9	0	13	0	0
Bobby Abreu	2	4	2009	Angel	35	0	118	152	9	0	14	1	0
Bobby Abreu	2	5	2010	Angel	36	0	118	154	9	0	15	0	0
Bobby Abreu	2	6	2011	Angel	37	0	105	142	9	0	16	0	0
Moises Alou	4	1	2006	Giant	39	1	132	98	9	0	17	0	50
Moises Alou	4	2	2007	Mets	40	0	137	87	9	0	18	0	76
Moises Alou	4	3	2008	Mets	41	1	107	15	9	1	19	0	163

The second player, outfielder Moises Alou, shows two contract years, in 2006 with the San Francisco Giants and in 2008 with the New York Mets. He had 15 years of MLB experience by 2006 at age 39. Alou did not play on an MLB team in 2009, thus $NOPLAY = 1$ for 2008. His teams did not make the playoffs in any of the three years. Injuries led to increasing numbers of days on the DL and fewer games played between 2006 and 2007, and by 2008 two major injuries limit Alou's playing time to only 15 games with 163 days on the DL. Three observations for Alou and six for Abreu indicate an unbalanced dataset.

Sorting the descriptive statistics by contract year status, interesting results appear in Table 2. The differences in means for all variables, except playoffs and days on the DL, are statistically significantly different at $p < .001$. There are 546 player-year observations for contract years and 470 for non-contract years. The average OPS100 for the contract year is 85.9 compared to 97.2 for the non-contract year, which appears contrary to the contract year boost hypothesis. This contrary result arises chiefly from the ex-post retirements ($NOPLAY = 1$) of 23.1 percent in the contract year observations swamping the 3.2 percent in the non-contract year that may be due to poorer hitters receiving only one year contracts. Ten fewer average games played in the contract year observations also suggests that less capable hitters have shorter contracts. Comparing the two means proves misleading and too simplistic. Predicting OPS100 via appropriate regression analysis can account for the influence of retirement and other factors to offer a more robust test of the contract year phenomenon.

ORDINARY LEAST SQUARES VERSUS FIXED EFFECTS ESTIMATION

Given panel data, estimation of the model via ordinary least squares (OLS) may be inappropriate due to omitted variable bias that occurs when immeasurable player characteristics in the error term a_i are correlated with some independent variables. For example, a player's ability, captured in a_i , is expected to be positively correlated with the number of games he plays,

GAMES, since higher ability players are likely to play in more games. Suppose higher ability players do have higher OPS100s and that playing in more games does increase OPS100. Ignoring the influence of ability, as in the case of OLS, means that GAMES receives more credit than warranted as the cause of the high OPS100. Consequently, the estimated coefficient of 1 will be positively biased. Similarly, if a player has an exceptional (albeit non-measurable) work ethic, he will likely contribute more to his team's success and increase his team's chances of making the playoffs. This implies an expected positive correlation between a_i and $PLAYOFF$. If high OPS100s are attributable to both strong work ethics and playing on a playoff team, then the estimated coefficient of 2 will also be positively biased in OLS.²⁰ Eliminating bias requires a different technique, namely fixed effects (FE) estimation.

Studying a player's motivation to perform across the contract cycle suggests concentrating on the within-player behavior. Estimating how each player alters his effort and performance over his contract cycle must be measured against his metrics, not against those of others. FE estimation calculates the mean of each variable over time for each player and subtracts it from the actual observation for each year to demean the data. For example, Bobby Abreu's average OPS100 over his six years of playing is 116.5, which is subtracted from his actual OPS100 for each of his six years to yield six deviations or demeaned observations for his OPS100. After doing so for all players, the demeaned dependent variable of OPS100 is regressed on the demeaned independent variables via OLS producing the fixed effects within-player coefficients. Time-invariant unobserved traits in a_i , such as ability, have demeaned values of zero, eliminating them from affecting outcomes. Dropping out the unobserved traits via demeaning eliminates correlations and associated biases between unobserved traits and independent variables.²¹

While FE estimation addresses bias and focuses on changes in players' behaviors, it comes with a cost. Finding statistical significance for estimated coefficients may be compromised. The variation in OPS100

Table 2. Descriptive Statistics for Contract Year versus Non-Contract Year

	CONTRACT YEAR					NON-CONTRACT YEAR				
	N	MEAN	ST. DEV.	MINIMUM	MAXIMUM	N	MEAN	ST. DEV.	MINIMUM	MAXIMUM
OPS100	546	85.9	30.41	-21	182	470	97.2	29.87	-39	192
NOPLAY	546	0.231	0.42	0	1	470	0.032	0.18	0	1
AGE	546	33.59	3.28	26	48	470	32.25	3.02	24	47
DL	546	19.39	33.74	0	163	470	17.53	31.99	0	193
EXP	546	11.6	3.29	7	26	470	10.6	3	6	25
PLAYOFF	546	0.333	0.47	0	1	470	0.309	0.46	0	1
GAMES	546	95.23	40.57	7	162	470	115.49	36.88	10	162

across 256 players is expected to be much greater than the variation in OPS100 for individual players over their free agency careers. For example, the dataset shows a range in OPS100 from -39 to 192 with a standard deviation of 30.67, while Bobby Abreu's only vary between 105 and 126 with a 7.09 standard deviation. Other players generally have smaller OPS100 deviations too. Since FE estimation concentrates on the within-player variation and dismisses the between-player differences in OPS100, it reduces the sample variation in OPS100 and lessens the likelihood of statistical significance for the estimated coefficients. Demeaning the data also reduces the degrees of freedom by 255, further diminishing chances of statistical significance. Therefore, finding a statistically significant FE result for 4, in spite of these perils, occurs because evidence from the dataset is compelling.

ESTIMATING THE PROBABILITY OF RETIRING

Players generally retire at the end of a contract. However, the predicted probability of retiring can change over time until actual retirement occurs and it should be considered by the team owner during negotiations. A player's likelihood of retiring depends on how many years he has played, how many days have been spent on the DL, and his offensive performance per Krautmann and Solow.²² Equation (2) denotes the regression equation for the probability of retirement for player i in season t as

$$\text{PROBRET}_{i,t} = \alpha_0 + \alpha_1 * \text{EXP}_{i,t} + \alpha_2 * \text{EXP}^2_{i,t} + \alpha_3 * \text{DL}_{i,t} + \alpha_4 * \text{OPS100}_{i,t} + a_i + v_t + u_{i,t},$$

Players with more years of experience are expected to have increasingly greater likelihoods of retiring since they have signed several contracts and amassed income. Additionally, the aging process that accompanies years of experience takes its toll on bodies often coinciding with familial demands to be home more often. With EXP2 representing years of experience squared, $a_1 > 0$ and $a_2 > 0$ are expected. More days on the DL are expected to increase PROBRET, i.e., $a_3 > 0$, since injuries inhibit playing ability and reduce interest by team owners. If a decline in OPS100 portends reduced future performance, it increases retirement likelihood, $a_4 < 0$. The stochastic error comprises both the unobserved time-invariant player traits a_i and unmeasured time-variant traits v_t such as family issues.

Using NOPLAY as the dependent variable, estimating (2) via FE leads to the linear probability model (3) below. Since NOPLAY is determined after the season, all of the independent variables yield causal inference. The p -values for one-tailed hypotheses tests for the

estimated slope coefficients are in parentheses below the estimates.

$$\begin{aligned} \text{PROBRET} = & -3.38 + .157 * \text{EXP} + .006 * \text{EXP}^2 + .0004 * \text{DL} - .004 * \text{OPS100} \\ & (.0475) (.0001) (.135) (.001) \\ & \text{Correctly Predicted} = 94\%^{23} \end{aligned}$$

Days on the disabled list do not statistically predict likelihood of retiring, but remaining variables do. Each additional year of MLB experience increases the likelihood of retiring exponentially and a one-point increase in OPS100 reduces it the probability of retirement by .4 percent. Since the -3.38 intercept pertains to the last player's last year, the predicted output for all players for all years occur as changes from -3.38. For brevity, they are not provided. For example, Bobby Abreu could have retired after his 2008 contract year, but his predicted probability was .001 (near zero) and he did not retire.²⁴ His likelihood rose to 1.5 percent in 2009 due to his two point decrease in OPS100 and extra year of experience. By 2010, despite no change in his OPS100 from 2009, the additional year playing leads to a probability of 12.7 percent. In 2011, his sixteenth year in the majors and drop in OPS100 to 104 increases his likelihood to 33 percent. For Moises Alou the model predicted a 60 percent chance of retirement following his 2008 season, when he did in fact retire. The predicted values of PROBRET for all 1,106 observations are calculated and ultimately used to estimate (1).

RESULTS FROM ESTIMATING OPS100

Regression model (1) derives from two improvements in the model estimated in O'Neill.²⁵ First, traditional theory suggests that as players age, their offensive performance increases at a decreasing rate as they become more comfortable in hitting, until it peaks, and eventually declines as age depreciates hitting skills. O'Neill includes the quadratic form of age, AGE and AGE squared, as independent variables impacting OPS100. Additionally, O'Neill's PROBRET estimation employs performance, injury, and the quadratic form of years of experience in place of age. O'Neill finds the odd result that OPS100 increases at an increasing rate after age 33. Having age enter PROBRET through its correlation with years of experience, and then using PROBRET along with age in predicting OPS100, may have led to that usual result. Second, O'Neill segregated catchers and shortstops as defensive players, believing that they sport lower OPS100 statistics in exchange for better defensive play. However, since FE estimation demeans the data and players who are shortstops or catchers generally do not change positions, it does not seem appropriate to segregate them.

The 1,016 player-year observations yielding equation (4) presents the FE multiple regression equation for predicted OPS100 ($OPS100^{\wedge}$) with one-tailed p-values in parenthesis.²⁶ The Buse- R^2 indicates that 78 percent of the variation in adjusted OPS is explained by the model with these independent variables.²⁷ Games played and being on a playoff team indicate the expected positive sign, but they are not statistically significant at 5 percent.

$$OPS100^{\wedge} = 114.52 + .03 * GAMES + .60 * PLAYOFF - 100.34 * PROBRET + 6.11 * CONTRACTYR$$

(.091) (.321) (.0001)

$R^2 = .78$

(.0001)

The highly significant PROBRET coefficient says that a one percentage point increase in the likelihood of retiring reduces expected adjusted OPS by 1.0034 points or 1.1 percent decline relative to the mean OPS100 of 91.12. A 10 percentage point increase in the likelihood of retiring, about one half standard deviation in PROBRET, reduces predicted adjusted OPS by 10.034 points.

The estimated model provides evidence of the contract year phenomenon, but the phenomenon depends upon the likelihood of retirement. If a player is in a contract year, holding all else constant, the expected increase in his adjusted OPS is 6.11 points or 6.7 percent increase relative to the mean. But for two otherwise identical players, one in his contract year and the other not, the expected OPS100 for the former is 6.11 points higher. Using the Grossman heuristic that every .100 increase in OPS raises salary by \$2,000,000 and converting OPS to OPS100 enables monetizing the 6.11 bump.²⁸ The contract year boost is expected to increase annual salary by \$470,000, about 15.2 percent of the average salary of \$3.1 million in 2011.

The impact from the likelihood of retiring offsets the contract year boost. Each additional percentage point increase in a contract year player's retirement probability reduces the 6.11 boost by 1.0034. A complete offset of no expected change in OPS100 during the contract year occurs with a jump in retirement likelihood of about 6.1 (6.11/1.0034) points. With years of experience driving retirement likelihood exponentially, a decline in expected OPS100 reasonably appears at the end of contracts for players with many years of experience. For instance, a 10-point increase in the probability of retirement leads to a 3.9 (6.11-10.034) decline in expected OPS100 during a contract year.

CONCLUSIONS

By using FE estimation to account for changes in each player's behavior and reducing bias due to unobserved

player traits pervasive with OLS estimation, the data show strong support for the contract year boost. From FE estimation, two important contract year findings follow. First, the adjusted OPS of a free agent hitter in his contract year is expected to be 6.7 percent greater than in non-contract year periods—higher than previously noted studies. Second, “retiring” players show a decline in their contract year performance and any models which ignore retirement will be misspecified. OLS estimation of the same dataset (not shown) yields a negative impact on OPS100 during the contract year, albeit not statistically significant. This biased result coincides with the contrary findings in Table 2 that show lower average OPS100 for contract year observations than non-contract year observations.

The model may prove helpful during contract negotiations as one can compare a hitter's actual performance relative to expectations. Take Albert Pujols as an example. In 2008 and 2009, his OPS100 statistics of 192 and 189 greatly exceeded his predicted statistics of 175 and 176, respectively. In 2010, his OPS100 dropped to 173 to his expected value. In 2011—his contract year—the model predicts an OPS100 of 155, yet he hit only 148. Despite two years of declining OPS100 values that failed to meet the model's expectations, the Angels still signed Pujols to a 10-year, \$240 million contract. His OPS100 has continued to decline, dropping to 138 in 2012 and 117 in 2013. This type of post-contract performance leads me to the next related research project: whether players shirk after getting a new long term contract. ■

Notes

1. John Lowe & John Erardi, “Baseball Hall of Fame Manager Sparky Anderson Dies at 76”, *USA Today*, http://usatoday30.usatoday.com/sports/baseball/2010-11-04-sparky-anderson-obit_N.htm (accessed July 20, 2014.)
2. Heather O'Neill, “Do Major League Baseball Hitters Engage in Opportunistic Behavior?” *International Advances in Economic Research*, 19(3), (2013), 215–32.
3. Baseball-Reference.com. “Major League Baseball Statistics and History” *Sports Reference LLC*. <http://www.baseball-reference.com/players> (accessed September 28, 2012).
4. Players with year options or incentive clauses written into contracts maintain motivation to boost performance.
5. Heather O'Neill, “Do Major League Baseball Hitters Engage in Opportunistic Behavior?” *International Advances in Economic Research*, 19(3), (2013), 215–32.
6. Joel Maxcy, Rodney Fort, and Anthony Krautmann, “The effectiveness of incentive mechanisms in Major League Baseball,” *Journal of Sports Economics*, 3(3), (2002), 246–55.
7. Phil Birnbaum, “Do players outperform in their free-agent year?” <http://philbirnbaum.com> (accessed April 27, 2009).
8. Dayn Perry, “Do players perform better in contract years?” *Baseball Between the Numbers* (New York: Basic Books, 2006), 199–206.
9. See Heather O'Neill, “Do Major League Baseball Hitters Engage in Opportunistic Behavior?” *International Advances in Economic Research*, 19(3), (2013), 215–32 for differences in outcomes due to OLS versus FE estimation.

10. Michael Dinerstein, "Free Agency and Contract Options: How Major League Baseball Teams Value Players," PhD. Dissertation, Stanford University. May 11, 2007.
11. Matthew Hummel and Heather O'Neill, "Do Major League Baseball Hitters Come Up Big in Their Contract Year?" *Virginia Economics Journal*, 16, (2011), 13–25.
12. Jonah Keri, "What's the Matter with RBI? ..and Other Traditional Statistics" *Baseball Between the Numbers*. (New York: Basic Books, 2006), 1–13.
13. Jim Albert and Jay Bennett, *Curve Ball: Baseball, Statistics, and the Role of Chance in the Game* (New York: Copernicus Books, 2001).
14. Baseball-Reference.com. "Major League Baseball Statistics and History" *Sports Reference LLC*. www.baseball-reference.com/players (accessed September 28, 2012).
15. One could include ν_t in the error term to denote time-variant, unobserved or measured traits such as changes in family structure. The effects were tested econometrically, found to be insignificant, and excluded in (1).
16. Lawrence Kahn, "Free Agency, Long-Term Contracts and Compensation in Major League Baseball: Estimates from Panel Data," *The Review of Economics and Statistics*, 75(1), (1993), 157–64.
17. Playoff teams generally have better players and their surrounding presence can enhance a hitter's performance, which introduces the aforementioned measurement error associated with seeking an individual's performance.
18. Anthony Krautmann & John Solow, "The Dynamics of Performance over the Duration of Major League Baseball Long-term Contracts," *Journal of Sports Economics*, 10(1), (2009), 6–22.
19. Although the CBA was signed at the end of the 2006 season, I include player observations from 2006. As noted at the time, the negotiations taking place during the 2006 season proceeded without much acrimony, in fact yielding ratification prior to expiration of the previous CBA. I am assuming the players were aware and in agreement of what the new agreement would bring, thus working with shared expectations and incentives. See "MLB players, owners announce five year playing deal" <http://sports.espn.go.com/mlb/news/story?id=2637615> October 25, 2006.
20. Lawrence Kahn, "Free Agency, Long-Term Contracts and Compensation in Major League Baseball: Estimates from Panel Data," *The Review of Economics and Statistics*, 75(1), (1993), 157–64.
21. See Heather O'Neill, "Do Major League Baseball Hitters Engage in Opportunistic Behavior?" *International Advances in Economic Research*, 19(3), (2013), 215–32 for in-depth analysis of bias mitigated by FE estimation.
22. Unfortunately, the impact of time-invariant observable traits, such as race, height, etc. cannot be estimated since they too would drop out of the demeaned variables.
23. Anthony Krautmann & John Solow, "The Dynamics of Performance over the Duration of Major League Baseball Long-term Contracts," *Journal of Sports Economics*, 10(1), (2009), 6–22.
24. R² is an inappropriate measure of goodness-of-fit for linear probability models. Instead, the percent of the time the model correctly predicts the actual outcome pertains. When PROBIT exceeds .5, we stipulate that retirement occurs and vice-a-versa for non-retirement. In 870 cases the model stipulated a player would not retire and he did not. In 85 instances the model predicted retirement and the player did retire. These two "correct" scenarios capture 94 percent of the 1016 cases.
25. To preclude predicted linear probabilities below zero, all negative predictions are assigned a probability of .001, essentially zero.
26. Heather O'Neill, "Do Major League Baseball Hitters Engage in Opportunistic Behavior?" *International Advances in Economic Research*, 19(3), (2013), 215–32.
27. The Hausman test with $p < .0001$ rejected random effects in favor of fixed effects. Random effects assumes no correlation between traits in α_i and any independent variables.
28. When ex-post retirement, NOPLAY, is used instead of the predicted probability of retirement, the Buse-R² falls to .68, suggesting less predictive power.
29. Mitchell Grossman, Timothy Kimsey, Joshua Moreen & Matthew Owings, "Steroids in Major League Baseball" (2007). <http://faculty.haas.berkeley.edu/rjmorgan/mba211/steroids%20and%20major%20league%20baseball.pdf> (accessed October 23, 2012).

Revisiting the Ex-Cub Factor

Lee May and Frank Van Santen

SOME HISTORY

Baseball is a superstitious sport. Players skip over foul lines on the way to the dugout, refuse to change their socks during a hitting streak, and avoid talking to a pitcher while he is hurling a no-hitter. Some superstitions have as their subject not only an individual player but an entire team. For instance, the Curse of the Bambino supposedly befell the Boston Red Sox after they sold Babe Ruth to the New York Yankees, and resulted in their failing to win any of the next 83 World Series.¹ (The Red Sox ended the Curse by defeating the St. Louis Cardinals in the 2004 World Series.) Another such superstition involves the Curse of the Billy Goat, which supposedly explains why the Chicago Cubs have not played in a World Series since 1945.² The story goes that William Sianis, the owner of the Billy Goat Tavern in Chicago, bought two tickets to Game Four of the 1945 World Series, which pitted the Cubs against the Detroit Tigers. One of the tickets was for Sianis; the other was for his goat, whose name has been variously given in different references as either Murphy or Sonovia.³ The goat was refused admission to Wrigley Field and, to add insult to injury, Sianis was told that the reason the goat would not be allowed into the park was “the goat smells.” Sianis put a hex on the Cubs, stating that they would never again play in the World Series.

THE EX-CUB FACTOR IS BORN

In 1981, Ron Berler, then a columnist for the *Boston Herald American*, invented and popularized another superstition that is also related to the Chicago Cubs: the Ex-Cub Factor (ECF). From his review of baseball statistics dating back to 1946 (the first season of baseball following the Cubs’ final World Series appearance and the pronunciation of the Billy Goat Curse), Berler determined that,

According to the Ex-Cub Factor, it is utterly impossible for a team with three or more ex-Cubs to win the [World] series.⁴

Berler explained that the ECF was the result of the “Cubness” inherent in ex-Cubs:

“Cubness” is a term one encounters again and again when speaking with ex-Cubs. It is synonymous with the rankest sort of abject failure, and is a condition chronic among all Cubs, past and present.⁵

THE FACTOR IS MODIFIED

Pulitzer Prize-winning Chicago columnist Mike Royko also believed in the relationship between “Cubness” and the Ex-Cub Factor. He likened the ECF to a virus that infected a baseball team:

And when there are three [ex-Cubs], this horrible virus comes together and multiplies and becomes so powerful it makes the other players weak, nearsighted, addle-brained, slow-footed and lacking in hand-eye coordination.⁶

In 1986, Royko expanded the idea of the ECF into what he called his “Modified Cub Factor”: “A team with no ex-Cubs probably has the edge on a team that has even one.”⁷

Royko stated that, beginning in 1946, only one of twelve teams with three or more ex-Cubs on their World Series rosters had won (the 1960 Pittsburgh Pirates). Other, more recent, authors have made similar claims about the consistency of the ECF, mentioning the 2008 Philadelphia Phillies and 2001 Arizona Diamondbacks as the only other teams to defy the ECF.^{8,9}

Van Santen, a lifelong Chicagoan, grew up knowing of the ECF. During a visit to the Hall of Fame in 2013, he proposed to May that the two study and write about the Factor. May suggested that the study include both Berler’s and Royko’s takes on the ECF. Thus began our research into the dual Ex-Cub factors.

STUDYING THE EX-CUB FACTORS

May, a mathematician, suggested that the examination begin with precise definitions of the important terms.

Ex-Cub: An *ex-Cub* is a current or former player in Major League Baseball in whose career statistics the name *Chicago Cubs* (or some abbreviation of that name) appears at least once as a team on whose roster he was included.

Ex-Cub Total: This is the number of ex-Cubs on the roster of a given team.

Ex-Cub Factor: A team possesses—some would say, “is smitten with”—this if its roster contains at least three ex-Cubs.

We were then able to state the Berler and Royko conjectures precisely.

The Berler Conjecture: In the World Series, if only one of the two competing teams possesses the Ex-Cub Factor, that team will lose the Series.

