THE ESSENTIAL GUIDE TO THE 2016 SEASON

BASEBALL PROSPECTUS 2016

Featuring Industry-Leading Projections and Commentary for Almost 2,000 Players

By the Baseball Prospectus Team of Experts | Foreword by David Forst, General Manager, Oakland A's

Edited by Patrick Dubuque, Sam Miller and Jason Wojciechowski

BASEBALL PROSPECTUS

2016

The Essential Guide to the 2016 Season

Edited by Patrick Dubuque, Sam Miller, and Jason Wojciechowski

R.J. Anderson, Nick Ashbourne, Paul Boye, J.P. Breen, Ben Carsley, Ken Funck, Brendan Gawlowski, Mike Gianella, Craig Goldstein, Bryan Grosnick, Wilson Karaman, David Lee, Ka Morrison, Chris Mosch, Jeffrey Paternostro, Tommy Rancel, Daniel Rathman, Dan Rozenson Mauricio Rubio Jr., Bret Sayre, Matt Sussman, David Temple, Doug Thorburn, Matt Trueblood, Bradley Woodrum, Will Woods, Geoff Young

Turner Publishing Company
424 Church Street • Suite 2240 • Nashville, Tennessee 37219
445 Park Avenue • 9th Floor • New York, New York 10022
www.turnerpublishing.com

Library of Congress Cataloging-in-Publication Data:

ISBN 9781681621180 (pbk); 9781681621111 (hbk); 9781681622668 (ebk)

Project Credits
Cover Design: Maddie Cothren
Interior design and production: Bryan Davidson
Layout: Misty Horten & Colleen Cunningham

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2 1

Foreword

by David Forst, General Manager of the Oakland Athletics

There was a time, not all that long ago, when Baseball Prospectus wasn't a website that had traffic in the hundreds of thousands of fans; rather, it was a hidden little corner of the interne for hardcore sabermetrics. And it certainly wasn't the book you're holding in your hands (or reading on a tablet) that lands on the *New York Times* bestseller list every year; it was something more akin to a yearly pamphlet that, by one of its own writer's admission, was "pretty terrible."

When I started working for the A's in January 2000, followers of BP were in something of a limited club. BP was a place where smart, interesting people wrote smart, interesting things about the game, but the Baseball Prospectus "brand" wasn't something you casually found o ESPN.com or stumbled across on Twitter because someone retweeted it. You had to be someone who thought about the game in a certain objective and insightful way, and you had to actively seek out that type of content. Baseball Prospectus was an attempt to see the game differently. It was trying to quantify and explain what had been happening on the field for decades, beyond the accounts and daily reporting of beat writers and columnists. It hope to give voice to those fans who, for years, advocated for a smarter way of accounting for the results of every outcome on the field but never had a forum in which to do it.

That wasn't an easy thing to accomplish. Baseball has been around for 150 years and has been viewed through mostly the same lens for all that time. There were, of course, exceptio inside the game (Earl Weaver comes to mind) and outside the game (Bill James's writing deserves credit for paving the way for just about everything in this book)—individuals whose intelligence and passion allowed them to break through with a different perspective. But they were outliers. BP's success made this outside-the-box vision of the game accessible on an infinitely larger scale, using the reach of the internet to help create a generation of fans and hopeful GMs-in-training who were hungry for such information and to find others who viewed the game on this level.

So, how did BP separate itself and become the model for numerous other sites and blogs that were and still are trying to replicate its success? Like any great company, it relied on great people. Just look at the people who've been under the BP banner at one time or anoth and the work they've gone on to do since. People like Gary Huckabay, Joe Sheehan (SI) and Christina Kahrl (ESPN) founded this book, and almost 20 years later are still writing some of the best stuff out there on baseball. They gave way to the likes of Will Carroll (SI), Keith Law

(ESPN), Jonah Keri (ESPN) and Nate Silver (FiveThirtyEight), all of whom continue to influence baseball and its decision makers with their writing today. (And, in Nate's case, seem to have had powerful insights into things far greater than the outcome of a baseball game.) In many cases, former Baseball Prospectus authors have gone on to become those decision makers and work for clubs, most notably Law (Blue Jays), Kevin Goldstein (Astros), Keith Woolner (Indians) and James Click (Rays). I have, out of necessity, left many names out; there are countless others who have taken that path.

The job that I was lucky enough to land in 2000 would look about as different today as this book does from those early BP pamphlets. While the game itself has changed in very visible ways in those 16 years on the field—infields shifting, relievers throwing ever harder, strikeout rates steadily increasing, homers going up and then down and then back up again last summer—it has become even more different off the field. Those of us tasked with making the decisions on 25- and 40-man rosters, on player development systems and on drafting and signing amateur players have access to so much more information than we did when I first walked in the door. We have the ability and freedom to dissect that information and implement it in ways that would never have been understood or accepted by a different generation of fans. Today, there's no end in sight to the intelligent, thoughtful and diverse voices out there looking to discuss, debate and deconstruct every nuance of our game. That avid discourse is a big part of what makes this job so much fun and so interesting on a day-to-day and year-to-year basis. The year-round passion of baseball fans is fueled in the winter months by the writing within these pages, but luckily for us all, it's just about time for another offseason to come to a close as we inch closer to Opening Day. I, for one, can't wait for the 2016 season to start.

Baseball Prospectus 2016

Statistical Introduction

Why don't you get your nose out of those numbers and watch a game?