The Royko Conjecture: In a World Series between two teams with different numbers of ex-Cubs on their rosters, the team with the larger Ex-Cub Total will lose the Series.¹⁰

THE EX-CUBS ARE OUTED

To make our analyses comparable to those of Berler and Royko, we used their time frame of 1946 through 2013. Our first task was to track down each man who had appeared on a World Series roster in some year during that 68-year period. We drew our data from a variety of sources. The two most helpful were the tome authored by David S. Neft and Richard M. Cohen: *The World Series: Complete Play-By-Play of Every Game 1903–1989*, and the 2011 edition of *The Elias Book of Baseball Records*, by Seymour Siwoff.^{11,12} These invaluable works include, among their many useful features, the complete roster—that is to say, the list of all 25 men who were eligible to play, not just those who actually set foot onto the playing field as batters, fielders, pitchers, or runners—of each team in every World Series from 1903 on. The 1979 Pirates provide a perfect example of the value of these books to our study. Box scores from other sources told us about 24 of the 25 men on the Pirates’ Series-winning roster; however, they excluded late pitcher Dave Roberts, who was indeed a Pirate but was the only member of the pitching staff, and the team, not to play in the Series.¹³ Roberts was a member of the Cubs 1977–78, signed with the San Francisco Giants as a free agent in

February 1979, and was traded to the Pirates that June. Thus, his name should be added to those of Matt Alexander and Bill Madlock, giving the Pirates three ex-Cubs on their World Series roster and adding one to the number of World Series in which the Ex-Cub Factor figured and Berler’s Conjecture was in play. Roberts’s name appears in *The World Series* and *The Elias Book*. Every other source that we consulted mentioned only the Pirates whose names appeared in a box score, and thus omitted him.

To obtain the full rosters of the 2011–13 Series, we consulted the hometown newspapers of the participating teams. The most helpful online source that we used in our work was Baseball-Reference.com.¹⁴ Others were Baseball Almanac and Retrosheet.^{15,16}

The players’ strike of 1994 and the resulting cancellation of that Series reduced from 68 to 67 the number of Series we needed to study (and the number of teams to 134). Each of those Series involved two 25-man rosters; so we needed to fill $67 \times 2 \times 25$, or 3,350, roster slots. (Since, however, many players found themselves on more than one World Series roster, we ended up needing to comb fewer than 3,350 career records.) Because of the completeness of our combined sources, we were able to fill all the slots.

Next, we searched the 134 rosters for ex-Cubs. This involved looking up the career statistics of each of our World Series roster-occupants. As an example, Mark Grace was a playing member of the 25-man roster of the Arizona Diamondbacks team that won the 2001 World Series. Records (and our personal knowledge of baseball) indicated that Grace had played for the Cubs from 1988 through 2000. Thus, Grace was an ex-Cub. As our definition of *ex-Cub* implies, we considered a player to be an ex-Cub regardless of how briefly he had been under contract to the Cubs, so long as he had been with the Cubs before playing on the World Series team under consideration. The number of ex-Cubs on each of the 134 teams was recorded using a Microsoft Excel spreadsheet. Excel was also used to determine the number of instances in which at least one team had at least three ex-Cubs on its roster (i.e., satisfied the Berler Conjecture) and the number of instances in which one team had more ex-Cubs than the other (i.e., met the Royko Conjecture).

THE FACTOR’S DAMAGE IS ASSESSED

A study of the table accompanying this article reveals that the Berler Conjecture has experienced remarkable success, albeit in a small sample. Twenty-two times since the pronouncement of the Curse of the Billy Goat, it has been “in play”—that is, has had its hypothesis,

that exactly one of the two teams possesses the Ex-Cub Factor, satisfied.¹⁷ In 17 of those Series, the team smitten with the Ex-Cub Factor has lost. The Berler Conjecture thus has had a success rate of 17/22, or approximately 77 percent, from 1946 through 2013.

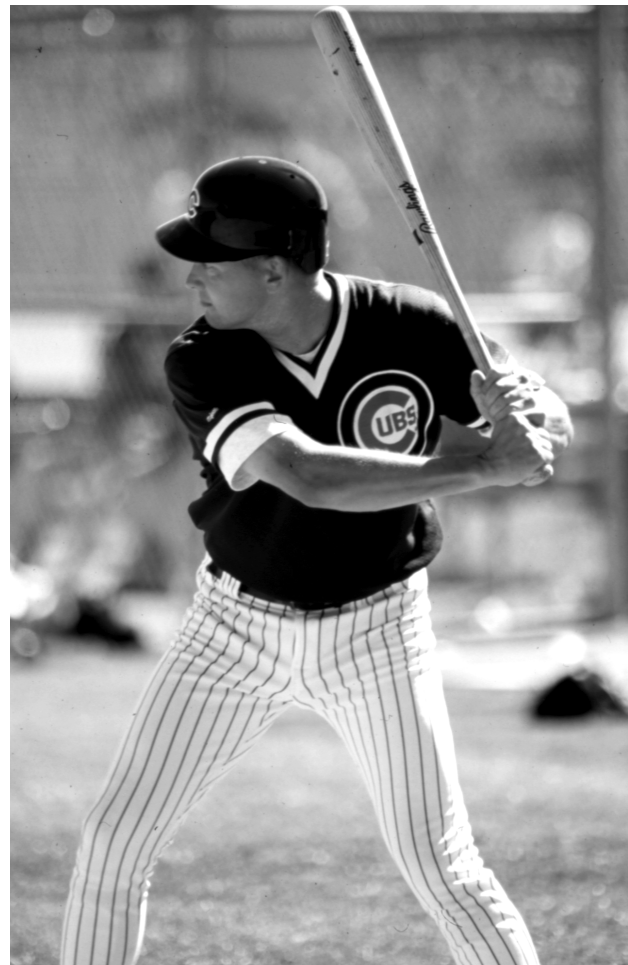
The record of the Royko Conjecture is less impressive but nevertheless positive. It has been in play for 56 of the 67 World Series held since 1945, and it has been correct in 32 of those 56. This is a rate of success of 57 percent. Although bettors were not so safe in using the Royko Conjecture from 1946 through 2013 as they were with the Berler, they still won more than half the time.¹⁸ There is one further observation worthy of note about the Royko Conjecture. In the 34 World Series in which it was in play and the Berler Conjecture was not, the Royko proved true 15 times. This is a success rate of 44%.

IS EITHER CONJECTURE OF USE GOING FORWARD?

So much for the past. What about the future? Is either conjecture a good predictor of the winners of World Series yet to come? Since the Royko Conjecture has a longer track record than the Berler, in the sense that it has been in play for a larger number of Series than the latter, let us look at it first. A standard technique of statistical inference allows us to say, with 95% confidence, that the Royko Conjecture will correctly predict the World Series winner between 44% and 70% of the time, whether or not the Berler Conjecture is in play.¹⁹ Although the success rate of 70% looks encouraging, the 44% figure is much less so. In light of these mixed results, we ran a hypothesis test to determine whether the success rate of the Royko Conjecture was greater than 50%.²⁰ The test allowed us to infer that, at the .05 level of significance—as a matter of fact, at any level up to .14—the data from the World Series of 1946 through 2013 fail to provide evidence sufficient to conclude that the Royko Conjecture will correctly predict the winner of the Series more than 50% of the time.

When the Berler Conjecture fails to be in play and the prognosticator is forced to rely on the Royko, he or she can be 95% certain that it will correctly predict the Series winner between 27% and 61% of the time. A hypothesis test similar to the one described in the paragraph immediately above says that the 1946-through-2013 World Series data provide even less evidence that the Royko Conjecture will correctly predict the Series winner more than 50% of the time.

Let us infer about the long-term prospects of the Berler Conjecture. The size of our Berler sample required us to employ a technique different from the one we applied to the Royko sample. The method, Wilson's



NATIONAL BASEBALL HALL OF FAME LIBRARY COOPERSTOWN, NY

Mark Grace must have shaken off his cursed "Cubness" to allow the 2001 Arizona Diamondbacks to win the World Series.

Adjustment for estimating a proportion of success²¹, yields a 95%-confidence interval of approximately (0.560, 0.901). In other words, according to the Wilson Adjustment, we can say, with 95% confidence, that the Berler Conjecture will be correct between 56% and 90% of the time. Although the Berler Conjecture has come into play less often than the Royko (²²/₆₇, or 33% of the time, as opposed to ⁵⁶/₆₇, or 84%, of the time for the Royko), it appears that when it is in play it is more likely to yield a correct prediction than the Royko.²² In addition, it is almost certainly a better predictor than a coin-flip.

WHAT HAVE WE LEARNED?

Our work shows that, when the Berler Conjecture is in play, it is a fairly reliable guide to predicting the World Series winner. When it is not in play and the Royko Conjecture is, should one use the latter as guide? Almost certainly not, for the World Series from 1946 through 2013 provide evidence glaringly insufficient to conclude that the Royko Conjecture works any

better than a coin-flip in picking the winner when the Berler Conjecture fails to be in play. (We are unaware of any method that has experienced a success-rate of more than 77% in predicting World Series winners during that period of time. We would appreciate any information on the existence of such a method.)

WHERE DO WE GO FROM HERE?

An answer often leads to more questions, and our work with the Ex-Cub Factor is no exception to this rule. A reasonable next task would be the replicating of our work for, say, an ex-Yankee, ex-Cardinal, or ex-White Sox factor. Doing so would provide a way to test whether the Ex-Cub Factor has any significance. If, for example, there turned out to be an ex-Yankee factor that was similar to the Ex-Cub Factor in the damage it wrought on a World Series team, the credibility and significance of the Ex-Cub Factor would pale, possibly into oblivion. If, however, no ex-non-Cub factor were discovered, evidence would mount that Ron Berler and Mike Royko have discovered and elucidated a significant tool for predicting the winner of the World Series. Finally, critics might argue that the amount of time spent as a member of the Cubs would play a significant role in whether or not a player has acquired enough “Cubness” to affect the play of his post-Cub teammates. As a result, it might also be helpful to assess the Ex-Cub Factor when the amount of time on the Cubs roster is taken into consideration. ■

Notes

1. “The Curse of the Bambino,” CNN/Sports Illustrated, 2001 (http://sportsillustrated.cnn.com/baseball/mlb/news/2000/03/22/the_curse_timeline).
2. John Snyder, *Cubs Journal: Year by Year & Day by Day with the Chicago Cubs Since 1876* (Cincinnati, Ohio: Emmis Books, 2005), 343.
3. The Billy Goat Tavern’s own website names the goat Murphy [www.billy-goattavern.com/legend/curse/] while the name Sonovia appears in John Snyder, *Cubs Journal: Year by Year & Day by Day with the Chicago Cubs Since 1876* (Cincinnati, Ohio: Emmis Books, 2005) 343.
4. Ron Berler, “The Ex-Cub Factor: Theory will Decide World Series Winner,” *Boston Herald American*, October 15, 1981.
5. Ibid.
6. Mike Royko, “The Ex-Cub Factor Will Destroy A’s in the Series,” *Chicago Tribune*, October 19, 1990.
7. Ibid., “The Cubs World Series Legacy Has Traveled Well Beyond Wrigley Field,” *Chicago Tribune*, October 20, 1986.
8. Al Yellon, “Is the Ex-Cub Factor Dead?” *Baseball Nation*, October 19, 2011 (www.baseballnation.com/2011/10/19/2500278/2011-world-series-ex-cub-factor).
9. Dave Wischnowsky, “Wisch: Behold, The ‘Ex-Cubs Factor’ is Alive and Well,” October 19, 2011 (<http://chicago.cbslocal.com/2011/10/19/wisch-behold-the-ex-cubs-factor-is-alive-and-well/>).
10. Royko dubbed this “the Modified Cub Factor” in the *Chicago Tribune* of October 17, 1986.
11. *The World Series: Complete Play-By-Play of Every Game 1903–1989*. New York: St. Martin’s Press, 1990.
12. *The Elias Record Book*, New York, NY: Elias Sports Bureau, Inc., 2011. We were pointed to this reference by one of the reviewers of our manuscript. We thank both reviewers for their helpful comments and suggestions.
13. Jenifer Langosch, “Former Hurler Roberts Passes Away,” *mlb.com*, January 9, 2009. (http://mlb.mlb.com/news/article.jsp?ymd=20090109&content_id=3738241&vkey=news_mlb&text=js&c_id=mlb). Teammate and pitcher Kent Tekulve described Roberts as being integral to the Pirates’ World Series victory. Prior to pitching a scoreless ninth inning in game two against the Baltimore Orioles, Tekulve had eaten strawberry shortcake at a Baltimore restaurant. With the Pirates down three games to two and returning to Baltimore, Roberts encouraged Tekulve to go back to the same restaurant and have strawberry shortcake before he pitched again. Subsequently, Tekulve pitched four $\frac{2}{3}$ innings of one-hit shutout baseball, securing the final two wins for Pittsburgh. Once again, superstition had manifested itself in baseball.
14. www.baseball-reference.com.
15. www.baseball-almanac.com.
16. www.retrosheet.org.
17. In the 2009 Series, between the Yankees and the Philadelphia Phillies, each team had exactly three ex-Cubs on its roster. This violated the hypothesis of both the Berler and Royko conjectures.
18. A brief review of the numbers also suggests that there is some support for three ex-Cubs on a World Series team (as opposed to two or four or five ex-Cubs) being a “tipping point” or critical mass for activating the Ex-Cub Factor. Among the 67 World Series teams reviewed, the only one that had five ex-Cubs lost its only Series (0–1). Those with four ex-Cubs won 33 percent of the time (1–2), and those teams with three ex-Cubs won only 22 percent of the time (4–14). In contrast, teams with only two ex-Cubs won 63 percent of the time (17–10).
19. See, for example, James T. McClave and Terry Sincich, *A First Course in Statistics*, eleventh edition (New York: Pearson Education, 2013), 265.
20. Ibid., 365.
21. Ibid., 267.
22. We can say only that the Berler Conjecture “appears” to be a better predictor than the Royko because of the fact that the two confidence intervals, (0.44, 0.70) for the Royko and (0.56, 0.90) for the Berler, overlap.

World Series Teams, Ex-Cub Players, and Fulfillment of Berler or Royko Conjecture by Year

Year	World Series Winner			World Series Loser			Berler in Play & True?	Royko in Play & True?
	Winning Team	ECT	Ex-Cubs	Losing Team	ECT	Ex-Cubs		
1946	Cards	0		Red Sox	1	Rip Russell	NO	YES
1947	Yankees	2	Lonny Frey, Bobo Newsom	Dodgers	1	Eddie Stanky	NO	NO
1948	Indians	0		Braves	4	Marv Rickert, Eddie Stanky, Bobby Sturgeon, Clyde Shoun	YES	YES
1949	Yankees	0		Dodgers	0		NO	NO
1950	Yankees	0		Phillies	1	Eddie Waitkus	NO	YES
1951	Yankees	0		Giants	2	Hank Schenz, Eddie Stanky	NO	YES
1952	Yankees	0		Dodgers	3	Andy Pafko, Ben Wade, Rube Walker	YES	YES
1953	Yankees	0		Dodgers	1	Rube Walker	NO	YES
1954	Giants	0		Indians	0		NO	NO
1955	Dodgers	2	Russ Meyer, Rube Walker	Yankees	0		NO	NO
1956	Yankees	0		Dodgers	2	Randy Jackson, Rube Walker	NO	YES
1957	Braves	2	Andy Pafko, Carl Sawatski	Yankees	0		NO	NO
1958	Yankees	0		Braves	3	Andy Pafko, Bob Rush, Casey Wise	YES	YES
1959	Dodgers	0		White Sox	1	Turk Lown	NO	YES
1960	Pirates	3	Gene Baker, Smoky Burgess, Don Hoak	Yankees	1	Dale Long	NO	NO
1961	Yankees	0		Reds	3	Jim Brosnan, Dick Gernert, Bill Henry	YES	YES
1962	Yankees	1	Dale Long	Giants	0		NO	NO
1963	Dodgers	1	Lee Walls	Yankees	0		NO	NO
1964	Cards	2	Lou Brock, Barney Schultz	Yankees	0		NO	NO
1965	Dodgers	0		Twins	2	Johnny Klippstein, Jerry Kindall	NO	YES
1966	Orioles	2	Moe Drabowsky, Vic Roznovsky	Dodgers	2	Wes Covington, Lou Johnson	NO	NO
1967	Cards	1	Lou Brock	Red Sox	0		NO	NO
1968	Tigers	0		Cards	1	Lou Brock	NO	YES
1969	Mets	2	Don Cardwell, Cal Koonce	Orioles	0		NO	NO
1970	Orioles	1	Moe Drabowsky	Reds	2	Ty Cline, Jimmy Stewart	NO	YES
1971	Pirates	1	Bob Miller	Orioles	0		NO	NO

ECT=Ex-Cub Total

World Series Teams, Ex-Cub Players, and Fulfillment of Berler or Royko Conjecture by Year (continued)

Year	World Series Winner			World Series Loser			Berler in Play & True?	Royko in Play & True?
	Winning Team	ECT	Ex-Cubs	Losing Team	ECT	Ex-Cubs		
1972	A's	1	Ken Holtzman	Reds	0		NO	NO
1973	A's	2	Pat Bourque, Ken Holtzman	Mets	0		NO	NO
1974	A's	2	Ken Holtzman, Bill North	Dodgers	1	Jim Brewer	NO	NO
1975	Reds	1	Bill Plummer	Red Sox	0		NO	NO
1976	Reds	0		Yankees	3	Oscar Gamble, Elrod Hendricks, Ken Holtzman	YES	YES
1977	Yankees	1	Ken Holtzman	Dodgers	3	Mike Garman, Burt Hooton, Rick Monday	YES	YES
1978	Yankees	0		Dodgers	3	Burt Hooton, Rick Monday, Bill North	YES	YES
1979	Pirates	3	Matt Alexander, Bill Madlock, Dave Roberts	Orioles	1	Steve Stone	NO	NO
1980	Phillies	2	Greg Gross, Manny Trillo	Royals	3	Jose Cardenal, Larry Gura, Pete LaCock	YES	YES
1981	Dodgers	2	Burt Hooton, Rick Monday	Yankees	5	Barry Foote, Oscar Gamble, Bobby Murcer, Dave LaRoche, Rick Reuschel	YES	YES
1982	Cards	1	Bruce Sutter	Brewers	0		NO	NO
1983	Orioles	0		Phillies	3	Ivan DeJesus, Greg Gross, Willie Hernandez	YES	YES
1984	Tigers	2	Willie Hernandez, Milt Wilcox	Padres	3	Craig Lefferts, Carmelo Martinez, Champ Summers	YES	YES
1985	Royals	1	Larry Gura	Cards	2	Bill Campbell, Ivan DeJesus	NO	YES
1986	Mets	0		Red Sox	1	Bill Buckner	NO	YES
1987	Twins	2	George Frazier, Joe Niekro	Cards	1	Steve Lake	NO	NO
1988	Dodgers	1	Jay Howell	A's	2	Dennis Eckersley, Ron Hassey	NO	YES
1989	A's	2	Dennis Eckersley, Ron Hassey	Giants	2	Craig Lefferts, Rick Reuschel	NO	NO
1990	Reds	2	Billy Hatcher, Luis Quinones	A's	3	Dennis Eckersley, Ron Hassey, Scott Sanderson	YES	YES
1991	Twins	0		Braves	0		NO	NO
1992	Blue Jays	2	Joe Carter, Pat Tabler	Braves	1	Damon Berryhill	NO	NO
1993	Blue Jays	1	Joe Carter	Phillies	2	Danny Jackson, Mitch Williams	NO	YES

ECT=Ex-Cub Total

World Series Teams, Ex-Cub Players, and Fulfillment of Berler or Royko Conjecture by Year (continued)

Year	World Series Winner			World Series Loser			Berler in Play & True?	Royko in Play & True?
	Winning Team	ECT	Ex-Cubs	Losing Team	ECT	Ex-Cubs		
1994	No World Series							
1995	Braves	2	Greg Maddux, Dwight Smith	Indians	1	Paul Assenmacher	NO	NO
1996	Yankees	1	Joe Girardi	Braves	3	Mike Bielecki, Greg Maddux, Dwight Smith	YES	YES
1997	Marlins	1	Alex Arias	Indians	1	Paul Assenmacher	NO	NO
1998	Yankees	1	Joe Girardi	Padres	1	Randy Myers	NO	NO
1999	Yankees	1	Joe Girardi	Braves	3	Jose Hernandez, Terry Mulholland, Greg Maddux	YES	YES
2000	Yankees	2	Glenallen Hill, Jose Vizcaino	Mets	4	Matt Franco, Todd Pratt, Turk Wendell, Todd Zeile	YES	YES
2001	Diamond-backs	4	Miguel Batista, Luis Gonzalez, Mark Grace, Mike Morgan	Yankees	0		NO	NO
2002	Angels	1	Jose Molena	Giants	3	Benito Santiago, Tim Worrell, Shawon Dunston	YES	YES
2003	Marlins	1	Lenny Harris	Yankees	2	Felix Heredia, Jon Lieber (DL)	NO	YES
2004	Red Sox	2	Bill Mueller, Mark Bellhorn	Cards	3	Tony Womack, Julian Tavarez, Ray King	YES	YES
2005	White Sox	1	Ross Gload	Astros	1	Jose Vizcaino	NO	NO
2006	Cards	1	Jose Vizcaino	Tigers	1	Neifi Perez	NO	NO
2007	Red Sox	0		Rockies	1	LaTroy Hawkins	NO	YES
2008	Phillies	3	Scott Eyre, Jamie Moyer, Matt Stairs	Rays	1	Cliff Floyd	NO	NO
2009	Yankees	3	Chad Gaudin, Jerry Hairston Jr., Jose Molina	Phillies	3	Scott Eyre, Matt Stairs, Paul Bako	NO	NO
2010	Giants	1	Mike Fontenot	Rangers	1	Andres Blanco	NO	NO
2011	Cards	1	Ryan Theriot	Rangers	0		NO	NO
2012	Giants	3	Xavier Nady, Angel Pagan, Ryan Theriot	Tigers	0		NO	NO
2013	Red Sox	1	Ryan Dempster	Cards	0		NO	NO

ECT=Ex-Cub Total

World Series Game Situation Winning Probabilities:

How often do teams come back from behind?

Douglas Jordan

You're ecstatic that your favorite team won the League Championship Series to get into the World Series, but your pitching ace performs poorly and the team loses Game One. How worried should you be?

There is a general perception among many baseball fans that losing the first game of a seven-game series is not a big setback, but is this fact or an unsubstantiated belief? Let's say after the initial loss, they win the next two games to take a 2-1 lead in the series. Now how confident are you? Should you buy expensive champagne in anticipation of a World Series victory since you just won two in a row? Let's hope you didn't spend too much on the bubbly if you lived in St. Louis in October 2013, as that is exactly what happened to the Cardinals before the Red Sox won three in a row to take the World Series.

The purpose of this article is to examine the probabilities of winning the World Series for all possible game combinations. For example, what is the actual probability of winning if you fall behind 0-1 as St. Louis did, or 1-2 as Boston did? What if you're ahead or behind two games to none?

The probability of winning in these and other possible game situations will be answered by examining

what's happened historically in the World Series. The historical data used to generate the probabilities is based on seven-game World Series only, starting with the 1905 World Series. The best-of-nine Series played in 1903 and 1919-21 are not included in the analysis. This leaves a total of 105 seven-game Series in the data set since there was no World Series in 1904 or 1994.

POSSIBLE GAME SITUATIONS

How often have all the possible configurations of progressive won-loss combinations ("game situations") occurred during the 105 seven-game World Series that have been played to date? The results are shown in Table 1.

Table 1 shows that just over half the Series have stood at 1-1 while just under half have stood at 2-0. Slightly over three-quarters of the Series have stood at 2-1 while just under one-quarter of the Series started 3-0. Moving on to the fourth game of the Series, it seems mildly surprising that more Series (43 total or 41 percent) have been at 3-1 than have been at 2-2 (41 total or 39 percent) but the result is consistent with the expected probabilities for evenly matched teams. One-fifth of the Series have been sweeps. About 23 percent of the Series finished at 4-1 while 57 percent

Table 1. Historic World Series Game Situations

World Series game situation	Number of times this game situation has happened	Percentage of times this game situation has happened	Expected probability of this game situation happening assuming evenly matched teams
1-0	105	100.0%	100%
2-0	51	48.6%	50%
3-0	24	22.9%	25%
4-0	21	20.0%	12.5%
1-1	54	51.4%	50%
2-1	81	77.1%	75%
3-1	43	41.0%	50%
4-1	24	22.9%	25%
2-2	41	39.0%	37.5%
3-2	60	57.1%	62.5%
4-2	24	22.9%	31.25%
3-3	36	34.3%	31.25%
4-3	36	34.3%	31.25%

stood at 3–2. Twenty-three percent of the Series finished at 4–2 and just over one-third of the Series stood 3–3 before the decisive Game Seven.

The information in the last column of Table 1 is not directly related to the main point of this article but is included for informational purposes. Relatively straightforward statistical analysis (see <http://mste.illinois.edu/hill/ev/seriesol.html> for details) gives the expected probabilities of possible game situations assuming each team has a 50 percent chance of winning each game. A couple of interesting points can be made by comparing the expected probabilities in column four to the actual percentages in column three. First, with three exceptions, the actual and expected probabilities are pretty close given the relatively small sample size. This suggests that the teams that compete in the World Series are usually evenly matched. But there have been more sweeps (12.5 percent of 105 is about 13, so we would have expected to see 13 World Series end in sweeps rather than the 21 sweeps that have actually occurred), fewer 3–1 Series, and fewer six-game Series than theoretically should have occurred between evenly matched teams. These anomalous results are all related. The increased number of sweeps has resulted in fewer six-game Series. Why are there so many sweeps if the teams are evenly matched? The most likely explanation is psychological. Teams that fall behind 3–0 know their chances of winning are small and play the fourth game accordingly. This also accounts for the shortage of 3–1 Series.

PROBABILITIES OF WINNING FOR DIFFERENT GAME SITUATIONS

So what does history suggest a team's probability of

winning the World Series is for different game situations? The answer to this question is shown in Table 2. For the game situations shown in Table 2, one team is ahead and one team is behind so there are two rows for each game situation. It is assumed that each team has an equal chance of winning when the Series is tied at one, two, or three games each, so those situations are not shown in Table 2.

The first row of Table 2 shows that 67 teams have won the first game of the World Series and gone on to win the World Series. The final column in the first row shows that the team that wins the first game wins the Series about 64 percent of the time. In 38 of the World Series, the team that lost the first game came back to win. This means that teams that lose the first game have a roughly 36 percent chance of winning. Table 2 also shows that 41 of the 51 teams (80 percent) that lead 2–0 went on to win the Series while only 10 of the 51 teams (20 percent) that fell behind 0–2 came back to win. Teams that lead 2–1 win about two-thirds of the time, while teams that are behind 1–2 come back about one-third of the time. No team that's fallen behind 0–3 has ever come back to win (and just three teams out of 24 that fell behind 0–3 have even forced a fifth game: the Cubs in 1910, the N.Y. Giants in 1937, and the Reds in 1970).

History suggests that teams down 1–3 also face long odds of winning. Only about one-in-nine teams facing that situation have come back to win. The five teams that did manage to come back from 1–3 are the Pirates (twice) in 1925 and 1979, the Yankees in 1958, the Tigers in 1968, and the Royals in 1985. Interestingly, the chances of winning when ahead or behind

Table 2. Historic Probabilities of Winning for Different World Series Game Situations

World Series game situation	Team is:	Number of times the team wins WS	Total number of times the WS has stood at this game situation	Percentage of times the team wins the WS given the game situation
1–0	Ahead	67		63.8%
1–0	Behind	38	105	36.2%
2–0	Ahead	41		80.4%
2–0	Behind	10*	51	19.6%
3–0	Ahead	24		100.0%
3–0	Behind	0	24	0.0%
2–1	Ahead	55		67.9%
2–1	Behind	26	81	32.1%
3–1	Ahead	38		88.4%
3–1	Behind	5	43	11.6%
3–2	Ahead	41		68.3%
3–2	Behind	19	60	31.7%

* These ten teams are the: Yankees in 1956, 1958, 1978, 1996; Dodgers in 1955, 1965, 1981; Pirates in 1971; Royals in 1985; Mets in 1986

3–2 are almost the same as the chances of winning when ahead or behind 2–1. Teams with a 3–2 lead win about two-thirds of the time and teams down 2–3 win about one-third of the time.

ARE ODD-NUMBERED GAMES MORE CRITICAL?

The argument is often made that the odd-numbered games in a seven-game series are the most important games. This is obviously correct if the series is tied at three games apiece but the truth of the argument is not self-evident in other game situations. For example, it is not obvious that Game One is more important than Game Two when the team that trails 0–1 will be down 0–2 if it loses the second game. Similarly, it can be argued that Game Four is critically important to the team that trails 1–2 in order to avoid falling behind 1–3.

The debate is difficult to resolve because of the subjective nature of the importance of each game in the Series. However, the data in Table 2 give us a way to quantify the change in the chances of a team winning the World Series depending on whether the team wins or loses the next game and the game situation. The results shown in Table 3 can shed some light on the importance of each game of the Series.

Table 3 needs some explanation. First, each team is assumed to have a 50 percent chance of winning a tied Series. Second, all of the data in Table 2 are derived from the 50 percent assumption and the data shown in Table 2. Finally, the numbers shown in columns four and five are changes in probabilities rather than usual probabilities. For example, the first line of Table 3 shows that the team that wins Game One increases its probability of winning the World Series by 13.8 percent.

How is this number calculated? Table 2 shows that a team that is leading 1–0 has a 63.8 percent chance of winning. Before Game One was played, each team had a 50 percent chance to win. The difference between 63.8 percent and 50 percent is the 13.8 percent shown in Table 3.

What if a team is behind 0–1? Table 2 shows that it has a 36.2 percent chance of winning the Series. However, if the team loses the second game to fall behind 0–2, Table 2 shows that its probability of winning the Series declines to 19.6 percent. The difference of 16.6 percent between 36.2 percent and 19.6 percent is shown on the third row and fifth column of Table 3. This means that the team’s chances of winning the World Series have declined by 16.6 percent. All of the numbers shown in Table 3 were calculated similarly. Therefore, Table 3 quantifies the importance of each of the games in the Series based on the game situation and on how winning or losing a particular game affects the team’s overall chances of winning the World Series.

What does Table 3 say about how important each game is? The first thing to note is that the importance of a given game is a function of both the game situation and whether a team is ahead or behind in the Series so it’s difficult to make a blanket statement concerning even- or odd-numbered games. The data for Game Two, for example, show that the team that is ahead 1–0 increases its chances of winning by 16.6 percent with a victory, while the team that is behind 0–1 decreases its probability of winning by 16.6 percent with a loss. This 16.6 percent change in the probability of winning is greater than the 13.8 percent

Table 3. Changes in the Probability of Winning the World Series as a Function of the Game Situation and a Win or a Loss in the Next Game

World Series game situation	The next game is game # ____ of the WS	Team is:	If the team <i>WINS</i> the next game, the team’s probability of winning the WS <i>INCREASES</i> by	If the team <i>LOSES</i> the next game, the team’s probability of winning the WS <i>DECREASES</i> by
0–0	1		13.8%	13.8%
1–0	2	Ahead	16.6%	13.8%
1–0	2	Behind	13.8%	16.6%
2–0	3	Ahead	19.6%	12.5%
2–0	3	Behind	12.5%	19.6%
1–1	3		17.9%	17.9%
2–1	4	Ahead	20.5%	17.9%
2–1	4	Behind	17.9%	20.5%
2–2	5		18.3%	18.3%
3–1	5	Ahead	Win WS	20.1%
3–1	5	Behind	20.1%	11.6%
3–2	6	Ahead	Win WS	18.3%
3–2	6	Behind	18.3%	31.7%



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Yogi Berra leaps high to take Elston Howard's throw, while Wes Covington scores during the 1958 World Series. The Yankees lost the first two games to the Milwaukee Braves, but eventually prevailed in seven games.

change from a win or loss in Game One which means that Game Two is more important than Game One.

Given the symmetry of the numbers in Table 3 we can concentrate on the changes in probability for the team that is behind in order to estimate the importance of each game. Losing Game One decreases the probability of winning by 13.8%. Losing Game Two when behind 1-0 decreases the winning probability by 16.6%. Losing Game Three when tied at 1-1 reduces the chances by 17.9% while losing Game Three when behind 2-0 reduces the chances by 19.6%. A loss in Game Four while behind 2-1 lessens the chances of winning by 20.5% and a loss in Game Five when tied at 2-2 lowers the probability of winning by 18.3%.

These numbers suggest that Game Four is most important (a loss in that game decreases your chance of winning the most) followed closely in importance by Games Three and Five. The changes for the team that is behind 1-3 and 2-3 are included in Table 3 but are not germane to the argument because the team must win in order for the Series to continue.

In summary, the data in Table 3 suggest that the simple assertion that odd-numbered games are most important is too simplistic. Table 3 says that Game Four is the most important game of the Series, followed in importance by Games Three and Five. Also, Game Two is more important than Game One.

CONCLUSIONS

What general conclusions can we draw from this analysis? Broadly speaking, a team that is ahead by one game in the World Series (1-0, 2-1, 3-2) wins about two-thirds of the time while a team that is behind by a game comes back to win about one-third of the time. A team that leads by two games in the World Series (2-0, 3-1) wins at least 80 percent of the time, while a team that falls behind by two games comes back to win in one-of-five opportunities at best.

This article also examines the question of whether the odd-numbered games in the Series are more important than the even-numbered games. This broadly held notion is found to be too simplistic. As with many things when examined in detail, the answer depends on the situation. This analysis finds that Game Four is the most important game of the Series, followed in importance by Games Three and Five. In addition, Game Two is more important than Game One.

So don't spend too much on the champagne if your team is ahead 2-1 in the World Series since you only have a two-thirds chance of winning. But if you win the very important Game Four, you can put the bubbly on ice. It's a good bet you'll get to open it. ■

Acknowledgements

I sincerely thank two anonymous peer reviewers for their comments and suggestions. Their input resulted in a much stronger paper.

A New Formula to Predict a Team's Winning Percentage

Stanley Rothman Ph.D.

Bill James introduced a formula for estimating a team's expected winning percentage in the major leagues based on the number of runs they scored and allowed. Empirically, this formula correlates fairly well with a team's observed (actual) winning percentage, $W\%$. Here is the so-called "Pythagorean" formula for baseball:

$$\text{EXP}(W\%) = (\text{RS})^2 / [(\text{RS})^2 + (\text{RA})^2]$$

$\text{EXP}(W\%)$ is the expected winning percentage generated by the formula, RS is runs scored by a team, and RA is runs allowed by a team. It is understood that $(\text{RS})^2 / [(\text{RS})^2 + (\text{RA})^2]$ is actually a ratio and needs to be multiplied by 100 to be a percentage.

James's choice of the exponent 2 seems to provide a good estimate. From year to year, the exponent actually varies from 1.75 to 2.05. James's rationale is that the number of runs a team scores compared to the number of runs allowed is a better indication of a team's future performance than their win-loss record at a given time (assuming the team is far enough into the season for significance). This reasoning is the antithesis of the famous Bill Parcells quotation: "You are what your win-loss record says you are." Let's say a team is 45–37 at midseason, but based on James's formula their $\text{EXP}(W\%)$ is at or below 0.500. The formula predicts that as the season moves along, their win-loss record will move in the losing direction.

Why not just use the quantity $(\text{RS}-\text{RA})$ to calculate $\text{EXP}(W\%)$? The new formula we introduce here is called the Linear Formula for Baseball, and takes the form of the following linear equation.

$$\text{EXP}(W\%) = m * (\text{RS}-\text{RA}) + b.$$

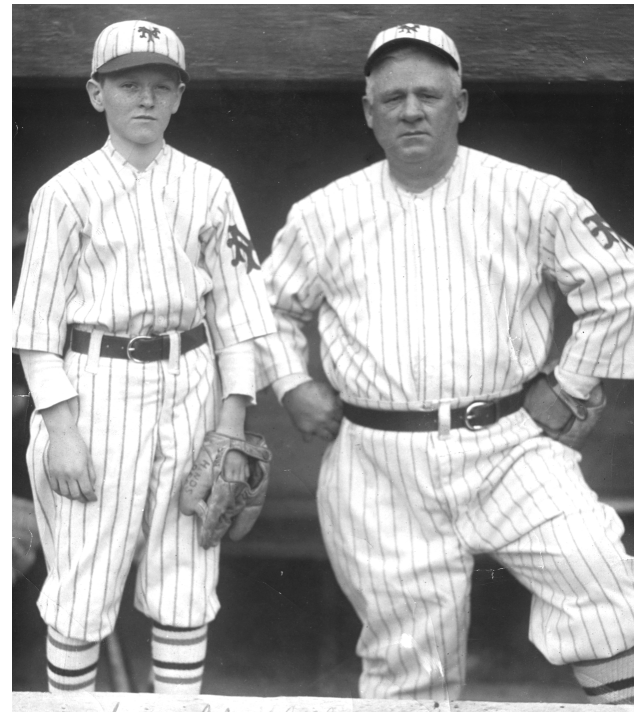
The tool used to find the coefficients "m" and "b" is simple linear regression. For each year from 1998 through 2012 we demonstrate that

$$m = \Sigma[\text{RS}-\text{RA}]W\% / \Sigma(\text{RS}-\text{RA})^2 \text{ and } b = 0.50.^1$$

Given that we find the value for "m" will vary from year to year while the value "b" will remain fixed at 0.50, can one constant be found for the slope "m" that can be used for each year? This constant would work like the exponent "2" works for each year in James's formula. The constant turns out to be $m = 0.000683$.

A final comparison is done between the Pythagorean Formula and our new Linear Formula for 2013.

The same methods used in this paper for Major League Baseball will be used to provide linear formulas for the NFL and the NBA. For the NFL, $m = 0.001538$, $b = 0.50$ and for the NBA, $m = 0.000351$, $b = 0.50$. The only change is that for the NBA and NFL the difference $(\text{RS}-\text{RA})$ will be interpreted as the difference $(\text{PS}-\text{A})$ (points scored – points allowed). The actual derivations will be provided in a section near the end of this paper.



John McGraw's 1922 New York Giants finished 93–61. Based on 852 runs scored and 658 runs allowed, the "Pythagorean" prediction would have been for 95–63. The Giants came in first in the standings, anyway.

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A SIMPLE LINEAR REGRESSION MODEL TO PREDICT AN MLB TEAM'S WINNING PERCENTAGE USING (RS-RA).

Given n ordered pairs (x,y) , the standard simple linear regression equation is:

$$\begin{aligned} y' &= m \cdot x + b; \text{ (Equation 1)} \\ m &= [n \sum xy - (\sum x)(\sum y)] / [n \sum x^2 - (\sum x)^2] \\ b &= [(\sum y)(\sum x^2) - (\sum x)(\sum xy)] / [n \sum x^2 - (\sum x)^2] \end{aligned}$$

In our model for simple linear regression, n will be the 30 teams in MLB. For each team, x will be the difference between their runs scored and runs allowed ($x = RS-RA$), y will be their actual observed winning percent ($W\%$) and y' is the team's expected winning percentage $EXP(W\%)$ based on $(RS-RA)$.

For each year 1998–2012,

Let W = total wins for an MLB team

Let $T = 162$ games played by an MLB team

It is easy to see:

- (1) $\sum x = \sum (RS-RA) = 0$
- (2) $\sum y = \sum W\% = (1/T) \cdot \sum W = (1/T) \cdot (n/2)T = n/2 = 15$
- (3) $\sum xy = \sum x \cdot W\% = \sum (RS-RA)W\%$

Replacing $\sum y$ with $(n/2)$, $\sum x$ with 0, and $\sum xy$ with $\sum (RS-RA)W\%$ in Equation 1, the coefficients “ m ” and “ b ” become:

- (4) $b = [(n/2)\sum (RS-RA)^2 - 0] / [n\sum (RS-RA)^2 - 0]$
 $b = 0.50$
- (5) $m = [n\sum (RS-RA)W\% - 0] / [n\sum (RS-RA)^2 - 0]$
 $m = \sum (RS-RA)W\% / \sum (RS-RA)^2$

Equation 1 turns into Equation 2 for each team for the years 1998–2012.

$$y' = EXP(W\%) = [\sum (RS-RA)W\% / \sum (RS-RA)^2] \cdot (RS-RA) + 0.50 \text{ (Equation 2)}.$$

The above derivation is based on the assumption that each team played its scheduled $T = 162$ games. In some years a few teams either play one game more or less than the 162 games. This can happen when a rained-out game is not made up because the game has no effect on the standings or when an additional game is forced by a tie for a playoff spot, as happened in 2009 and 2013. In 2009, the $\sum y$ in (2) above was 15.0020 and in 2013, $\sum y$ in (2) above was 15.0062. In 2009, (4) above will have $b = 0.5001$ and in 2013, (4) above will have

$b = 0.5002$. Since the calculation of “ m ” in (5) above is not affected by the $\sum y$, replacing $b = 0.50$ by either $b = 0.5002$ or $b = 0.5001$ in Equation 2 above will change the expected winning percentage y' in the 4th decimal place. Clearly, this has basically no effect on y' .

Table 1 shows the calculation of the slope $m = \sum (RS-RA)W\% / \sum (RS-RA)^2 = 203.50/293806 = 0.000693$ for the MLB for 2012. Figure 1 shows the scatter diagram, the regression line, the linear regression equation, and the coefficient of determination, r^2 , for MLB in 2012.

A SIMPLE LINEAR REGRESSION MODEL TO PREDICT A LEAGUE'S YEARLY (RS-RA)² USING (RS-RA)W%

For each year 1998–2012, let $x = \sum (RS-RA)W\%$, $y = \sum (RS-RA)^2$, and $y' = EXP(\sum (RS-RA)^2)$, the expected yearly $\sum (RS-RA)^2$. Table 2 shows the x and y values and the slope “ m ” for each of the years 1998–2012. The values of the slopes range from a low of 0.000527 to a high of 0.000693. Figure 2 provides the linear regression equation, the graph of the regression line, and the coefficient of determination, r^2 , for the years 1998–2012. The linear regression equation using $x = \sum (RS-RA)W\%$ to predict $y = \sum (RS-RA)^2$ and the corresponding coefficient, r^2 , is given as Equation 3 below.

$$\begin{aligned} y' &= EXP(\sum (RS-RA)^2) = 1464.4 \sum (RS-RA)W\% \\ &\quad + 32,710 \text{ (Equation 3);} \\ r^2 &= 0.9474 \end{aligned}$$

FINDING ONE SLOPE TO USE AS AN ESTIMATE FOR EACH YEAR FOR MLB

Because of the strong positive correlation between $x = \sum (RS-RA)W\%$ and $y = \sum (RS-RA)^2$ in Equation 3, we can replace $\sum (RS-RA)^2$ in Equation 2 with $1464.4 \sum (RS-RA)W\% + 32,710$ (from Equation 3) giving us Equation 4 below for the expected winning percentage for a team.

Figure 1. Using (RS-RA) To Predict W% for the MLB Teams for 2012

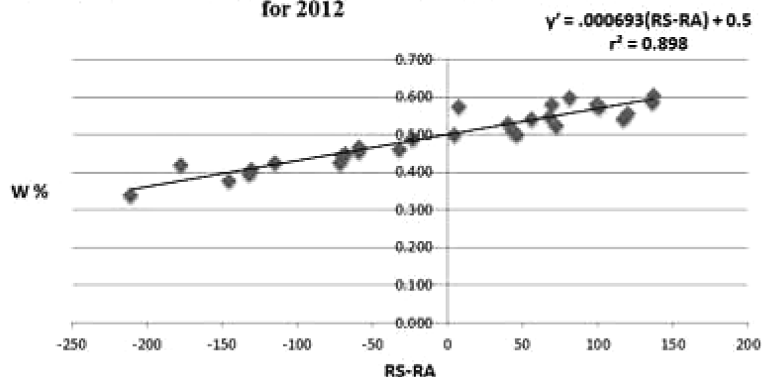
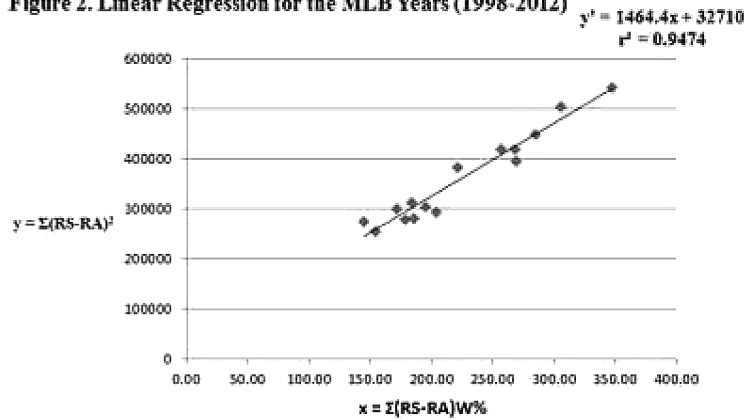


Figure 2. Linear Regression for the MLB Years (1998-2012)


$$\text{EXP}(W\%) = [\Sigma(RS-RA)W\% / [1464.4\Sigma(RS-RA)W\% + 32,710]] * (RS-RA) + 0.50 \quad (\text{Equation 4})$$

Since for each year $1464.4\Sigma(RS-RA)W\%$ is greater than 212,418.5 (see Table 2) which is much greater than 32,710, we can replace 32,710 with 0 in Equation 4 yielding a final approximation for the expected winning percentage for any team for the years 1998–2012 in Equation 5 below.

$$\begin{aligned} \text{EXP}(W\%) &= [\Sigma(RS-RA)W\% / 1464.4\Sigma(RS-RA)W\%] * (RS-RA) + 0.50 \\ &= (1/1464.4) * (RS-RA) + 0.50 \\ &= 0.000683(RS-RA) + 0.50 \quad (\text{Equation 5}) \end{aligned}$$

AN APPLICATION OF THE LINEAR FORMULA FOR BASEBALL

For a team to increase its winning percentage for a year by one percentage point, a team would need to increase the difference (RS–RA) by approximately 14.64 runs ($0.01/0.000683$). If a team won 81 games last year (50 percent of its games) and we believe that if a team wins 90 games, (winning 55.56 percent), they have a good chance of making the playoffs, the yearly difference (RS–RA) should increase by $14.64 * 5.55 = 81.25$ runs. A general manager could use this information to improve his team based on the previous year's RS and RA.

COMPARING LINEAR AND PYTHAGOREAN FORMULAS

For this comparison we will look at the 2013 regular season and compare the Pythagorean formula [$\text{EXP}(W\%) = RS^2/(RS^2 + RA^2)$] with my Linear Formula for Baseball [$\text{EXP}(W\%) = 0.000683(RS-RA) + 0.50$].

To test the hypothesis that each formula's predicted expected win totals for a team is a reasonable estimate for the team's actual win totals, we used the well-known Chi-Square Goodness-Of-Fit Test. Table 3 provides the expected win totals for each MLB team for 2013 using the Linear Formula. Table 4 provides the expected win totals for each MLB team for 2013

using the Pythagorean Formula. The chi-square sums are 5.76 for the Linear Formula and 5.87 for the Pythagorean Formula (see Table 5). The p-values (the probabilities of these two small chi-square sums occurring strictly by chance if we believe the two formulas are accurate) are both greater than 0.90 (using 29 degrees of freedom). This indicates there is no reason to believe that both of these formulas cannot be used to predict a team's expected winning percentage for the 2013 season.

Observe in Table 3, using the Linear Formula, the top 11 expected winning percentages belong to the 10 teams that made the playoffs in 2013.

EXTENDING THE LINEAR FORMULA FOR BASEBALL TO THE NFL AND NBA

We will now use the same techniques to develop Equations 2, 3, 4, and 5 for the National Football League and National Basketball Association. For these two leagues, $x = (\text{points scored (PS)} - \text{points allowed (PA)})$ and $y = W\%$. Notice PS and PA replace RS and RA but have the same meaning.

Since (1), (2), (3), (4), and (5) below remain the same for the NFL and NBA, Equation 2 is the same for the NFL and NBA. The fact that T and n may be different for the three leagues had no effect on the final results for “m” and “b”.

- (1) $\Sigma x = \Sigma(PS-PA) = 0$
- (2) $\Sigma y = \Sigma W\% = (1/T) * W = (1/T) * (n/2)T = n/2$
- (3) $\Sigma xy = \Sigma(x * W\%) = \Sigma(PS-PA)W\%$
- (4) $b = [(n/2)\Sigma(PS-PA)^2 - 0] / [n\Sigma(PS-PA)^2 - 0]$
 $b = 0.50$
- (5) $m = \Sigma[n(PS-PA)W\% - 0] / [n\Sigma(PS-PA)^2 - 0]$
 $m = \Sigma(PS-PA)W\% / (\Sigma(PS-PA)^2)$

Equation 2 is given below.

$$y' = \text{EXP}(W\%) = [\Sigma(PS-PA)W\% / \Sigma(PS-PA)^2] * (PS-PA) + 0.50$$

Unlike in MLB, Item (2) above is always true in the NBA and NFL.

For each year 2002–12 for the NFL and for each year 2004–12 for the NBA, let $x = \Sigma(PS-PA)W\%$, $y = \Sigma(PS-PA)^2$, and $y' = \text{EXP}(\Sigma(PS-PA)^2)$, the expected yearly $\Sigma(PS-PA)^2$. Below is Equation 3 for the NFL and Equation 3 for the NBA (see Tables 6 and 7 along with Figures 3 and 4).

For the NFL, $y' = \text{EXP}(\Sigma(\text{PS}-\text{PA})^2) = 650.36\Sigma(\text{PS}-\text{PA})\text{W}\% - 39,803$ (Equation 3)
and $r^2 = 0.9148$.
For the NBA, $y' = \text{EXP}(\Sigma(\text{PS}-\text{PA})^2) = 2850.8\Sigma(\text{PS}-\text{PA})\text{W}\% - 673,540$ (Equation 3)
and $r^2 = 0.9214$.

Because of the strong positive correlation between $x = \Sigma(\text{PS}-\text{PA})\text{W}\%$ and $y = \Sigma(\text{PS}-\text{PA})^2$ in Equation 3 for both the NFL and NBA (see Figures 3 and 4), we can use $650.36\Sigma(\text{PS}-\text{PA})\text{W}\% - 39,803$ (from Equation 3) to replace $\Sigma(\text{PS}-\text{PA})^2$ in Equation 2 for the NFL and $2850.8\Sigma(\text{PS}-\text{PA})\text{W}\% - 673,540$ to replace $\Sigma(\text{PS}-\text{PA})^2$ in Equation 2 for the NBA yielding a new Equation 4 for the NFL and a new Equation 4 for the NBA.

For the NFL, $\text{EXP}(\text{W}\%) = [\Sigma(\text{PS}-\text{PA})\text{W}\% / [650.36\Sigma(\text{PS}-\text{PA})\text{W}\% - 39,803]] * (\text{PS}-\text{PA}) + 0.50$. (Equation 4)
For the NBA, $\text{EXP}(\text{W}\%) = [\Sigma(\text{PS}-\text{PA})\text{W}\% / [2850.8\Sigma(\text{PS}-\text{PA})\text{W}\% - 673,540]] * (\text{PS}-\text{PA}) + 0.50$. (Equation 4)

Since $650.36\Sigma(\text{PS}-\text{PA})\text{W}\%$ is greater than 270,722.1 for each year of the NFL (see Table 6) which is much

greater than 39,803 and $2850.8\Sigma(\text{PS}-\text{PA})\text{W}\%$ is greater than 3,311,685 for each year in the NBA (see Table 7) which is much greater than 673,540, we can replace 39,803 with 0 in Equation 4 for the NFL and 673,540 with 0 in Equation 4 for the NBA yielding our final approximations for winning percentages in Equation 5 for the NFL and Equation 5 for the NBA below.

For the NFL, $\text{EXP}(\text{W}\%) = [\Sigma(\text{PS}-\text{PA})\text{W}\% / 650.36\Sigma(\text{PS}-\text{PA})\text{W}\%] * (\text{PS}-\text{PA}) + 0.50 = (1/650.36) * (\text{PS}-\text{PA}) + 0.50 = 0.001538(\text{PS}-\text{PA}) + 0.50$. (Equation 5)

For the NBA, $\text{EXP}(\text{W}\%) = [\Sigma(\text{PS}-\text{PA})\text{W}\% / 2850.8\Sigma(\text{PS}-\text{PA})\text{W}\%] * (\text{PS}-\text{PA}) + 0.50 = (1/2850.8) * (\text{PS}-\text{PA}) + 0.50 = 0.000351(\text{PS}-\text{PA}) + 0.50$. (Equation 5)

The final versions are therefore:

The Linear Formula for NFL Football is $\text{EXP}(\text{W}\%) = 0.001538(\text{PS}-\text{PA}) + 0.50$.

The Linear Formula for NBA Basketball is $\text{EXP}(\text{W}\%) = 0.000351(\text{PS}-\text{PA}) + 0.50$.

Figure 3. Linear Regression for the NFL Years (2002-2012) $y' = 650.36x - 39803$
 $r^2 = 0.9148$

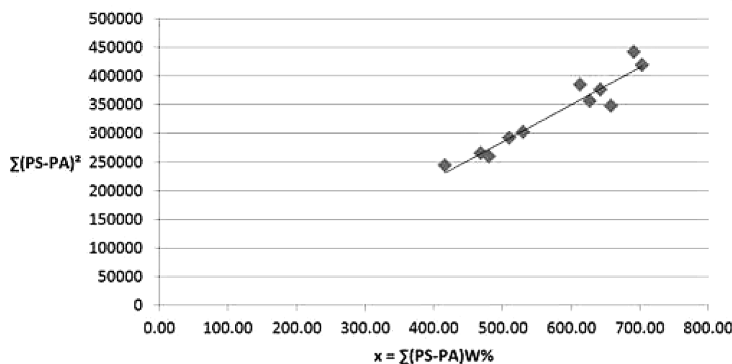
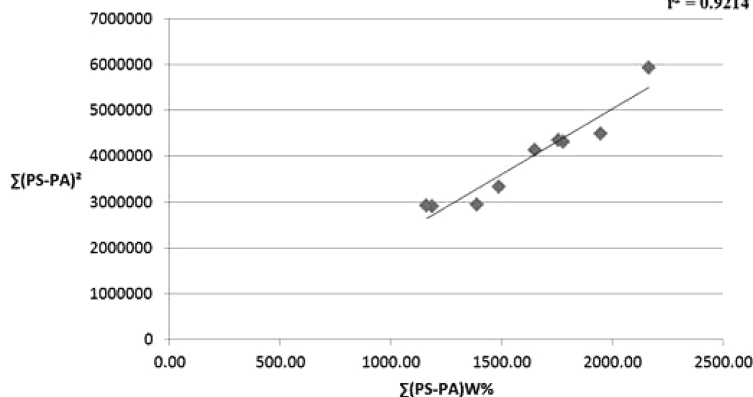


Figure 4. Linear Regression for the NBA Years (2004-2012) $y' = 2850.8x - 673540$
 $r^2 = 0.9214$



Dividing 0.01 by 0.001538 tells us that each increase of 6.5 points for (PS-PA) will increase an NFL team's winning percentage by an additional one percentage point. Dividing 0.01 by 0.000351 tells us that each increase of 28.5 points for (PS-PA) will increase an NBA team's winning percentage by an additional one percentage point.

CONCLUSION

Using the Chi-Square Goodness-Of-Fit Test for both the Linear Formula and the Pythagorean Formula, we showed both were effective in predicting the actual win totals for the 2013 MLB season. We believe these two formulas will remain as effective in future years. One advantage of the Linear Formula over the Pythagorean Formula is it is easier for a general manager to understand and use. A general manager can adjust either the runs scored or runs allowed—or both—when evaluating improvements to a team. Using the difference between the runs scored and

runs allowed in the previous year as a starting point, a GM can plan to increase that difference to benefit his team. Of course, most teams (excluding the Yankees, Red Sox, and Dodgers) are constrained by budget. Upgrading the roster with players with underappreciated run-producing statistics but lower salary demands is one way to increase the RS component of (RS-RA) without overpaying for glitzier stats. On the runs allowed side, a team might weigh the addition of one strong starting pitcher versus two lower-salary good starting pitchers to reduce the RA component. A second advantage of the Linear Formula is the same techniques used to develop the Linear Formula for Baseball can be applied to other sports leagues such as the NBA and NFL, and the same team-building advantages will apply.

Two new research questions are born from these results. Why is there a strong positive correlation between $\sum(RS - RA)^2$ and $\sum W\%(RS-RA)$ in MLB, the NFL, and the NBA? And how many games must be completed within a season for the Linear Formula to be an effective tool for predicting winning percentages in these leagues?

ADDITIONAL POINTS

1. If $RS-RA > 732$ the linear formula for baseball, $EXP(W\%) = 0.000683(RS-RA) + 0.50$, can yield an $EXP(W\%) > 100\%$. However, this is not a problem because for the years 1998–2012 the maximum value for (RS-RA) is 300.
2. If $PS-PA > 325$ the linear formula for football, $0.001538(PS-PA) + 0.50$, can yield an $EXP(W\%) > 100\%$. However, this is not a problem because for the years 2002–12 the maximum value for (PS-PA) is 208.
3. If $PS-PA > 1425$ the linear formula for basketball, $0.000351(PS-PA) + 0.50$, can yield an $EXP(W\%) > 100\%$. However, this is not a problem because for the years 2004–12 the maximum value for (PS-PA) is 691.
4. The scoring data needed for the discussion after Equation 2 and for Figures 3 and 4 can be found at the ESPN website at www.espn.com under the heading MLB and subheading Standings. Under the subtopic Standings you can retrieve the data (PS-PA), (RS-RA), and W%. ■

Sources

Wikipedia. http://en.wikipedia.org/wiki/Pythagorean_expectation.
 "Pythagorean Expectation."
 "The Pythagorean Theorem of Baseball." http://www.baseball-reference.com/bullpen/Pythagorean_Theorem_of_Baseball.
 Retrosheet

Note

1. The reason for starting with 1998 is this was the first year that there were 30 MLB teams.

Table 1. Calculation of the Slope $m = \frac{\sum(RS - RA)W\%}{\sum(RS - RA)^2}$ for the MLB 2012

Teams	W	L	W%	RS	RA	$\sum(RS-RA)W\%$	$\sum(RS-RA)^2$
ARI	81	81	0.500	734	688	23.00	2116
ATL	94	68	0.580	700	600	58.00	10000
BAL	93	69	0.574	712	705	4.02	49
BOS	69	93	0.426	734	806	-30.67	5184
CHC	61	101	0.377	613	759	-55.04	21316
CHW	85	77	0.525	748	676	37.80	5184
CIN	97	65	0.599	669	588	48.52	6561
CLE	68	94	0.420	667	845	-74.76	31684
COL	64	98	0.395	758	890	-52.14	17424
DET	88	74	0.543	726	670	30.41	3136
HOU	55	107	0.340	583	794	-71.74	44521
KCR	72	90	0.444	676	746	-31.08	4900
LAA	89	73	0.549	767	699	37.33	4624
LAD	86	76	0.531	637	597	21.24	1600
MIA	69	93	0.426	609	724	-48.99	13225
MIL	83	79	0.512	776	733	22.02	1849
MIN	66	96	0.407	701	832	-53.32	17161
NYM	74	88	0.457	650	709	-26.96	3481
NYG	95	67	0.586	804	668	79.70	18496
OAK	94	68	0.580	713	614	57.42	9801
PHI	81	81	0.500	684	680	2.00	16
PIT	79	83	0.488	651	674	-11.22	529
SDP	76	86	0.469	651	710	-27.67	3481
SEA	75	87	0.463	619	651	-14.82	1024
SFG	94	68	0.580	718	649	40.02	4761
STL	88	74	0.543	765	648	63.53	13689
TBR	90	72	0.556	697	577	66.72	14400
TEX	93	69	0.574	808	707	57.97	10201
TOR	73	89	0.451	716	784	-30.67	4624
WSN	98	64	0.605	731	594	82.89	18769
Teams	W	L	Win%	RS	RA	$\sum RS-RA)W\%$	$\sum(RS-RA)^2$
Totals	2430	2430	15	21017	21017	203.50	293806

$$m = 203.5/293806$$

$$m = 0.000693$$

Table 2. For Each MLB Year 1998-2012, $m = \frac{\sum(RS - RA)W\%}{\sum(RS - RA)^2}$

Year	$\sum(RS-RA)W\%$	$\sum(RS-RA)^2$	$m = \frac{\sum(RS-RA)W\%}{\sum(RS-RA)^2}$
1998	305.83	504280	0.000606
1999	256.81	420952	0.000610
2000	171.22	301138	0.000569
2001	268.27	419448	0.000640
2002	347.08	543024	0.000639
2003	284.52	449486	0.000633
2004	268.61	396848	0.000677
2005	183.67	314040	0.000585
2006	154.45	256350	0.000602
2007	145.06	275316	0.000527
2008	178.84	278660	0.000642
2009	185.73	282750	0.000657
2010	220.94	384018	0.000575
2011	195.46	305538	0.000640
2012	203.50	293806	0.000693

Table 3. Expected Win Totals for MLB Teams 2013 Using Linear Formula

Rank	MLB-2013	Actual	Actual				Linear Formula (LF)	Expected
	TEAM	Wins	Percentage	RS	RA	RS - RA	$0.000683(RS-RA)+.50$	Wins (LF)
1	Boston	97	0.5988	853	656	197	0.6346	102.80
2	St. Louis	97	0.5988	783	596	187	0.6277	101.69
3	Detroit	93	0.5741	796	624	172	0.6175	100.03
4	Oakland	96	0.5926	767	625	142	0.5970	96.71
5	Atlanta	96	0.5926	688	548	140	0.5956	96.49
6	Cincinnati	90	0.5556	698	589	109	0.5744	93.06
7	Texas	91	0.5617	730	636	94	0.5642	91.40
8	Cleveland	92	0.5679	745	662	83	0.5567	90.18
9	LA Dodgers	92	0.5679	649	582	67	0.5458	88.41
10	Pittsburgh	94	0.5802	634	577	57	0.5389	87.31
11	Tampa Bay	92	0.5679	700	646	54	0.5369	86.97
12	Kansas City	86	0.5309	648	601	47	0.5321	86.20
13	Baltimore	85	0.5247	745	709	36	0.5246	84.98
14	Washington	86	0.5309	656	626	30	0.5205	84.32
15	LA Angels	78	0.4815	733	737	-4	0.4973	80.56
16	Arizona	81	0.5000	685	695	-10	0.4932	79.89
17	NY Yankees	85	0.5247	650	671	-21	0.4857	78.68
18	Toronto	74	0.4568	712	756	-44	0.4699	76.13
19	Milwaukee	74	0.4568	640	687	-47	0.4679	75.80
20	Colorado	74	0.4568	706	760	-54	0.4631	75.03
21	San Francisco	76	0.4691	629	691	-62	0.4577	74.14
22	NY Mets	74	0.4568	619	684	-65	0.4556	73.81
23	San Diego	76	0.4691	618	700	-82	0.4440	71.93
24	Chicago Cubs	66	0.4074	602	689	-87	0.4406	71.37
25	Chicago Sox	63	0.3889	598	723	-125	0.4146	67.17
26	Seattle	71	0.4383	624	754	-130	0.4112	66.62
27	Miami	62	0.3827	513	646	-133	0.4092	66.28
28	Philadelphia	73	0.4506	610	749	-139	0.4051	65.62
29	Minnesota	66	0.4074	614	788	-174	0.3812	61.75
30	Houston	51	0.3148	610	848	-238	0.3374	54.67

Table 4. Expected Win Totals for MLB Teams 2013 Using Pythagorean Formula

Rank	MLB-2013	Actual	Actual				Pythagorean Formula (PF)	Expected
	TEAM	Wins	Percentage	RS	RA	RS - RA	$RS^2/(RS^2+RA^2)$	Wins (PF)
1	Boston	97	0.5988	853	656	197	0.6284	101.79
2	St. Louis	97	0.5988	783	596	187	0.6332	102.57
3	Detroit	93	0.5741	796	624	172	0.6194	100.34
4	Oakland	96	0.5926	767	625	142	0.6010	97.36
5	Atlanta	96	0.5926	688	548	140	0.6118	99.12
6	Cincinnati	90	0.5556	698	589	109	0.5841	94.62
7	Texas	91	0.5617	730	636	94	0.5685	92.10
8	Cleveland	92	0.5679	745	662	83	0.5588	90.52
9	LA Dodgers	92	0.5679	649	582	67	0.5543	89.79
10	Pittsburgh	94	0.5802	634	577	57	0.5470	88.61
11	Tampa Bay	92	0.5679	700	646	54	0.5401	87.49
12	Kansas City	86	0.5309	648	601	47	0.5376	87.09
13	Baltimore	85	0.5247	745	709	36	0.5247	85.01
14	Washington	86	0.5309	656	626	30	0.5234	84.79
15	LA Angels	78	0.4815	733	737	-4	0.4973	80.56
16	Arizona	81	0.5000	685	695	-10	0.4928	79.83
17	NY Yankees	85	0.5247	650	671	-21	0.4841	78.43
18	Toronto	74	0.4568	712	756	-44	0.4701	76.15
19	Milwaukee	74	0.4568	640	687	-47	0.4646	75.27
20	Colorado	74	0.4568	706	760	-54	0.4632	75.04
21	San Francisco	76	0.4691	629	691	-62	0.4531	73.41
22	NY Mets	74	0.4568	619	684	-65	0.4502	72.94
23	San Diego	76	0.4691	618	700	-82	0.4380	70.96
24	Chicago Cubs	66	0.4074	602	689	-87	0.4329	70.13
25	Chicago Sox	63	0.3889	598	723	-125	0.4062	65.81
26	Seattle	71	0.4383	624	754	-130	0.4065	65.85
27	Miami	62	0.3827	513	646	-133	0.3867	62.65
28	Philadelphia	73	0.4506	610	749	-139	0.3988	64.60
29	Minnesota	66	0.4074	614	788	-174	0.3778	61.20
30	Houston	51	0.3148	610	848	-238	0.3410	55.24

Table 5. Chi-Square Tests

MLB-2013 Teams	Observed Wins	Linear Formula Expected Wins	Pythagorean Formula Expected Wins	Linear Formula (O-EL) ² / EL	Pythagorean Formula (O-EP) ² / EP
Boston	97	102.80	101.79	0.33	0.23
St. Louis	97	101.69	102.57	0.22	0.30
Detroit	93	100.03	100.34	0.49	0.54
Oakland	96	96.71	97.36	0.01	0.02
Atlanta	96	96.49	99.12	0.00	0.10
Cincinnati	90	93.06	94.62	0.10	0.23
Texas	91	91.40	92.10	0.00	0.01
Cleveland	92	90.18	90.52	0.04	0.02
LA Dodgers	92	88.41	89.79	0.15	0.05
Pittsburgh	94	87.31	88.61	0.51	0.33
Tampa Bay	92	86.97	87.49	0.29	0.23
Kansas City	86	86.20	87.09	0.00	0.01
Baltimore	85	84.98	85.01	0.00	0.00
Washington	86	84.32	84.79	0.03	0.02
LA Angels	78	80.56	80.56	0.08	0.08
Arizona	81	79.89	79.83	0.02	0.02
NY Yankees	85	78.68	78.43	0.51	0.55
Toronto	74	76.13	76.15	0.06	0.06
Milwaukee	74	75.80	75.27	0.04	0.02
Colorado	74	75.03	75.04	0.01	0.01
San Francisco	76	74.14	73.41	0.05	0.09
NY Mets	74	73.81	72.94	0.00	0.02
San Diego	76	71.93	70.96	0.23	0.36
Chicago Cubs	66	71.37	70.13	0.40	0.24
Chicago Sox	63	67.17	65.81	0.26	0.12
Seattle	71	66.62	65.85	0.29	0.40
Miami	62	66.28	62.65	0.28	0.01
Philadelphia	73	65.62	64.60	0.83	1.09
Minnesota	66	61.75	61.20	0.29	0.38
Houston	51	54.67	55.24	0.25	0.33
Chi-Square Sums				5.76	5.87

Table 6. For Each NFL Year 2002-2012,
 $m = \Sigma(PS - PA)W\% / \Sigma(PS - PA)^2$

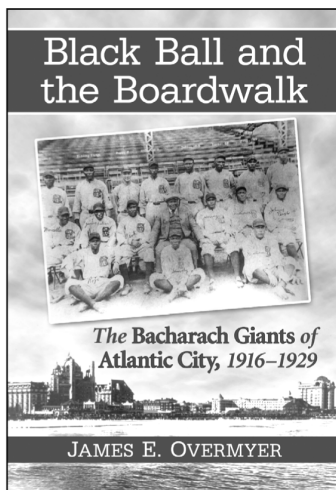
Year	$\Sigma(PS-PA)W\%$	$\Sigma(PS-PA)^2$	$m = \Sigma(PS-PA)W\% / \Sigma(PS-PA)^2$
2002-2003	416.27	244044	0.001706
2003-2004	530.10	301488	0.001758
2004-2005	480.74	258932	0.001857
2005-2006	658.25	347414	0.001895
2006-2007	468.33	265412	0.001765
2007-2008	703.33	419414	0.001677
2008-2009	627.59	356342	0.001761
2009-2010	691.40	441268	0.001567
2010-2011	509.70	291562	0.001748
2011-2012	643.43	376494	0.001709
2012-2013	612.95	384452	0.001594

Table 7. For Each NBA Year 2004-2012,
 $m = \Sigma(PS - PA)W\% / \Sigma(PS - PA)^2$

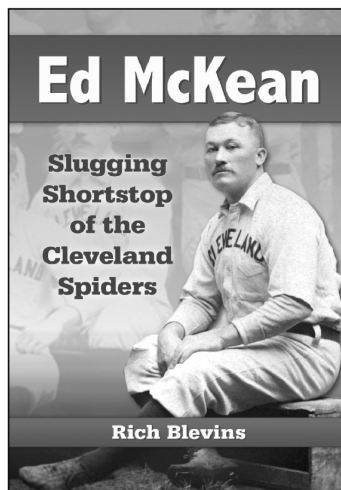
Year	$\Sigma(PS-PA)W\%$	$\Sigma(PS-PA)^2$	$m = \Sigma(PS-PA)W\% / \Sigma(PS-PA)^2$
2004-2005	1486.40	3339862	0.000445
2005-2006	1185.56	2896648	0.000409
2006-2007	1161.67	2923334	0.000397
2007-2008	2165.02	5926856	0.000365
2008-2009	1947.94	4497996	0.000433
2009-2010	1776.36	4314590	0.000412
2010-2011	1754.11	4348868	0.000403
2011-2012	1387.26	2932148	0.000473
2012-2013	1647.77	4129622	0.000399



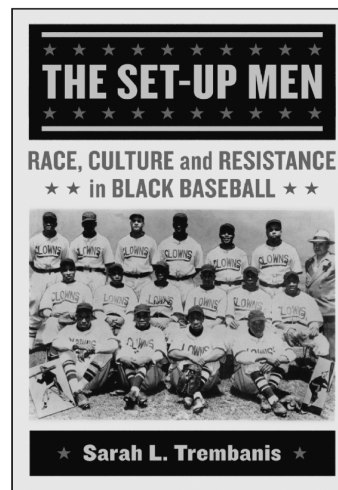
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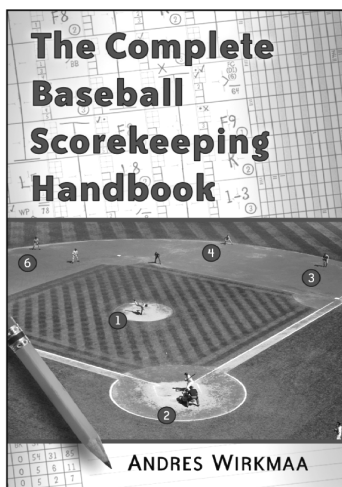
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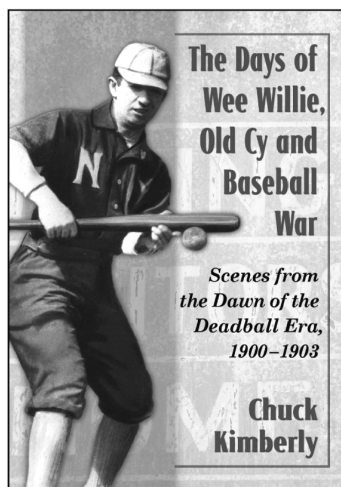
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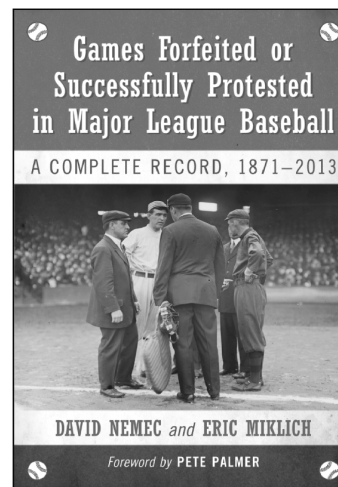
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Probabilities of Victory in Head-to-Head Team Matchups

John A. Richards

Winning percentages represent the fundamental metric of team success. Regardless of a team's specific strengths and weaknesses, its winning percentage—or equivalently, its won-lost record in a fixed-length season—is the ultimate distillation of all other individual and team statistics into a single measure of success or failure. Winning percentages determine which teams advance to the postseason and largely define teams' legacies. And among teams playing a balanced schedule in the same league, winning percentage provides an unambiguous gauge of relative team strength: won-lost record is taken as the ultimate arbiter of team quality and the final yardstick by which to differentiate teams. Even if we grant that luck plays a role in every season, and that the vagaries of chance may render absolute team quality ultimately unknowable, we accept that a team's final won-lost record provides the best observable record of this quality relative to the league in which that team played.

Winning percentage not only measures team success, but also serves an important predictive function. When two teams meet for a game, we generally expect the team with the higher winning percentage to have a greater probability of victory. Furthermore, we expect each team's probability of victory in a head-to-head matchup to depend on the similarity or dissimilarity of their winning percentages. We might ask, however: can this general qualitative expectation be formalized quantitatively? Can it be refined to the point of mathematical specificity, such that the probability of each team's victory in any head-to-head matchup might be expressed as a function of the contesting teams' winning percentages?

This article examines the relationship between teams' winning percentages and their probabilities of victory in head-to-head matchups. We present a thought experiment that suggests a mathematical expression for the probability of each team's victory given their winning percentages, and we compare this expression and its derivation to a previously proposed formula. We calculate historical head-to-head winning percentages for all games throughout major league

history and show that the predictions of our proposed equation are in agreement with these empirical results. Finally, we suggest a minor refinement to the proposed formula that yields enhanced predictive power and even better agreement with empirical results. Please note that for purposes of this paper, we use the term "winning percentage" in the vernacular sense, presenting the "percentages" as averages akin to batting average, a decimal followed by three places. A team with a "winning percentage" of .600 has won 60 percent, not six-tenths of a percent, of its games.

A THOUGHT EXPERIMENT

Suppose that two teams—Team A and Team B—play the same balanced schedule in the same league. During spring training, Team A and Team B agree to meet after the conclusion of the season to stage a single post-season exhibition game. Unfortunately, they fail to consider which team will host the contest. As the season progresses, the question of venue becomes a sticking point. By the end of the season, the issue has become so contentious that the A's and the B's both refuse to meet on any field for the proposed post-season game, and it appears the contest will have to be called off.

Enter Team C, which has finished the season with a .500 record. Team C proposes a novel solution that will enable either Team A or Team B to legitimately claim victory in a hypothetical A-vs.-B matchup without ever setting foot on the same diamond at the same time. They propose that all three teams—A, B, and C—travel to a neutral site and play a series of games that will serve as a proxy for the now-untenable single-game matchup between Team A and Team B. In particular, Team C proposes playing a single game against Team A and a single game against Team B. They propose that the outcome of this two-game "proxy series" be used to assign victory according to the following common-sense rules:¹

1. If A defeats C and C defeats B, then A is declared the victor over B.
2. If B defeats C and C defeats A, then B is declared the victor over A.

3. If A and B both defeat C, or if C defeats both A and B, then no victor is yet declared.

Team C further proposes that in case of outcome 3, the two-game series will be repeated—recursively, if necessary—until outcome 1 or 2 is achieved, and Team A or Team B is declared the victor accordingly. Note that outcomes 1 and 2 in Team C’s proposal are decisive in the sense that they allow a definitive ordered ranking of the three teams—and thus of Team A and Team B. In contrast, outcome 3 is not decisive because it does not allow a definitive ordered ranking of Teams A and B relative to each other. Outcome 3 thus necessitates one or more additional two-game series(repeated until either outcome 1 or 2 is realized) to achieve a decisive ordered ranking.

Because Team C is exactly a league-average team—that is, they possess exactly a .500 record after playing a balanced schedule within the league—all three teams agree that this proxy series is a fair and unambiguous way of declaring a victor in lieu of an actual head-to-head matchup between Team A and Team B. The A’s, B’s, and C’s travel to a neutral site to play their two-game proxy series (as well as any subsequent two-game proxy series necessitated by outcome 3) that will ultimately crown Team A or Team B the victor without requiring a head-to-head contest.

DERIVATION OF A WIN PROBABILITY FUNCTION

The proxy series described in this thought experiment provides an unbiased method for assigning victory to one of two teams without requiring a head-to-head matchup. As it turns out, the proxy-series formulation also lends itself directly to the derivation of a functional expression for each team’s probability of victory in such an event, given their full-season winning percentages. Let us denote the winning percentages of Team A and Team B by WP_A and WP_B , respectively. Note that WP_A and WP_B represent winning percentages achieved in the context of a full league playing a balanced schedule. Because the proxy Team C achieved a winning percentage of exactly .500 playing the same balanced schedule in the same league, it stands to reason that Team A and Team B should expect to win individual games against Team C with probabilities WP_A and WP_B , respectively. If individual games of the proxy series are assumed independent, then the probabilities of each of the three possible outcomes of the two-game series can be expressed directly. In particular, the probability of Team A achieving victory (outcome 1) in a single two-game proxy series is

$$P_{A,1} = WP_A(1 - WP_B).$$

(The “1” in the subscript indicates that this outcome was achieved after a single two-game proxy series with no rematch; this notation will be useful in the derivation that follows.) Similarly, we can write the probability of Team B achieving victory (outcome 2) after a single two-game proxy series as

$$P_{B,1} = WP_B(1 - WP_A).$$

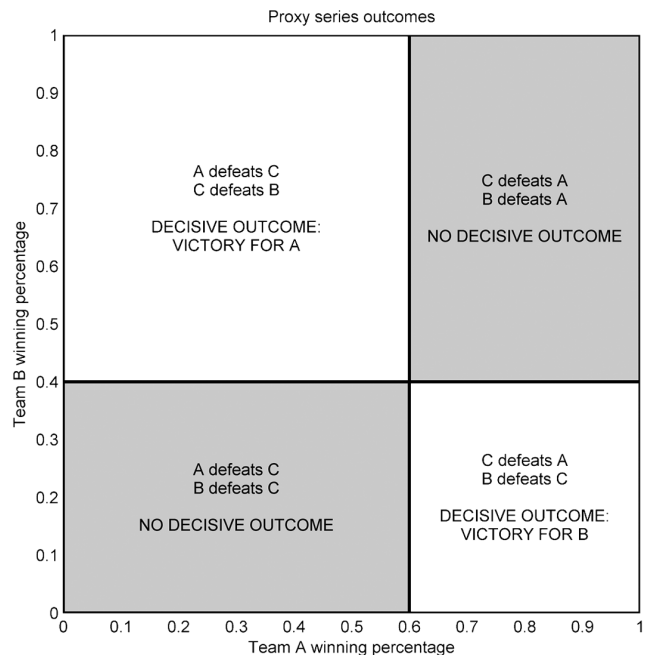
Finally, the probability of no decisive victory (outcome 3) after a single two-game proxy series is

$$P_{0,1} = 1 - WP_A(1 - WP_B) - WP_B(1 - WP_A).$$

The probabilities of the three possible outcomes can be depicted graphically on the unit square, as in Figure 1. This square is divided into four regions by one vertical line (corresponding to the winning percentage of Team A) and one horizontal line (corresponding to the winning percentage of Team B). The areas of the resulting regions are equal to specific probabilities expressed in the above set of equations. In particular, the two white regions have areas equal to the probabilities of the decisive outcomes 1 and 2 (that is, $P_{A,1}$ and $P_{B,1}$), while the union of the two shaded regions has an area equal to the probability of the non-decisive outcome 3 (that is, $P_{0,1}$).

Because a single two-game proxy series may not be decisive (outcome 3), a recursive sequence of two-game proxy series might be required to declare a victor. The probability of Team A achieving victory in

Figure 1. Graphical depiction of the probabilities of each possible outcome in a two-game proxy series



a sequence of n or fewer proxy series is

$$P_{A,n} = P_{A,1} + P_{0,1}P_{A,1} + P_{0,1}^2P_{A,1} + \cdots + P_{0,1}^{n-1}P_{A,1}.$$

Likewise, the probability of a victory for Team B after n or fewer two-game proxy-series recursions is

$$P_{B,n} = P_{B,1} + P_{0,1}P_{B,1} + P_{0,1}^2P_{B,1} + \cdots + P_{0,1}^{n-1}P_{B,1}.$$

Finally, the probability of no decisive outcome after a sequence of n recursive two-game proxy series is

$$P_{0,n} = P_{0,1}^n.$$

(It can be verified that $P_{A,n} + P_{B,n} + P_{0,n} = 1$ for any n .)

As n increases, the probability $P_{0,n}$ of having reached no decisive outcome decreases toward zero and the probabilities $P_{A,n}$ and $P_{B,n}$ of having reached each decisive outcome increase toward a sum of one. In the limiting case—that is, as n tends to infinity—a decisive result will be achieved with probability one. Summing the resulting arithmetic series, we find that the probability of eventual victory for team A is²

$$P_A = \frac{WP_A(1 - WP_B)}{WP_A(1 - WP_B) + WP_B(1 - WP_A)}$$

and the probability of eventual victory for Team B is

$$P_B = \frac{WP_B(1 - WP_A)}{WP_A(1 - WP_B) + WP_B(1 - WP_A)}.$$

Note that P_A is simply the ratio of $P_{A,1}$ to the sum $P_{A,1} + P_{B,1}$, and that P_B is likewise the ratio of $P_{B,1}$ to the same sum. In other words, the probability of each team's victory is simply the ratio of its probability of victory in a single two-game proxy series to the probability of a decisive result in a single two-game proxy series. Because the equations for P_A and P_B are complementary, we will henceforth represent them with a single function of the two variables WP_A and WP_B :

$$P(WP_A, WP_B) = \frac{WP_A(1 - WP_B)}{WP_A(1 - WP_B) + WP_B(1 - WP_A)}.$$

Here, $P(WP_A, WP_B)$ represents the probability of a victory by Team A over Team B, given that these teams have inherent qualities of WP_A and WP_B , respectively.³ Note that $P_A = P(WP_A, WP_B)$ and $P_B = P(WP_B, WP_A)$.

We contend that the function P describes not only the probability of team victory in a proxy series, but also in an actual head-to-head matchup. That is, we maintain that if Team A and Team B met directly, without the artifice of a proxy series with Team C, then P would express the win probability for each team. It is easy to verify that P satisfies a number of intuitive criteria that we would demand of any function claim-

ing to predict the probability of victory in head-to-head matchups. In particular:

- $P(x, y) = 1 - P(y, x)$; equivalently, $P(x, y) + P(y, x) = 1$. A matchup between two teams must result in a victory for one of the teams.
- $P(x, .500) = x$. A team with winning percentage x will also have winning percentage x against a league-average team.
- $P(x, x) = .500$. A matchup between two teams with the same winning percentage is equally likely to result in victory for either team.
- $P(x, 0) = 1$ for all $x > 0$. A team with a nonzero winning percentage is certain to defeat a team that has no probability of winning.
- $P(x, 1) = 0$ for all $x < 1$. A team with a subunity winning percentage is certain to lose to a team that has no probability of losing.
- $P(x + d, y) > P(x, y)$ for all $d > 0$ and $0 < y < 1$. As a team's winning percentage increases, its probability of victory against any opponent also increases (unless that opponent has winning percentage 0 or 1).

Indeed, these precepts are so basic and self-evident that they might actually be used (possibly with other criteria) to construct the function P on an axiomatic basis.

Table 1 presents the predicted probabilities of victory in head-to-head matchups between teams of different qualities. Each cell in the table represents the predicted probability of victory for a team with quality indicated by the heading of the corresponding row, when facing a team with quality indicated by the heading of the corresponding column.⁴ For instance, the predicted probability of victory for a .600 team facing a .400 opponent is .692. When the same .600 team faces a .500 opponent—that is, a league-average opponent—its predicted win probability is .600. Paired against a .600 opponent (and thus perfectly evenly matched), the team's probability of victory is exactly .500. On the rare occasion when the team faces a .700 opponent, its win probability decreases to .391.

Several trends are apparent in Table 1. First of all, regardless of a team's winning percentage, its predicted probability of victory uniformly decreases as its opponent's winning percentage increases. Similarly, given an opponent with fixed winning percentage, this opponent is more likely to be defeated by a team with a higher winning percentage. These trends are, of course, related: because every head-to-head matchup yields exactly one win and one loss, each above-diagonal element of Table 1 is equal to the complement of its

Table 1. Predicted probabilities of victory in head-to-head matchups

	Opponent winning percentage																			
	.260	.280	.300	.320	.340	.360	.380	.400	.420	.440	.460	.480	.500	.520	.540	.560	.580	.600	.620	.640
Team winning percentage	.260	.500	.475	.450	.427	.405	.384	.364	.345	.327	.309	.292	.276	.260	.245	.230	.216	.203	.190	.177
	.280	.525	.500	.476	.452	.430	.409	.388	.368	.349	.331	.313	.296	.280	.264	.249	.234	.220	.206	.192
	.300	.550	.524	.500	.477	.454	.432	.412	.391	.372	.353	.335	.317	.300	.283	.267	.252	.237	.222	.208
	.320	.573	.548	.523	.500	.477	.456	.434	.414	.394	.375	.356	.338	.320	.303	.286	.270	.254	.239	.224
	.340	.595	.570	.546	.523	.500	.478	.457	.436	.416	.396	.377	.358	.340	.322	.305	.288	.272	.256	.240
	.360	.616	.591	.568	.544	.522	.500	.479	.458	.437	.417	.398	.379	.360	.342	.324	.307	.289	.273	.256
	.380	.636	.612	.588	.566	.543	.521	.500	.479	.458	.438	.418	.399	.380	.361	.343	.325	.307	.290	.273
	.400	.655	.632	.609	.586	.564	.542	.521	.500	.479	.459	.439	.419	.400	.381	.362	.344	.326	.308	.290
	.420	.673	.651	.628	.606	.584	.563	.542	.521	.500	.480	.459	.440	.420	.401	.382	.363	.344	.326	.307
	.440	.691	.669	.647	.625	.604	.583	.562	.541	.520	.500	.480	.460	.440	.420	.401	.382	.363	.344	.325
	.460	.708	.687	.665	.644	.623	.602	.582	.561	.541	.520	.500	.480	.460	.440	.421	.401	.382	.362	.343
	.480	.724	.704	.683	.662	.642	.621	.601	.581	.560	.540	.520	.500	.480	.460	.440	.420	.401	.381	.361
	.500	.740	.720	.700	.680	.660	.640	.620	.600	.580	.560	.540	.520	.500	.480	.460	.440	.420	.400	.380
	.520	.755	.736	.717	.697	.678	.658	.639	.619	.599	.580	.560	.540	.520	.500	.480	.460	.440	.419	.399
	.540	.770	.751	.733	.714	.695	.676	.657	.638	.618	.599	.579	.560	.540	.520	.500	.480	.459	.439	.418
	.560	.784	.766	.748	.730	.712	.693	.675	.656	.637	.618	.599	.580	.560	.540	.520	.500	.480	.459	.438
	.580	.797	.780	.763	.746	.728	.711	.693	.674	.656	.637	.618	.599	.580	.560	.541	.520	.500	.479	.458
	.600	.810	.794	.778	.761	.744	.727	.710	.692	.674	.656	.638	.619	.600	.581	.561	.541	.521	.500	.479
	.620	.823	.808	.792	.776	.760	.744	.727	.710	.693	.675	.657	.639	.620	.601	.582	.562	.542	.521	.500
	.640	.835	.821	.806	.791	.775	.760	.744	.727	.711	.693	.676	.658	.640	.621	.602	.583	.563	.542	.521
	.660	.847	.833	.819	.805	.790	.775	.760	.744	.728	.712	.695	.678	.660	.642	.623	.604	.584	.564	.543
	.680	.858	.845	.832	.819	.805	.791	.776	.761	.746	.730	.714	.697	.680	.662	.644	.625	.606	.586	.566
	.700	.869	.857	.845	.832	.819	.806	.792	.778	.763	.748	.733	.717	.700	.683	.665	.647	.628	.609	.588
	.720	.880	.869	.857	.845	.833	.821	.808	.794	.780	.766	.751	.736	.720	.704	.687	.669	.651	.632	.612
	.740	.890	.880	.869	.858	.847	.835	.823	.810	.797	.784	.770	.755	.740	.724	.708	.691	.673	.655	.636

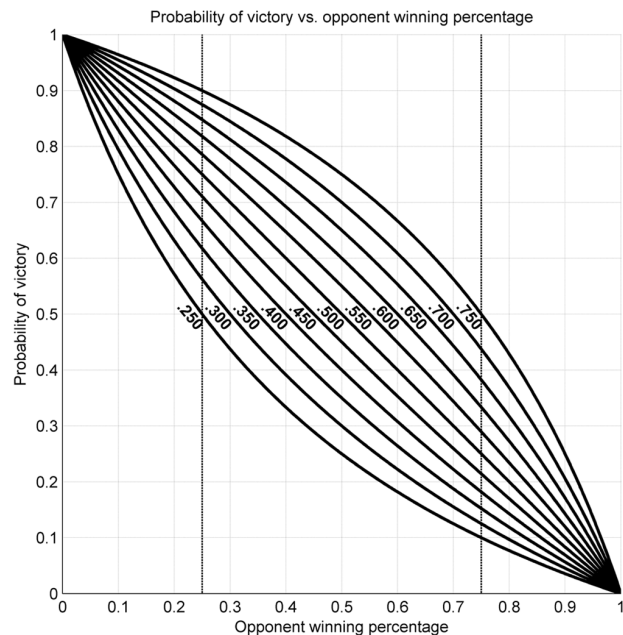
corresponding below-diagonal element, and each on-diagonal element is identically .500.

Figure 2 presents a graphical depiction of the predicted probability of victory for teams of various qualities. In particular, this figure plots predicted win probability in head-to-head matchups as a function of opponent winning percentage. This figure contains 11 traces, representing the predicted probabilities of victory for 11 hypothetical teams with winning percentages ranging from .250 to .750 in steps of .050. (The team winning percentage corresponding to each trace is indicated immediately to the left of the trace.) The dashed vertical lines demarcate the same range of opponent winning percentages (.250 to .750) as spanned by the traces.

SCOOPED BY BILL JAMES

If the win-probability function P looks familiar, it may be because it first appeared in print over thirty years ago. As is the case for so many sabermetric devices, it was originally proposed by Bill James. In his 1981 *Baseball Abstract*, James wrote an article entitled “Pythagoras and the Logarithms” in which he proposed this same relationship, albeit on completely different grounds.⁵ In particular, in contrast to the constructive derivation presented here, James used an essentially axiomatic approach to derive the win-probability function: he stated a set of properties that any sensible win-probability function must possess (such as those indicated above), and then suggested a function that did in fact possess those properties.

Figure 2. Probability of victory vs. opponent winning percentage



James christened his technique the “log5” method. Although apparently originally cast in a different (and more complicated) format, the win-probability relationship was reworked by James and colleague Dallas Adams into the same format constructively derived here. James used this formula repeatedly in later *Baseball Abstracts*; it has since been used by others in a variety of sabermetric contexts. James and Adams apparently performed a limited behind-the-scenes empirical validation of the log5 method, stating that the

selected empirical data “matches *very closely*” (emphasis in original) with the win-probability function. Unfortunately, details were not provided. In the following section, we provide a detailed quantitative empirical validation of the win-probability function, demonstrating that its predictions are in excellent agreement with historical results.

COMPARISON WITH EMPIRICAL RESULTS

From the inception of the National Association in 1871 through the conclusion of the 2013 season, there were exactly 206,017 regulation regular-season major league baseball games.⁶ Exactly 204,858 of those games ended in victory for one team, with the other 1,159 games ending in a tie. The 204,858 decisive games comprise an excellent data set for evaluating the validity of the win-probability function.

We will evaluate the accuracy of the win-probability function by comparing its theoretical predictions to empirical head-to-head winning percentages observed between teams of various qualities. In all comparisons, each team’s full-season winning percentage will be used as the measure of its inherent quality, and not its season-to-date winning percentage; the former provides a much better estimate of the true quality of a team, and the latter is far more variable (especially early in a season). In order to facilitate the analysis, interpretation, and presentation of the results, we will group teams into winning-percentage bins with extents of .020. For instance, teams with winning percentages between .490 and .510 will be grouped into a single bin centered at

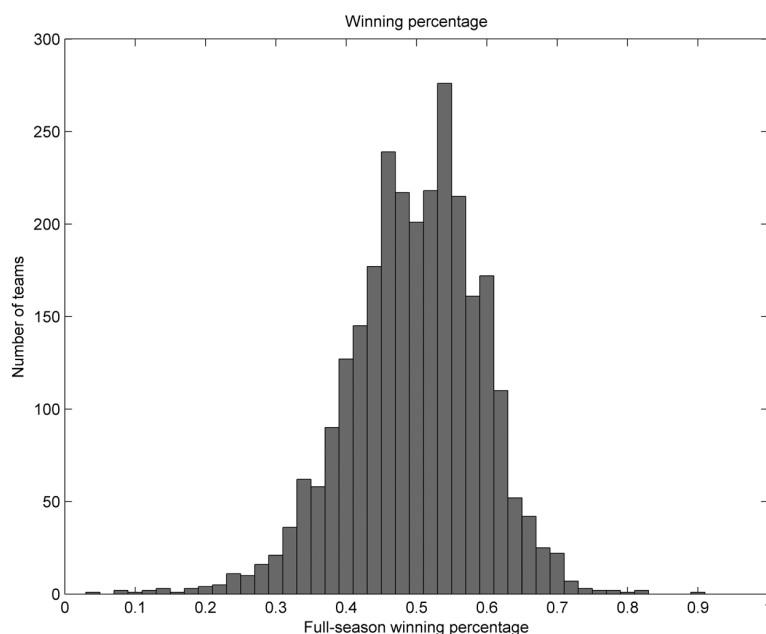
.500 for analysis; similarly, teams with winning percentages between .510 and .530 will be grouped into another bin centered at .520.⁷ Figure 3 depicts a histogram of team winning percentages throughout major league history, separated into these bins.⁸

Table 2 presents empirical probabilities of victory in all head-to-head matchups between teams of all qualities for the entirety of major league history.⁹ Each cell in Table 2 lists the empirical probability of victory for a team with quality (i.e., full-season winning percentage) in the bin indicated by the heading of the corresponding row, when facing a team with quality in the bin indicated by the heading of the corresponding column.¹⁰ (Matchups that have never occurred in major league history—for instance, a .280 team facing a .720 opponent—are simply indicated by the absence of a number.) Note that because every head-to-head matchup yields one win and one loss, each above-diagonal element of Table 2 is equal to the complement of its corresponding below-diagonal element, and each on-diagonal element is identically .500.

We can compare the predicted probabilities of victory in Table 1 to the empirical probabilities of victory in Table 2 to get a sense of the accuracy of the former table’s predictions (and thus the accuracy of the win-probability function P). For example, among all teams in major league history that ended the season with a winning percentage in the .600 bin (that is, between .590 and .610), the empirical probability of victory when facing an opponent with winning percentage in the .400 bin (that is, between .390 and .410) is observed

to be .682. In comparison, the predicted probability of victory for a .600 team facing a .400 opponent is .691—a difference of less than 1% in absolute terms. Similarly, when a .600 team faces a .500 opponent (who thus represents a league-average team), its empirical probability of victory is seen to be .603—a very slight deviation from the theoretical value of .600. When a .600 team faces another .600 team, its empirical probability of victory is empirically .500 (a result that follows necessarily from the zero-sum nature of win-loss accounting), which is the same as the predicted value. Finally, when a .600 team faces a .700 opponent, its empirical win probability is .459. This is somewhat larger than the theoretical value of .391 indicated in Table 1; the larger deviation (compared

Figure 3. Histogram of team winning percentages throughout major league history.



to the others noted here) can be attributed to the relatively rare occurrence of such a matchup and the resulting small sample size. In particular, there have been 1359 decisive matchups between a .600 team and a .400 team, 1815 decisive matchups between a .600 team and a .500 team, and 846 decisive matchups between two .600 teams. In contrast, there have only been 185 decisive matchups between a .600 team and a .700 team. A larger deviation in the empirical probability is thus to be expected. Table 3 presents the number of decisive matchups in major league history between teams of different qualities—that is, the sample size for each of the empirical probabilities in Table 2. Note that Table 3 displays a fundamental symmetry: its above-diagonal elements are identical to the corresponding below-diagonal entries.

The same theoretical trends that were apparent in Table 1 are also apparent in the empirical data of Table 2. As predicted, a team's empirical probability of victory tends to decrease as its opponent's winning percentage increases; similarly, an opponent with a fixed winning percentage is generally more likely to be defeated by a team with a higher winning percentage. As with Table 1, each above-diagonal element of Table 2 is equal to the complement of its corresponding below-diagonal element, and each populated on-diagonal element is identically equal to .500.

A cell-by-cell comparison of Table 1 and Table 2 demonstrates that there is, in fact, excellent agreement between the theoretical and empirical probabilities of

victory in head-to-head matchups. In particular, there is generally very close agreement between predicted and empirical probabilities in matchups characterized by a large sample size (as indicated in Table 3). The cells for which there are larger mismatches tend to be those with smaller sample sizes, for which empirical variation is inherently fundamentally larger. This suggests that the theoretical predictions provided by the win-probability function P are in fact borne out by actual results over the course of major league history.

We can bring this qualitative, inspection-based assessment of the theoretical predictions and empirical observations onto firmer quantitative ground. In particular, we can apply a metric known as the Brier score¹¹ to quantify the level of agreement between theory and observation. Originally developed to evaluate the accuracy of weather forecasts, the Brier score is more generally used to measure the accuracy or predictive power of a probabilistic assessment over numerous trials. It can be applied whenever probabilities are assigned to a set of mutually exclusive, collectively exhaustive discrete outcomes.¹² We will rely on a formulation known as the Brier skill score,¹³ which essentially represents a comparison of the predictive power of a model to that of a naïve model that assumes that each outcome is equally likely—in this case, a trivial model specifying an equal (.500) probability of victory for each team in any matchup, regardless of the teams' levels of quality.¹⁴ A Brier skill score of 1 indicates perfect predictive power, while a

Table 2. Empirical probabilities of victory in head-to-head matchups throughout major league history

	Opponent winning percentage																														
	.260	.280	.300	.320	.340	.360	.380	.400	.420	.440	.460	.480	.500	.520	.540	.560	.580	.600	.620	.640	.660	.680	.700	.720	.740						
Team winning percentage	.260	.500	.294	.481	.420	.350	.388	.368	.291	.374	.270	.271	.265	.251	.218	.227	.176	.176	.189	.164	.121	.107	.094	.124	.056	.073					
	.280	.706	.500	.250	.477	.313	.409	.400	.311	.381	.317	.402	.352	.293	.271	.250	.249	.274	.226	.169	.214	.131	.191	.179	--	.000					
	.300	.519	.750	--	.357	.535	.470	.556	.400	.437	.392	.267	.352	.265	.307	.279	.262	.281	.256	.218	.234	.229	.155	.129	.048	.091					
	.320	.580	.523	.643	.500	.483	.415	.495	.403	.401	.362	.403	.440	.340	.307	.308	.274	.284	.227	.223	.235	.230	.169	.194	.111	.174					
	.340	.650	.688	.465	.517	.500	.504	.423	.439	.438	.408	.389	.368	.352	.330	.309	.302	.289	.289	.267	.259	.228	.181	.204	.182	.183					
	.360	.612	.591	.530	.585	.496	.500	.438	.485	.454	.435	.401	.362	.370	.362	.335	.301	.317	.287	.295	.307	.285	.232	.133	.171	--					
	.380	.632	.600	.444	.505	.577	.562	.500	.471	.463	.448	.424	.411	.409	.363	.354	.337	.336	.302	.274	.250	.221	.267	.392	.097	.150					
	.400	.709	.689	.600	.597	.561	.515	.529	.500	.465	.465	.460	.413	.404	.374	.388	.367	.341	.318	.322	.296	.229	.224	.242	.240	.200					
	.420	.626	.619	.563	.599	.562	.546	.537	.535	.500	.471	.466	.441	.419	.406	.397	.362	.361	.350	.336	.285	.304	.311	.217	.182	.178					
	.440	.730	.683	.608	.638	.592	.565	.552	.535	.529	.500	.486	.460	.433	.437	.402	.395	.375	.346	.345	.326	.318	.306	.251	.289	.190					
	.460	.729	.598	.733	.597	.611	.599	.576	.540	.534	.514	.500	.483	.472	.443	.431	.423	.387	.383	.354	.334	.315	.324	.254	.234	.125					
	.480	.735	.648	.648	.560	.632	.638	.589	.587	.559	.540	.517	.500	.483	.472	.440	.432	.390	.382	.393	.359	.368	.305	.287	.326	.258					
	.500	.749	.707	.735	.660	.648	.630	.591	.596	.581	.567	.528	.517	.500	.485	.466	.437	.432	.397	.405	.368	.327	.315	.299	.317	.277					
	.520	.782	.729	.693	.693	.670	.638	.637	.626	.594	.563	.557	.528	.515	.500	.479	.464	.436	.420	.391	.399	.365	.327	.380	.167	--					
	.540	.773	.750	.721	.692	.691	.665	.646	.612	.603	.598	.569	.560	.534	.521	.500	.483	.464	.440	.430	.411	.385	.363	.362	.358	.323	.258				
	.560	.824	.751	.738	.726	.698	.699	.663	.633	.638	.605	.577	.568	.563	.536	.517	.500	.491	.484	.436	.425	.378	.401	.335	.343	.203					
	.580	.824	.726	.719	.716	.711	.683	.664	.659	.639	.625	.613	.610	.568	.564	.536	.509	.500	.496	.462	.438	.423	.442	.414	.143	.320					
	.600	.811	.774	.744	.773	.711	.713	.698	.682	.650	.654	.617	.618	.603	.580	.560	.516	.504	.500	.486	.429	.470	.418	.459	.387	.235					
	.620	.836	.831	.782	.777	.733	.705	.726	.678	.664	.655	.646	.607	.595	.609	.570	.564	.538	.514	.500	.503	.474	.460	.485	.462	.250					
	.640	.879	.786	.766	.765	.741	.693	.750	.704	.715	.674	.666	.641	.632	.601	.589	.575	.562	.571	.497	.500	.448	.417	.397	.459	.341					
	.660	.893	.869	.771	.770	.772	.715	.779	.771	.696	.682	.685	.632	.673	.635	.615	.622	.577	.530	.526	.552	.500	.459	.500	.517	.281					
	.680	.906	.809	.845	.831	.819	.768	.733	.776	.689	.694	.676	.695	.685	.673	.637	.599	.558	.582	.540	.583	.541	.500	.400	.419	--					
	.700	.876	.821	.871	.806	.796	.867	.768	.758	.783	.749	.746	.713	.701	.620	.638	.665	.586	.541	.515	.603	.500	.600	.500	.389	.500					
	.720	.944	--	.952	.889	.818	.829	.903	.760	.818	.711	.766	.674	.683	.642	.657	.857	.613	.538	.541	.483	.581	.611	--	.200						
	.740	.927	1.000	.909	.826	.817	--	.850	.800	.822	.810	.875	.742	.723	--	.677	.797	.680	.765	.750	.659	.719	--	.500	.800	.500					

Table 3. Number of decisive head-to-head matchups throughout major league history

		Opponent winning percentage																											
		.260	.280	.300	.320	.340	.360	.380	.400	.420	.440	.460	.480	.500	.520	.540	.560	.580	.600	.620	.640	.660	.680	.700	.720	.740			
Team winning percentage	.260	114	17	27	50	60	67	38	134	107	115	140	162	167	188	260	273	250	217	238	157	159	85	129	72	123			
	.280	17	36	12	44	16	22	50	122	84	142	82	54	133	155	20	209	157	146	177	140	61	47	95	0	4			
	.300	27	12	0	14	43	66	18	70	87	189	131	159	147	375	258	355	210	176	78	128	70	58	31	21	22			
	.320	50	44	14	46	151	82	105	186	217	235	236	252	382	381	562	474	278	406	373	196	113	142	67	9	46			
	.340	60	16	43	151	44	139	331	383	452	590	668	628	580	655	834	733	626	686	558	421	272	116	103	44	120			
	.360	67	22	66	82	139	88	235	262	355	402	324	578	583	763	621	685	520	595	451	163	172	99	105	82	0			
	.380	38	50	18	105	331	235	360	420	529	820	1017	1043	1054	1070	1789	1209	848	954	725	428	113	161	125	31	40			
	.400	134	122	70	186	383	262	420	860	910	1217	1793	1588	1534	2038	2008	1586	1425	1359	1237	695	271	201	161	25	30			
	.420	107	84	87	217	452	355	529	910	884	1282	2001	1769	1868	2153	2675	1898	1578	1533	755	445	352	212	83	22	90			
	.440	115	142	189	235	590	402	820	1217	1282	1538	2366	2209	1921	2158	3074	2376	1608	1668	1233	631	425	320	167	83	42			
	.460	140	82	131	236	668	324	1017	1793	2001	2366	3564	3130	2865	3408	4387	3158	2444	2000	919	1113	432	105	201	64	48			
	.480	162	54	159	252	628	578	1043	1588	1769	2209	3130	2544	2307	2782	3306	2630	1899	1931	1103	897	416	187	171	46	66			
	.500	167	133	147	382	580	583	1054	1534	1868	1921	2865	2307	1928	2802	3364	2621	1589	1815	1188	679	336	203	154	41	94			
	.520	188	155	375	381	655	763	1070	2038	2153	2158	3408	2782	2802	2568	3438	3149	1949	1947	1544	848	394	260	121	18	0			
	.540	260	20	258	562	834	621	1789	2008	2675	3074	4387	3306	3364	3438	4068	3238	2594	2106	1259	997	558	245	130	53	62			
.560	273	209	355	474	733	685	1209	1586	1898	2376	3158	2630	2621	3149	3238	2232	1817	1879	1107	544	320	247	218	35	69				
.580	250	157	210	278	626	520	848	1425	1578	1608	2444	1899	1589	1949	2594	1817	1344	1107	823	609	319	104	145	7	25				
.600	217	146	176	406	686	595	954	1359	1533	1668	2000	1931	1815	1947	2106	1879	1107	846	959	492	217	201	185	62	34				
.620	238	177	78	373	558	451	725	1237	755	1233	919	1103	1188	1544	1259	1107	823	959	474	376	156	200	103	39	12				
.640	157	140	128	196	421	163	428	695	445	631	1113	897	679	848	997	544	609	492	376	240	96	12	73	37	41				
.660	159	61	70	113	272	172	113	271	352	425	432	416	336	394	558	320	319	217	156	96	20	37	20	29	57				
.680	85	47	58	142	116	99	161	201	212	320	105	187	203	260	245	247	104	201	200	12	37	44	5	31	0				
.700	129	95	31	67	103	105	125	161	83	167	201	171	154	121	130	218	145	185	103	73	20	5	44	18	20				
.720	72	0	21	9	44	82	31	25	22	83	64	46	41	18	53	35	7	62	39	37	29	31	18	0	10				
.740	123	4	22	46	120	0	40	30	90	42	48	66	94	0	62	69	25	34	12	41	57	0	20	10	32				

Brier skill score of 0 indicates predictive power limited to that of the naïve uniform-probability benchmark.¹⁵ The greatest possible Brier skill score would be achieved by a fully empirical win-probability function—that is, a function E that simply used the empirical probabilities of victory throughout major league history, as presented in Table 2, as a lookup table for its probability estimates.¹⁶ We can thus reference the success of the theoretical win-probability function P by comparing its Brier skill score S_P to the greatest-possible Brier skill score S_E that is achieved by the fully empirical function E . In particular, we will calculate an “efficiency ratio” R_P for the win-probability function P :

$$R_P = \frac{S_P}{S_E}.$$

This efficiency ratio provides an unambiguous, absolute measure of the accuracy of the win-probability function P . A ratio of 1 indicates a perfect match between theory and practice, and a value less than 1 indicates an imperfect match (with the degree of imperfection indicated by the deviation from unity).

Table 4 presents the scoring metrics for the theoretical win-probability function P as calculated from the full set of decisive games in major league history. Of primary interest is the efficiency ratio R_P : it is nearly 98%, indicating that the win-probability function has nearly as much predictive power as the empirical data. Clearly, the win-probability function provides an excellent model for the actual probability of victory in head-to-head matchups.

Table 4. Scoring metrics for the theoretical win-probability function

Brier score (B_P)	Brier skill score (S_P)	Efficiency ratio (R_P)
0.2361	0.0556	0.9790

In addition to evaluating the accuracy of the win-probability function across the entirety of major league history, we can examine its accuracy across different major league eras. Table 5 presents a somewhat arbitrary—but nevertheless relevant—partitioning of major league history into seven distinct eras, along with the number of decisive games in each era. The empirical win probabilities for head-to-head matchups in each of these seven major league eras, as calculated from the full set of decisive games in each era, are similar in character to the empirical win probabilities for the entirety of major league history. Due to space limitations, the empirical results for each era are not presented in the body of this article, but are instead provided in online appendix.¹⁷

Table 5. Major league history partitioned by era

Era	Start	End	Games
Pre-modern	1871	1900	20,456
Dead-ball	1901	1919	23,700
Live-ball	1920	1946	33,067
Integration	1947	1960	17,241
Expansion	1961	1976	28,184
Free-agency	1977	1996	41,081
Interleague	1997	2013	41,129

We can use the previously introduced scoring metrics to quantify the agreement between theoretical predictions and empirical results in each era. Table 6 presents the Brier score, Brier skill score, and efficiency ratio achieved by the win-probability function P in each of the seven major league eras. This table demonstrates that the fidelity of the win-probability function is excellent—and essentially unchanged—across major league eras. In particular, P achieves an overall efficiency ratio between 90% and 94% in each era, with a mean of 92.04% and a standard deviation among eras of only 1.15%.

Table 6. Scoring metrics for the theoretical win-probability function in different major league eras

Era	Brier score (B_P)	Brier skill score (S_P)	Efficiency ratio (R_P)
Pre-modern	0.2182	0.1272	0.9380
Dead-ball	0.2315	0.0740	0.9201
Live-ball	0.2346	0.0617	0.9297
Integration	0.2364	0.0544	0.9035
Expansion	0.2400	0.0401	0.9128
Free-agency	0.2418	0.0330	0.9148
Interleague	0.2405	0.0379	0.9241

The efficiency ratios of Table 6 are all slightly smaller than the 97.90% efficiency ratio observed for the entirety of major league history. This is attributable to the smaller sample sizes—and the resulting greater inherent empirical variability—within individual eras.¹⁸ The consistency of the efficiency ratios across eras, however, demonstrates that the predictions of the win-probability function are in excellent agreement with the empirical probabilities of victory in every major league era. In other words, the win-probability function is a valid, high-fidelity model of the actual probabilities of victory in head-to-head matchups regardless of era.

A SLIGHT REVISION

We now consider a slight revision to the win-probability function P in an attempt to provide even greater agreement with empirical results. This revision is based on a careful consideration of the interpretation of “league average” in the context of specific teams meeting for a head-to-head matchup.

As stated at the outset of this article, winning percentage is the best statistical indicator of team quality relative to the league in which a team plays. In addition to providing a measurement of team quality, however, winning percentage also provides information about the relative quality of the rest of the league.

In particular, if Team A finishes its season with a winning percentage over .500, then we know that the rest of Team A’s league, taken as a whole, has finished the season with a winning percentage under .500. Conversely, if Team A ends the season with a sub-.500 winning percentage, this implies that the rest of the league has an ensemble winning percentage over .500. For an N -team league in which all teams play the same balanced schedule, we can express this relationship exactly: if Team A has a winning percentage of WP_A , then the rest of Team A’s league must have a winning percentage of

$$WP_{\sim A}(N) = .500 - \frac{WP_A - .500}{N - 1}.$$

This has interesting implication: from the perspective of an above-.500 team, the league-average opponent is actually below .500, and from the perspective of a below-.500 team, the league-average opponent is actually above .500. An above-.500 team would thus seem to derive some extra benefit from playing its schedule against teams that are somewhat worse than average, while a below-.500 team would seem to compound its woes by playing teams that are somewhat better than average. This points directly to a flaw inherent in the win-probability function: $P(WP_A, WP_{\sim A})$ actually exceeds WP_A for an above-.500 team and falls short of WP_A for a sub-.500 team. Clearly this is an absurdity, since a team with winning percentage WP_A should, by definition, be expected to post a winning percentage of exactly WP_A in the context of its league.

We can modify the form of the win-probability function by adjusting the values of its two arguments, WP_A and WP_B , to counteract this effect. In particular, if Team A and Team B are both members of the same N -team league, then we can adjust each team’s winning percentage as follows:

$$WP'(N) = WP - \frac{WP - .500}{N - 1}.$$

This has the effect of adjusting a team’s winning percentage downward or upward by the same amount by which its opponents’ ensemble winning percentages exceeded or fell short of .500, respectively. We then take the revised win-probability function P' to be

$$P'(WP_A, WP_B, N) = P(WP'_A(N), WP'_B(N)).$$

This revised function represents an attempt to bring a team’s predicted win probability against a league-average *opponent*, rather than a league-average *team*, into agreement with its winning percentage.¹⁹

Table 7 presents the probabilities of victory predicted by the revised win-probability function. Comparison to Table 1 (the probabilities of victory predicted by the

Table 7. Revised predicted probabilities of victory in head-to-head matchups

		Opponent winning percentage																											
		.260	.280	.300	.320	.340	.360	.380	.400	.420	.440	.460	.480	.500	.520	.540	.560	.580	.600	.620	.640	.660	.680	.700	.720	.740			
Team winning percentage	.260	.500	.477	.456	.435	.415	.396	.377	.359	.342	.325	.309	.294	.278	.264	.250	.236	.223	.210	.197	.185	.174	.162	.151	.140	.130			
	.280	.523	.500	.478	.457	.437	.417	.399	.380	.363	.345	.329	.313	.297	.282	.267	.253	.239	.225	.212	.199	.187	.175	.163	.151	.140			
	.300	.544	.522	.500	.479	.459	.439	.420	.401	.383	.365	.348	.332	.315	.300	.284	.269	.255	.241	.227	.213	.200	.188	.175	.163	.151			
	.320	.565	.543	.521	.500	.480	.460	.440	.421	.403	.385	.368	.350	.334	.318	.302	.286	.271	.256	.242	.228	.214	.201	.188	.175	.162			
	.340	.585	.563	.541	.520	.500	.480	.460	.441	.423	.405	.387	.369	.352	.336	.319	.303	.288	.272	.257	.243	.228	.214	.200	.187	.174			
	.360	.604	.583	.561	.540	.520	.500	.480	.461	.442	.424	.406	.388	.371	.354	.337	.321	.304	.289	.273	.258	.243	.228	.213	.199	.185			
	.380	.623	.601	.580	.560	.540	.520	.500	.481	.462	.443	.425	.407	.389	.372	.355	.338	.321	.305	.289	.273	.257	.242	.227	.212	.197			
	.400	.641	.620	.599	.579	.559	.539	.519	.500	.481	.462	.444	.426	.408	.390	.373	.355	.338	.321	.305	.289	.272	.256	.241	.225	.210			
	.420	.658	.637	.617	.597	.577	.558	.538	.519	.500	.481	.463	.444	.426	.408	.390	.373	.355	.338	.321	.304	.288	.271	.255	.239	.223			
	.440	.675	.655	.635	.615	.595	.576	.557	.538	.519	.500	.481	.463	.445	.426	.408	.391	.373	.355	.338	.321	.303	.286	.269	.253	.236			
	.460	.691	.671	.652	.632	.613	.594	.575	.556	.537	.519	.500	.481	.463	.445	.427	.408	.390	.373	.355	.337	.319	.302	.284	.267	.250			
	.480	.706	.687	.668	.650	.631	.612	.593	.574	.556	.537	.519	.500	.482	.463	.445	.426	.408	.390	.372	.354	.336	.318	.300	.282	.264			
	.500	.722	.703	.685	.666	.648	.629	.611	.592	.574	.555	.537	.518	.500	.482	.463	.445	.426	.408	.389	.371	.352	.334	.315	.297	.278			
	.520	.736	.718	.700	.682	.664	.646	.628	.610	.592	.574	.555	.537	.518	.500	.481	.463	.444	.426	.407	.388	.369	.350	.332	.313	.294			
	.540	.750	.733	.716	.698	.681	.663	.645	.627	.610	.592	.573	.555	.537	.519	.500	.481	.463	.444	.425	.406	.387	.368	.348	.329	.309			
	.560	.764	.747	.731	.714	.697	.679	.662	.645	.627	.609	.592	.574	.555	.537	.519	.500	.481	.462	.443	.424	.405	.385	.365	.345	.325			
	.580	.777	.761	.745	.729	.712	.696	.679	.662	.645	.627	.610	.592	.574	.556	.537	.519	.500	.481	.462	.442	.423	.403	.383	.363	.342			
	.600	.790	.775	.759	.744	.728	.711	.695	.679	.662	.645	.627	.610	.592	.574	.556	.538	.519	.500	.481	.461	.441	.421	.401	.380	.359			
	.620	.803	.788	.773	.758	.743	.727	.711	.695	.679	.662	.645	.628	.611	.593	.575	.557	.538	.519	.500	.480	.460	.440	.420	.399	.377			
	.640	.815	.801	.787	.772	.757	.742	.727	.711	.696	.679	.663	.646	.629	.612	.594	.576	.558	.539	.520	.500	.480	.460	.439	.417	.396			
	.660	.826	.813	.800	.786	.772	.757	.743	.728	.712	.697	.681	.664	.648	.631	.613	.595	.577	.559	.540	.520	.500	.480	.459	.437	.415			
	.680	.838	.825	.812	.799	.786	.772	.758	.744	.729	.714	.698	.682	.666	.650	.632	.615	.597	.579	.560	.540	.520	.500	.479	.457	.435			
	.700	.849	.837	.825	.812	.800	.787	.773	.759	.745	.731	.716	.700	.685	.668	.652	.635	.617	.599	.580	.561	.541	.521	.500	.478	.456			
	.720	.860	.849	.837	.825	.813	.801	.788	.775	.761	.747	.733	.718	.703	.687	.671	.655	.637	.620	.601	.583	.563	.543	.522	.500	.477			
	.740	.870	.860	.849	.838	.826	.815	.803	.790	.777	.764	.750	.736	.722	.706	.691	.675	.658	.641	.623	.604	.585	.565	.544	.523	.500			

original win-probability function) reveals that the revised function hedges its bets slightly. In particular, the revised win-probability function judges the outcome of any contest between teams of different qualities to be slightly less certain—that is, to have closer to even odds—than suggested by the original win-probability function.

As with the original win-probability function, we can compare the predictions of the revised win-probability function with empirical results. Table 8 presents the Brier scores, Brier skill scores, and efficiency ratios for both the original and revised win-probability functions, as calculated for the entirety of major league history.²⁰ The revised win-probability function is seen to attain a slightly higher efficiency ratio (98.32%) than the original win-probability function (97.90%). Although this is an absolute increase of only 0.42%, it represents a 20.2% reduction in the residual error when compared to the empirical upper bound—that is, a reduction of unmodeled empirical variation from 2.10% to 1.68%. As such, it represents a nontrivial improvement in model fidelity.

Table 8. Scoring metrics for the revised and original theoretical win-probability functions

Function	Brier score (<i>B</i>)	Brier skill score (<i>S</i>)	Efficiency ratio (<i>R</i>)
Original (<i>P</i>)	0.2361	0.0556	0.9790
Revised (<i>P'</i>)	0.2360	0.0558	0.9832

Table 9 presents results for the original and revised win-probability functions for the seven previously de-

finer major league eras. It is evident from Table 9 that the revised win-probability function provides greater agreement to empirical results for every major league era except the pre-modern era. (The pre-modern era might be expected to exhibit the most significant deviations from theory given the relatively extreme distribution of team quality, the sometimes haphazard nature of scheduling, and the occasionally irregular league composition that were endemic to the time.) Calculated across the seven eras, the revised win-probability function achieves a mean efficiency ratio of 92.35% (an improvement from the original function's mean of 92.04%), and exhibits a standard deviation of just 0.81% (an improvement from the original function's standard deviation of 1.15%). Thus, whether considered over the entirety of major league history or within individual major league eras, the revised win-probability function is seen to provide even better agreement to empirical results than the original function.

CONCLUSION

Team winning percentages translate directly to probabilities of victory in head-to-head matchups. The relationship between a team's winning percentage and its probability of victory when facing an opponent from the same league is shown to be derivable on theoretical grounds; this derivation is straightforward and follows directly from a thought experiment involving the two teams in question and a hypothetical third proxy team. The theoretical win-probability function thus derived is identical to a function proposed on entirely different grounds by Bill James in 1981. The

Table 9. Scoring metrics for the revised and original theoretical win-probability functions in different major league eras

Era	Function	Brier score (<i>B</i>)	Brier skill score (<i>S</i>)	Efficiency ratio (<i>R</i>)
Pre-modern	Original (<i>P</i>)	0.2182	0.1272	0.9380
	Revised (<i>P'</i>)	0.2188	0.1249	0.9208
Dead-ball	Original (<i>P</i>)	0.2315	0.0740	0.9201
	Revised (<i>P'</i>)	0.2314	0.0744	0.9249
Live-ball	Original (<i>P</i>)	0.2346	0.0617	0.9297
	Revised (<i>P'</i>)	0.2344	0.0623	0.9389
Integration	Original (<i>P</i>)	0.2364	0.0544	0.9035
	Revised (<i>P'</i>)	0.2362	0.0551	0.9138
Expansion	Original (<i>P</i>)	0.2400	0.0401	0.9128
	Revised (<i>P'</i>)	0.2399	0.0404	0.9195
Free-agency	Original (<i>P</i>)	0.2418	0.0330	0.9148
	Revised (<i>P'</i>)	0.2417	0.0331	0.9190
Interleague	Original (<i>P</i>)	0.2405	0.0379	0.9241
	Revised (<i>P'</i>)	0.2405	0.0381	0.9279

win-probability function is shown to be in excellent agreement with empirical major league results, not only over the entirety of major league history but also within arbitrary major league eras. A slight refinement of the theoretical win-probability function is shown to yield even better agreement with empirical results.

It should be noted that the win-probability function described here can be applied without caveat only to teams in the same league: it does not strictly apply to head-to-head matchups between teams in different leagues with potentially different inherent qualities. Rigorous expression of win probabilities in such cases would require adjustments to account for the relative levels of quality of the distinct leagues in which the teams posted their respective winning percentages. Even so, for matchups between teams from different leagues of essentially equal quality—for instance, the American League and the National League—the win-probability function presented here can be expected to be accurate.

It should also be noted that rigorous application of the win-probability function requires not only that the teams under consideration be members of the same league, but also that they play the same balanced schedule in that league. Major league teams have not played balanced schedules since the advent of divisional play in 1969; schedule imbalance was further exacerbated with the inception of interleague play in 1997. However, Table 6 and Table 9 indicate that unbalanced schedules have not had a notable effect on the accuracy of the win-probability function. Thus, although perfect schedule balance may be a requirement for the theoretical derivation of the win-probability function, mild-to-moderate schedule imbalance does

not seem to present an impediment to its practical use.

Although this article has focused exclusively on the probability of victory in head-to-head team matchups, the concepts and methods used here are readily extensible to other contexts involving matchups between entities in which there are two possible outcomes. Most directly, the win-probability function could be applied without significant modification to situations involving distinct binary outcomes in which the league-average probability of success is identically .500—say, contests between starting pitchers.²¹ Similarly, the framework used here might be modified to express the probabilities of distinct binary outcomes in situations where the league-average probability of success is not identically .500—say, the probability of a batter with a particular batting average getting a hit when facing a pitcher with a particular opponents' batting average.²² Finally, our framework might be modified to provide the probabilities of various events in situations characterized not by binary outcomes, but rather by a set of several possible outcomes—say, the probability of a particular plate appearance resulting in a strikeout, walk, home run, or ball in play, given the individual propensities of the batter and the pitcher to produce each outcome. Although the required extensions to the current framework may be nontrivial, it is likely that they could be made on similar theoretical grounds as employed here. ■

Acknowledgments

I wish to thank Jacob Pomrenke and Jerry Wachs, each of whom graciously provided me access to resources that were extremely valuable in the composition of this article.

Notes

1. These rules exhibit the so-called “transitive property” that is sometimes invoked informally in sports arguments (and rather more formally in mathematical proofs).
2. This derivation relies on the assumption that the winning percentages of Team A and Team B are neither both 0 nor both 1. If both teams have winning percentages of 0 or 1, then we can simply take each team's probability of victory to be .500 (as would in fact be indicated by a straightforward extension of this derivation).
3. As suggested in passing at the beginning of this article, true team quality may be essentially unknowable (or, at least, not measurable to arbitrary precision). However, it is our contention that full-season winning percentage provides the best measurement of true, inherent, unobservable team quality. As such, the term “quality” will be used throughout the remainder of this article to refer to full-season winning percentage.
4. It should be noted that this table, like the others in this article, presents results for a much wider range of team qualities than is typically observed even over the course of multiple seasons. The wide range of qualities serves to illustrate trends and matchups that, while rare, are still historically relevant.
5. Bill James, “Pythagoras and the Logarithms,” *1981 Baseball Abstract* (Lawrence, Kansas: self-published, 1981), 104–10.
6. There has been considerable argument and discussion about whether the National Association actually qualifies as a major league. Somewhat arbitrarily, it is treated as a major league here. Game total from Retrosheet game logs, available at www.retrosheet.org.
7. In a 162-game season, the .500 bin encompasses teams that won 80, 81, or 82 games, while the .520 bin encompasses teams that won 83, 84, or 85 games. Although finer distinctions are possible, they are not necessarily statistically meaningful, and they would cloud the presentation of the results.
8. Some of the “noise” apparent in Figure 3—that is, the fluctuation between counts in adjacent bins—is due to the non-constant number of discrete won-lost records that map to each bin in a fixed-length season. For instance, over a 162-game season there are three distinct win totals (80, 81, and 82) that map to the .500 bin, and three distinct win totals (83, 84, and 85) that map to the .520 bin. However, there are four distinct win totals (86, 87, 88, and 89) that map to the .540 bin. This leads to an inflation in the population of some bins that is unavoidable without choosing a bin width equal to an integer multiple of 1/162. (Note also that any bin width enabling population by constant numbers of discrete win totals in a 162-game season would not achieve this result in a 154-game season.)
9. These data were compiled from Retrosheet game logs, available at www.retrosheet.org.
10. For ease of presentation and interpretation, the very small number of teams that ended a season with a winning percentage below .250 or above .750 are aggregated into the .260 and .740 bins, respectively.
11. Glenn W. Brier, “Verification of Forecasts Expressed in Terms of Probability,” *Monthly Weather Review*, 78 (1), April 15, 1950, 1–3.
12. When applied to a collection of probabilistic predictions and corresponding outcomes over a set of N binary trials (i.e., trials in which only two outcomes are possible), the Brier score takes the form $B = \sum_{i=1}^N 1 (P_i - o_i)^2$. Here, P_i is the predicted probability of a given outcome in trial i , and o_i is an indicator variable that takes value 1 if the given outcome is realized and value 0 otherwise. In our context, P_i is the predicted win probability provided by P , and o_i indicates whether victory was actually achieved.
13. Allan H. Murphy, “Skill Scores Based on the Mean Squared Error and their Relationships to the Correlation Coefficient,” *Monthly Weather Review*, 116 (12), December 1988, 2417–24.
14. The Brier skill score S and the raw Brier score B are related by the equation $S = 1 - 4B$.
15. A negative Brier skill score is also possible, indicating predictive power worse than that of the naïve uniform-probability benchmark.
16. Such a fully empirical predictor is, in a myopic sense, the highest-fidelity predictor that is possible: its predicted win probabilities exactly match the empirical probabilities in the system it seeks to model. In another sense, however, a fully empirical predictor is highly suspect: its alleged greater fidelity is actually only an encapsulation of specific random instances of statistical variability that fluctuate around a deeper, simpler trend, despite the fact that this variability would be expected to lessen as more and more data became available. Furthermore, the dubious improvement in fidelity achieved by a fully empirical predictor would be achieved only at the cost of a dramatic increase in complexity. This appendix can be found at <http://sabr.org/node/32297>.
17. This effect is even more pronounced if attention is restricted to even smaller sample sizes, such as individual major league seasons—or, in the extreme, individual series or games. This does not imply that the predicted probabilities of victory are less valid, or that the underlying probabilities of victory are any different, over small samples. It simply reflects the fact that measurements obtained from limited samples are necessarily characterized by greater statistical variability.
18. In fact, this revision does not quite achieve the desired result: because each of the two arguments is adjusted independently, there will still be a slight discrepancy between $P(WP_A, WP_{\sim A}, N)$ and WP_A (albeit much smaller than the discrepancy of the original win-probability function) whenever WP_A is not .500. Additional modification of the win-probability function might enable further reduction in the size of this discrepancy, but only at the cost of the introduction of significantly more complexity. Such modifications are not pursued here.
19. The results in Table 8 and Table 9 were calculated using representative values of league size N for each era. In particular, $N = 8$ was used for the pre-modern, dead-ball, live-ball, and integration eras; $N = 11$ was used for the expansion era; $N = 13$ was used for the free-agency era; $N = 15$ was used for the interleague era. The value $N = 12$ was used for the entirety of major league history.
20. In this case, the possibility of a no-decision would either need to be explicitly disallowed, or the framework would need to be modified to accommodate this possibility.
21. As with the previous case, the possibility of a nondecisive outcome such as a base on balls would either need to be explicitly disallowed, or the framework would need to be explicitly modified to accommodate it.

Matchup Probabilities in Major League Baseball

Matt Haechrel

Predicting the results of matchups in baseball, or any sport for that matter, is compelling not only for the ability to possess seemingly prognosticative powers, but also for its applications in simulated games and evaluating players. In his 1981 *Baseball Abstract*, statistician and sabermetrics pioneer Bill James, in collaboration with Dallas Adams, introduced a formula for predicting the winner of a matchup between two teams. His formula for estimating the probability that team X beats team Y, which James referred to as the log5 method, is given by the following equation:

$$P(\text{X beats Y}) = \frac{p - pq}{p + q - 2pq} \quad (1)$$

Here p is the winning percentage of team X and q is the winning percentage of team Y.¹

Later in *The Bill James Baseball Abstract* of 1983, James extended the log5 method to individual player matchups. He credited Dallas Adams for the following equation, which evaluates the probability of a hit when batter X faces pitcher Y:

$$P(\text{Hit}) = \frac{\frac{xy}{z}}{\frac{xy}{z} + \frac{(1-x)(1-y)}{(1-z)}} \quad (2)$$

Here x is batter X's batting average, y is the batting average of batters facing pitcher Y, and z is the batting average of the entire league.²

Both formulas have been observed to give accurate estimates of the probabilities for their respective events.³ As it is presented in James' *Abstracts*, however, the log5 method can only estimate the probabilities for a sample space which contains two events—in the above examples, team X either wins or loses and a hit either occurs or does not. The log5 method does not necessarily hold as a probability function if a sample space is divided into more than two events such as the events of a single, double, triple, home run, etc. For this we must extend the method to apply to matchups consisting of two parties and a sample space partitioned into n parts.

By examining Equation (2) we can see how this extension of the log5 method might be accomplished. The numerator is made up of a three-variable term—the batter's probability is multiplied by the pitcher's probability and divided by the league average probability. For any event, we will refer to the value obtained from this relationship between the batter, pitcher, and league probabilities as the “base probability” of that event. The base probability alone is not sufficient, however, because the sum of all possible base probabilities may not equal one. Thus, we must normalize the base probability by dividing it by the sum of the base probabilities of all possible events. We can then imagine a general log5 formula that is similar to Equation (2), but with additional base probability terms in the denominator—one for each of the events into which the sample space is partitioned. In order to prove its mathematical basis, we will derive this general matchup probability formula and, by analyzing data from the 2012 MLB season, show that it is accurate when estimating the probabilities of a single, double, triple, home run, walk, hit-by-pitch, and out for a given batter-pitcher matchup.

DERIVATION OF GENERAL MATCHUP PROBABILITY FORMULA

Let E_1, \dots, E_n be events partitioning the sample space S of a given two-player matchup. Also let $\mathbf{x} = (x_1, \dots, x_n)$ be the vector containing the event probabilities for Player 1 where x_i is the probability of event i for $i \in \{1, 2, \dots, n\}$, and let $\mathbf{y} = (y_1, \dots, y_n)$ be the same for Player 2. Note that since the sample space is partitioned, $x_1 + \dots + x_n = y_1 + \dots + y_n = 1$, and also $P(E_1) + \dots + P(E_n) = 1$. We can imagine the matchup between Player 1 and Player 2 as a system where both players independently choose events based on their respective event probabilities. If both players select the same event, the system terminates. Otherwise it is restarted and both players choose again. This process continues until both players pick the same event.

Let the random variable I be the number of iterations the system goes through. Since we are now assuming the players choose events independently, the

probability that both players select event i on the first iteration is given by

$$P(E_i \cap I = 1) = x_i y_i \quad (3)$$

The probability that the system terminates after a single iteration is then given by

$$P(I = 1) = \sum_{i=1}^n x_i y_i = \mathbf{x} \cdot \mathbf{y} \quad (4)$$

Thus, the probability the players choose different events and must choose again is

$$P(I > 1) = 1 - \mathbf{x} \cdot \mathbf{y} \quad (5)$$

Iterations of the system are independent from one another, so we see that the probability that the system terminates with event i in k iterations is given by

$$P(E_i \cap I_i = k) = (1 - \mathbf{x} \cdot \mathbf{y})^{k-1} x_i y_i \quad (6)$$

Summing over all possible values of k gives us the probability of event i :

$$P(E_i) = \sum_{k=1}^{\infty} (1 - \mathbf{x} \cdot \mathbf{y})^{k-1} x_i y_i = x_i y_i \sum_{k=0}^{\infty} (1 - \mathbf{x} \cdot \mathbf{y})^k \quad (7)$$

We now recognize that

$$\sum_{k=0}^{\infty} (1 - \mathbf{x} \cdot \mathbf{y})^k$$

is a geometric series and will converge to

$$\frac{1}{1 - (1 - \mathbf{x} \cdot \mathbf{y})} = \frac{1}{\mathbf{x} \cdot \mathbf{y}} \quad \text{if } |1 - \mathbf{x} \cdot \mathbf{y}| < 1$$

We know that $1 - \mathbf{x} \cdot \mathbf{y}$ is a probability, implying $0 \leq 1 - \mathbf{x} \cdot \mathbf{y} \leq 1$. Therefore, the only way the convergence inequality would not be satisfied would be if $1 - \mathbf{x} \cdot \mathbf{y} = 1 \iff \mathbf{x} \cdot \mathbf{y} = 0$, in which case the system would never have terminated in the first place. Thus it is true that, barring a situation in which the system does not terminate, the series converges and we have

$$P(E_i) = \frac{x_i y_i}{\mathbf{x} \cdot \mathbf{y}} \quad (8)$$

This assumes that the average player's probability for each event is the same, i.e. all events have an equal probability of being selected if an event were to be selected at random. Of course this is not true of batter-pitcher matchups; an average batter facing an average pitcher is far more likely to hit a single than a triple, for example. To correct this, we must look at a player's event probability relative to that event's probability for an average player. We introduce the vector $\mathbf{z} = (z_1, \dots, z_n)$ which contains the event probabilities of an average player in the same way as \mathbf{x} and \mathbf{y} . It will later be shown that Equation (8) does not accurately predict

matchup probabilities when the average probabilities for each event are not equal, and this modification is necessary to achieve an accurate prediction.

We now assume that Player 1's event probabilities are in actuality the probabilities that each event occurs for Player 1 given that they are matched against an average player. We then wish to solve for the values x'_i for $i \in \{1, 2, \dots, n\}$ of $\mathbf{x}' = (x'_1, \dots, x'_n)$, a modified vector of Player 1's event probabilities. For each of the n events, we get

$$\frac{x'_i z_i}{\mathbf{x}' \cdot \mathbf{z}} = x_i \implies \frac{x'_i}{z_i} \cdot \mathbf{z} - \mathbf{x}' = 0 \quad (9)$$

Notice that if we assume

$$z_i = \frac{1}{n}, \text{ for all } i \in \{1, \dots, n\}$$

and solve for x'_i , we obtain the result $x'_i = x_i$:

$$\frac{x'_i z_i}{\mathbf{x}' \cdot \mathbf{z}} = \frac{x'_i \frac{1}{n}}{\mathbf{x}' \cdot \mathbf{z}} = x_i \implies x'_i = x_i n \mathbf{x}' \cdot \mathbf{z} = x_i n \frac{1}{n} \sum_{i=1}^n x'_i = x_i \cdot 1 = x_i \quad (10)$$

Now, adding the fact that $x'_1 + \dots + x'_n = 1$ to the conditions stated in Equation (9) and writing in vector notation, we obtain the following equation:

$$\begin{bmatrix} x'_1 - 1 \\ \frac{x'_2}{z_2} z_1 \\ \vdots \\ \frac{x'_n}{z_n} z_1 \\ 1 \end{bmatrix} + \begin{bmatrix} \frac{x'_1}{z_1} z_2 \\ x'_2 - 1 \\ \vdots \\ \frac{x'_n}{z_n} z_2 \\ 1 \end{bmatrix} + \dots + \begin{bmatrix} \frac{x'_1}{z_1} z_n \\ \frac{x'_2}{z_2} z_n \\ \vdots \\ x'_n - 1 \\ 1 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \\ \vdots \\ 0 \\ 1 \end{bmatrix} \quad (11)$$

It can be shown that the solution for each x'_i is

$$x'_i = \frac{x_i \prod_{j \neq i} z_j}{\sum_{k=1}^n \left(x_k \prod_{j \neq k} z_j \right)} \quad (12)$$

Now that we have a solution for x'_1, \dots, x'_n , we can replace \mathbf{x} with \mathbf{x}' in Equation (8) and obtain

$$P(E_i) = \frac{x'_i y_i}{\mathbf{x}' \cdot \mathbf{y}} = \frac{x_i y_i \prod_{j \neq i} z_j}{\sum_{k=1}^n \left(x_k y_k \prod_{j \neq k} z_j \right)} = \frac{\frac{x_i y_i}{z_i}}{\sum_{k=1}^n \frac{x_k y_k}{z_k}} \quad (13)$$

JUSTIFICATION OF GENERAL FORMULA

In order to ensure that Equation (13) is, in fact, a probability function as we claim, we must make sure that

$$\sum_{i=1}^n P(E_i) = 1$$

and also that $0 \leq P(E_i) \leq 1$, for all $i \in \{1, \dots, n\}$. Summing the probabilities of each event, we see that the total is one as expected.

$$\sum_{i=1}^n P(E_i) = \frac{x'_1 y_1 + \dots + x'_n y_n}{x' \cdot y} = \frac{x' \cdot y}{x' \cdot y} = 1 \quad (14)$$

Furthermore, since every x'_i and y_i is a probability and therefore nonnegative, we can see by inspection that $P(E_i) \geq 0$. This fact also implies that $P(E_i) \leq 1$ since the denominator contains the numerator, plus other non-negative terms.

Now that we have established that our formula is a probability function, there are a few more properties we must test to ensure it makes sense for estimating matchup probabilities. We expect, for example, that the probability event i occurs when Player 1 faces Player 2 would be the same as the probability of that event occurring when Player 2 faces Player 1. In other words, we want

$$\frac{x'_i y_i}{x' \cdot y} = \frac{y'_i x_i}{y' \cdot x} \quad (15)$$

Indeed, this can be shown by substituting

$$x'_i = \frac{x_i \prod_{j \neq i} z_j}{\sum_{k=1}^n \left(x_k \prod_{j \neq k} z_j \right)}$$

into the above equation.

Notice that the relation in Equation (15) implies another property we would like our formula to satisfy—that an average player with probability vector \mathbf{z} facing another player with probability vector \mathbf{x} will return $P(E_i) = x_i$. After modifying \mathbf{z} to obtain \mathbf{z}' we get

$$P(E_i) = \frac{z'_i x_i}{z' \cdot x} = \frac{x'_i z_i}{x' \cdot z} = x_i \quad (16)$$

We will now show that the log5 method is a special case of our derived formula. Let the number of events $n = 2$, and let $\mathbf{z} = (z, 1-z)$ be the vector containing the probabilities of events one and two for an average player, $\mathbf{x} = (x, 1-x)$ be the vector containing the event probabilities for Player 1, and $\mathbf{y} = (y, 1-y)$ be the vector containing the event probabilities for Player 2. Then by Equation (13) we have

$$P(E_1) = \frac{\frac{xy}{z}}{\frac{xy}{z} + \frac{(1-x)(1-y)}{(1-z)}} \quad (17)$$

Notice that if we let x be the batting average of batter X, y be the batting average against pitcher Y, and z be the batting average of the entire league, this is the same formula seen earlier in Equation (2) for calculating the probability of a hit when batter X faces pitcher Y.

Furthermore, if we wish to interpret this expression as determining the probability that team X will beat team Y, we can let x be the probability team X wins, i.e. their winning percentage, and let y be the probability team Y loses, i.e. one minus team Y's winning percentage. We then let z be the average winning percentage over the entire league. The value of z will necessarily be 0.5 since every time one team wins, another team must lose. Then, if team X has winning percentage p and team Y has winning percentage q we get

$$\begin{aligned} \frac{\frac{xy}{z}}{\frac{xy}{z} + \frac{(1-x)(1-y)}{(1-z)}} &= \frac{\frac{p(1-q)}{0.5}}{\frac{p(1-q)}{0.5} + \frac{(1-p)(1-(1-q))}{(1-0.5)}} \\ &= \frac{p(1-q)}{p(1-q) + q(1-p)} = \frac{p-pq}{p+q-2pq} \end{aligned} \quad (18)$$

This, of course, is the log5 formula shown in Equation (1) to predict the probability that team X beats team Y given both team's winning percentages.

PREDICTING RESULTS OF BATTER-PITCHER MATCHUPS

We will now use Equation (13) to predict the results of batter-pitcher matchups in Major League Baseball and compare our predictions to actual data obtained from the 2012 MLB season. In this situation, the sample space is plate appearances, each of which can result in a single, double, triple, home run, walk, hit-by-pitch, error, sacrifice hit, sacrifice fly, fielder's choice, catcher's interference, or out. The batter will be called out if an out, sacrifice hit, or sacrifice fly occurs. Additionally, an error is recorded only if the batter would have been called out had an error not occurred. Likewise, fielder's choice denotes that the batter could have been thrown out, but the fielder instead elected to throw another runner out. For the sake of simplicity, we can combine the events of an out, sacrifice hit, sacrifice fly, error, and fielder's choice under the event out, which we will interpret as the event that the batter is called out or would have been called out under normal circumstances.

We will now take into account another factor. The circumstances governing when pitchers intentionally walk batters are not solely based upon the ability of the pitcher or batter, but upon factors that are outside the realm of the batter-pitcher matchup, such as the

configuration of baserunners, the number of outs, etc. In the same way, catcher's interference is the result of outside influences acting upon the matchup. For this reason, we will ignore intentional walks and catcher's interference. For the remainder of this article, unless otherwise specified, the terms "plate appearances" and "batters faced" will refer only to those that did not result in an intentional walk or catcher's interference, and "walks" will refer only to unintentional walks.

We therefore have that each plate appearance can be one of seven distinct events: a single, double, triple, home run, walk, hit-by-pitch, or out. Let these correspond to events one through seven respectively. Probabilities of these events occurring for a given batter can then easily be calculated by dividing the number of times the event occurred during one of his plate appearances by his total number of plate appearances. The same can be said for a pitcher if we divide the number of times each event occurred after one of his pitches by the total number of batters he has faced.

We use event files obtained from Retrosheet to count the number of singles, doubles, triples, home runs, walks, hit-by-pitches, outs,⁴ and plate appearances/batters faced for individual players during the 2012 MLB season. These event files contain a play-by-play account of all games during an entire season including the information we are interested in—the pitcher, batter, and result—as well as other information such as the score, number of outs, and baserunner configuration.

We then look only at batters who have at least 502 plate appearances and pitchers who have faced at least 502 batters, this time including intentional walks. This number was chosen because 502 is the minimum number of plate appearances to be eligible for the Major League Baseball batting title. This restriction leaves us with 144 batters and 124 pitchers.⁵ During the 2012 season, these 144 batters faced these 124 pitchers a total of 44,209 times.⁶

We then must find the sample proportion and number of occurrences we expect for each event if our

formula for determining batter-pitcher matchup probabilities in Equation (13) is true. In the 2012 season there were a total of 183,124 batters faced, the distribution and league average probabilities of which are shown below in Table 1.

Table 1. League Average Probabilities⁷

Event	Total	Probability
Single	27,941	0.15258
Double	8,261	0.04511
Triple	927	0.00506
Home Run	4,934	0.02694
Walk	13,654	0.07456
Hit-by-Pitch	1,494	0.00816
Out	125,913	0.68758

We now have all the variables necessary to use Equation (13) to find the probability of event i for each batter-pitcher matchup. Let B be the set containing the batters with at least 502 plate appearances and P be the set containing all the pitchers with at least 502 batters faced. Then $B \times P$ is the set containing all possible matchups between the batters in B and pitchers in P . Let $N_{l,k}$ be the total number of times batter l faces pitcher k . The expected number of occurrences of event i is then

$$T_i = \sum_{(l,k) \in B \times P} N_{l,k} p_{i,l,k} \quad (19)$$

where $p_{i,l,k}$ is the probability of event i when batter l faces pitcher k . The expected sample proportion of event i is then

$$\mu_i = \frac{T_i}{44,209} \quad (20)$$

Now that we have the expected sample proportion and number of occurrences for each event, we can perform a one-proportion Z-test with significance level $\alpha = 0.1$ to determine the probabilities that the sample proportions and expected sample proportions are equal. The results are summarized in Table 2.

Table 2. Event Totals⁸ and Z-test Results

Event	Total	Sample Proportion	Expected Total	Expected Sample Proportion	z-statistic	p-value	% Error
Single	7,189	0.16261	7,185.868	0.16254	0.04037	0.96780	0.044%
Double	2,252	0.05094	2,215.547	0.05012	0.79462	0.42683	1.619%
Triple	233	0.00527	235.862	0.00534	-0.18683	0.85180	1.228%
Home Run	1,401	0.03169	1,420.752	0.03214	-0.53265	0.59428	1.410%
Walk	3,234	0.07315	3,198.490	0.07235	-0.65190	0.51446	1.098%
Hit-by-Pitch	338	0.00765	347.811	0.00787	-0.52817	0.59738	2.903%
Out	29,562	0.66869	29,604.670	0.66965	-0.66965	0.66612	0.144%

We also perform a χ^2 test with six degrees of freedom and significance level $\alpha = 0.1$ to determine whether the distribution of the seven events is consistent with our expected distribution. This test yields a χ^2 statistic of approximately 1.64, and the probability of observing this or a more extreme difference in expected and observed totals is 0.95.

Note that if we were to use Equation (8) to calculate the event probabilities for each batter-pitcher matchup, we would obtain the results in Table 3.

Table 3. Unmodified Event Totals

Event	Total	Expected Total	% Error
Single	7,189	2,229.893	68.982%
Double	2,252	203.768	90.952%
Triple	233	2.431	98.956%
Home Run	1,401	78.225	94.417%
Walk	3,234	489.175	84.874%
Hit-by-Pitch	338	5.845	98.271%
Out	29,562	41,199.663	39.367%

A χ^2 test with significance level $\alpha = 0.1$ of the above data yields a χ^2 statistic of 113,417.71. Consultation of the χ^2 distribution for six degrees of freedom shows the probability of observing this difference is zero, and we can safely accept the alternative hypothesis that Equation (8) does not accurately predict these matchup probabilities.

SPECIFIC BATTER-PITCHER MATCHUPS

Perhaps the most intriguing aspect of our formula is its ability to predict the results of specific batter-pitcher matchups. Alex Gordon faced Chris Sale a total of 22 times during the 2012 season, the most that any one batter faced any one pitcher in the 44,209 plate appearances selected for our sample. Using Equation (13) we can compare the expected results of Alex Gordon's 22 plate appearances against Chris Sale to what actually occurred.

The relevant statistics from the 2012 season for Alex Gordon and Chris Sale are shown below in Table 4:

Table 4. 2012 Statistics for Alex Gordon and Chris Sale⁹

Statistic	Alex Gordon	Chris Sale
Plate Appearances or Batters Faced	718	767
Singles	119	110
Doubles	51	37
Triples	5	1
Home Runs	14	19
Walks	70	76
Hit-by-Pitches	3	6
Outs	456	548

Using the above numbers to seed Equation (13) gives us the probabilities for each of the seven events. Finally, we multiply each of these probabilities by 22 to obtain the expected number of occurrences for each event in 22 matchups between Gordon and Sale.

Rounding our expected results, we see that in 22 plate appearances against Chris Sale, we would expect Alex Gordon to hit about three singles, two doubles, zero triples, zero home runs, be walked twice, hit by a pitch zero times, and called out 15 times. This is almost exactly what occurred. Gordon instead hit four singles, two doubles, zero triples, zero home runs, was walked once, hit by a pitch zero times, and called out 15 times—the only difference being that Gordon hit one more single and was walked once less than expected.

In fact, seven batter-pitcher matchups in our 44,209-plate appearance sample occurred at least 20 times. The expected and actual results of these matchups are summarized in Table 5 through Table 8 below.¹⁰ Note that with such a small sample size for each matchup, the results cannot be considered conclusive and are presented for illustrative purposes only.

Table 5. Specific Matchups (Singles and Doubles)

Batter	Pitcher	Times Faced	Singles		Doubles	
			Expected	Actual	Expected	Actual
Alex Gordon	Chris Sale	22	3.45	4	1.68	2
Mike Trout	Yu Darvish	21	3.09	3	0.95	1
Jose Reyes	R.A. Dickey	21	3.39	4	0.93	0
Austin Jackson	Jake Peavy	21	3.45	2	0.91	0
Derek Jeter	James Shields	21	4.69	3	0.77	1
Alcides Escobar	Chris Sale	20	3.93	9	0.99	1
Miguel Cabrera	Jake Peavy	20	3.29	5	1.07	1

Table 6. Specific Matchups (Triples and Home Runs)

Batter	Pitcher	Times Faced	Triples		Home Runs	
			Expected	Actual	Expected	Actual
Alex Gordon	Chris Sale	22	0.04	0	0.40	0
Mike Trout	Yu Darvish	21	0.26	0	0.63	2
Jose Reyes	R.A. Dickey	21	0.31	0	0.32	0
Austin Jackson	Jake Peavy	21	0.31	2	0.63	1
Derek Jeter	James Shields	21	0.00	0	0.42	0
Alcides Escobar	Chris Sale	20	0.06	0	0.14	0
Miguel Cabrera	Jake Peavy	20	0.00	0	1.47	3

Table 7. Specific Matchups (Walks and Hit-by-Pitches)

Batter	Pitcher	Times Faced	Walks		Hit-by-Pitches	
			Expected	Actual	Expected	Actual
Alex Gordon	Chris Sale	22	1.74	1	0.09	0
Mike Trout	Yu Darvish	21	3.03	4	0.30	0
Jose Reyes	R.A. Dickey	21	1.22	1	0.00	0
Austin Jackson	Jake Peavy	21	1.70	2	0.10	0
Derek Jeter	James Shields	21	1.00	2	0.20	0
Alcides Escobar	Chris Sale	20	0.62	1	0.24	0
Miguel Cabrera	Jake Peavy	20	1.05	1	0.12	0

Table 8. Specific Matchups (Outs)

Batter	Pitcher	Times Faced	Outs	
			Expected	Actual
Alex Gordon	Chris Sale	22	14.61	15
Mike Trout	Yu Darvish	21	12.75	11
Jose Reyes	R.A. Dickey	21	14.84	16
Austin Jackson	Jake Peavy	21	13.91	14
Derek Jeter	James Shields	21	13.91	15
Alcides Escobar	Chris Sale	20	14.02	9
Miguel Cabrera	Jake Peavy	20	13.00	10

CONCLUSION

The general matchup formula shown in Equation (13) seems to be a good estimator of batter-pitcher matchup probabilities. All p -values shown in Table 2 are greater than 0.1, so we reject the hypothesis that the proportions for each event are unequal. That is, the data do not support the claim that the proportions are unequal. Likewise, the result of the χ^2 test indicates we cannot conclude that the distributions are unequal and must accept the null hypothesis that the distributions are the same. These tests, along with the small margin of error for each of the seven events, suggest that the formula in Equation (13) can be used to accurately predict the probabilities of the results of a batter-pitcher matchup. ■

Sources

- James, Bill. "Pythagoras and the Logarithms." *Baseball Abstract*, 1981: 104–110.
- James, Bill. "Log5 Method." *The Bill James Baseball Abstract*, 1983: 12–13.
- Levitt, Dan. Baseball Think Factory, "The Batter/Pitcher Match Up." Last modified November 4, 1999. Accessed April 27, 2013. www.baseball-thinkfactory.org/btf/scholars/levitt/articles/batter_pitcher_matchup.htm.
- Miller, Steven J. Brown University, "A Justification of the log5 Rule for Winning Percentages." Last modified April 20, 2008. Accessed April 27, 2013. http://web.williams.edu/Mathematics/sjmiller/public_html/103/Log5WonLoss_Paper.pdf.
- Retrosheet, "Play-by-Play Data Files (Event Files)." Last modified December 6, 2012. Accessed January 16, 2013. <http://www.retrosheet.org/game.htm>
- Sports Reference LLC, "Baseball-Reference.com." Accessed May 6, 2013. <http://www.baseball-reference.com>.
- Tippett, Tom. Diamond Mind, Inc., "May the best team win...at least some of the time." Last modified October 1, 2002. Accessed April 27, 2013. <http://207.56.97.150/articles/playoff2002.htm>.

Notes

1. Bill James, "Pythagoras and the Logarithms," *Baseball Abstract*, 1981: 104–110.
2. Bill James, "Log5 Method," *The Bill James Baseball Abstract*, 1983: 12–13.
3. Dan Levitt, "The Batter/Pitcher Match Up," *Baseball Think Factory*, last updated November 4, 1999, www.baseballthinkfactory.org/bt/scholars/levitt/articles/batter_pitcher_matchup.htm; Tom Tippett, "May the best team win...at least some of the time," Diamond Mind, Inc., last updated October 1, 2002, <http://207.56.97.150/articles/playoff2002.htm>.
4. Outs here include the Retrosheet events of generic outs, strikeouts, errors, and fielder's choice. Sacrifice hits and sacrifice flies are subsets of generic outs.
5. "Baseball-Reference.com," Sports Reference LLC, accessed May 6, 2013, www.baseballreference.com.
6. "Play-by-Play Data Files (Event Files)," Retrosheet, accessed January 16, 2013, www.retrosheet.org/game.htm. This does not include instances when the result of the plate appearance was an intentional walk or catcher's interference.
7. "Baseball-Reference.com," Sports Reference LLC, accessed May 6, 2013, www.baseballreference.com.
8. "Play-by-Play Data Files (Event Files)," Retrosheet, accessed January 16, 2013, www.retrosheet.org/game.htm.
9. "Play-by-Play Data Files (Event Files)," Retrosheet, accessed January 16, 2013, www.retrosheet.org/game.htm. Plate appearances and batters faced do not include intentional walks or catcher's interference, and outs also include errors, and fielder's choice.
10. "Play-by-Play Data Files (Event Files)," Retrosheet, accessed January 16, 2013, www.retrosheet.org/game.htm. Actual results data from Tables 5, 6, 7, and 8 come from this source.

Contributors

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DAVID KRELL is a SABR member who has spoken at SABR's Annual Conference, Frederick Ivor-Campbell Nineteenth Century Baseball Conference, and Jerry Malloy Negro League Conference. He has also spoken at the Cooperstown Symposium on Baseball and American Culture, Queens Baseball Convention, and the Mid-Atlantic Nostalgia Convention. David writes for thesportspost.com and the *New York State Bar Association's Entertainment, Arts, and Sports Law Journal*. In addition, he co-edited the NYSBA's sports law book *In the Arena*. David is writing a book about the Brooklyn Dodgers that will be published by McFarland in 2015.

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JOHN A. RICHARDS first discovered sabermetrics when he picked up a copy of *The Bill James Baseball Abstract 1988*. He was hooked right away. He is an avid Red Sox fan, an affliction he acquired during a decade of college and graduate school in Boston. John is an electrical engineer who has been applying various techniques from his field to sabermetrics for years, but this is his first publication in the *Baseball Research Journal*. He lives in Albuquerque with his wife and son. He was the happiest man in New Mexico on three October nights in 2004, 2007, and 2013.

ELIZA RICHARDSON is a seismologist by training and an associate professor at Penn State University. She grew up in Blacksburg, Virginia, and some of her earliest memories are listening to the Cardinals on KMOX with her dad, who is a lifelong Cardinals fan. When not throwing batting practice to their five children or discussing baseball stats, Eliza and her husband are avid homebrewers.

STANLEY ROTHMAN received his Ph.D. in Mathematics from the University of Wisconsin in 1970. In the fall of 1970 he joined the Quinnipiac University faculty as an Assistant Professor of Mathematics. He was promoted to full-professor in 1982. He chaired the mathematics department at Quinnipiac from 1992 to 2010. In 2013, he began his 44th year at Quinnipiac. His new book *Sandlot Stats: Learning Statistics with Baseball* was published in September 2012 by Johns Hopkins University Press. His book teaches an introductory statistics course using data from baseball. He has spoken at many universities including The West Point Military Academy and California State University at LA. He also has spoken at several math conventions, at high schools and at various community organizations. Some of his speaking topics include his own research on the probability of a player achieving various batting streaks, the probability of having another .400 hitter, and the role of minorities in baseball. His email address is stanley.rothman@Quinnipiac.edu.

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BRYAN SODERHOLM-DIFATTE lives and works near Washington, DC, and is devoted to the study of baseball history. He is a regular contributor to SABR's journals and publications and has presented at several SABR national conferences. He is also writer of the blog *Baseball Historical Insight*.

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