It's a false dilemma, of course. We would wager that Baseball Prospectus readers watch more games than the typical fan. They also probably pay better attention when they watch. The numbers do not replace observation; they supplement it. Having the numbers allows you to learn things not readily seen by mere watching and to keep up on many more players than any one person otherwise could.

This book doesn't ask you to choose between the two. Instead, we combine numerical analysis with the observations of a lot of very bright people. They won't always agree. Just as the eyes don't always see what the numbers do, the reverse can be true. In order to get the most out of this book, however, it helps to understand the numbers we're presenting and why

Offense

The core of our offense measurements is True Average, which attempts to quantify everything a player does at the plate—hitting for power, taking walks, striking out and even "productive" outs—and scale it to batting average. A player with a TAv of .260 is average, .300 exceptional, .200 rather awful.

True Average also accounts for the context a player performs in. That means we adjust it based on the mix of parks a player plays in. Also, rather than use a blanket park adjustment for every player on a team, a player who plays a disproportionate number of his games at home will see that reflected in his numbers. We also adjust based on league quality: The average player in the AL is better than the average player in the NL, and True Average accounts for this.

Because hitting isn't the entirety of scoring runs, we also look at a player's Baserunning Runs. BRR accounts for the value of a player's ability to steal bases, of course, but also accounts for his ability to go first to third on a single, or advance on a flyball.

Defense

Defense is a much thornier issue. The general move in the sabermetric community has been toward stats based on zone data, where human stringers record the type of batted ball (grounder, liner, flyball) and its presumed landing location. That data is used to compile expected outs for comparing a fielder's actual performance.

The trouble with zone data is twofold. First, unlike the data we use in the calculation of the statistics you see in this book, zone data wasn't made publicly available; it was recorded by commercial providers who kept the raw data private, only disclosing it to a select few who pa for it. Second, as we've seen the field of zone-based defensive analysis open up—more data and more metrics based upon that data coming to light—we see that the conclusions of zone based defensive metrics don't hold up to outside scrutiny. Different data providers can come to very different conclusions about the same events. Even two metrics based on the same data set can come to radically different conclusions based on their starting assumptions, assumptions that haven't been tested, using methods that can't be duplicated or verified by outside analysts.

The quality of the fielder can bias the data: Zone-based fielding metrics will tend to attribut more expected outs to good fielders than bad fielders, irrespective of the distribution of batte balls. Scorers who work in parks with high press boxes will tend to score more line drives tha scorers who work in parks with low press boxes.

Our Field Runs Above Average (FRAA) incorporates play-by-play data, allowing us to study the issue of defense at a granular level without resorting to the sorts of subjective data used in some other fielding metrics. We count how many plays a player made, as well as expected plays for the average player at that position based on a pitcher's estimated groundball tendencies and the handedness of the batter. There are also adjustments for park and base-out situations.

In addition, catchers have different defensive responsibilities than other defensive players, in particular framing pitches to make umpires more likely to call them strikes and blocking errant pitches. We incorporate PITCHf/x data, where available, and adjust for the pitcher, umpire, batter (including handedness) and home-field advantage using a mixed-model approach to determine how many strikes a catcher is adding to or subtracting from his pitchers' ledgers, and then convert those extra or lost strikes to runs using simple linear weights. We use a similar approach to determine how much better or worse than average a catcher is at letting errant pitches past him (regardless of whether the official scorer labels it passed ball or a wild pitch)—PITCHf/x is a particularly powerful tool in this regard because we can tell which pitches end up in the dirt (and at what angle and speed) even though basic play-by-play data simply records the pitch as a ball or a swinging strike because the catcher successfully blocked it.

These metrics, as well as the catcher's abilities to prevent steals, are incorporated into catchers' FRAA along with their ball-in-play fielding (e.g. popups and bunts near home plate).

Pitching

Of course, how we measure fielding influences how we measure pitching.

Most sabermetric analysis of pitching has been inspired by Voros McCracken, who stated, "There is little if any difference among major-league pitchers in their ability to prevent hits on balls hit in the field of play." When first published, this statement was extremely controversial but later research has, by and large, validated it. McCracken (and others) went forth from tha finding to create a variety of defense-independent pitching measures. One that you'll see in the book is FIP, Fielding Independent Pitching, which accounts for walks, strikeouts, hit-by-pitches and homers accumulated by a pitcher and puts them into one number on an ERA scale. Another is cFIP, which takes those FIP inputs, makes a variety of adjustments (including the batter, catcher, umpire, stadium, home-field advantage and handedness) and puts the whole thing on a “100 minus” scale in which the lower the number the better. The standard deviation of cFIP is forced to 15, so you know that a 56 cFIP, like Clayton Kershaw posted in 2015, is nearly three standard deviations from the mean.

The trouble is that many efforts to separate pitching from fielding have ended up separatin pitching from pitching—looking at only a handful of variables in isolation from the situation in which they occurred. What we've done instead is take a pitcher's actual results, event by event, and adjust each event based on the environment in which it occurred, including park factor, batter, catcher, umpire, base-out situation, run differential, inning, defense, home-field advantage, whether the pitcher is a starter or reliever and game-time temperature. DRA also considers the pitcher's effect on basestealing (both in terms of likelihood of stealing and likelihood of success) and the pitcher's effect on passed balls and wild pitches. Out of all this comes Deserved Run Average (DRA), our core pitching metric, which is making its first appearance in this Annual this year. It is the rate stat on which pitcher Wins Above Replacement Player is determined.

One key point to note is that DRA is set on the same scale as runs allowed per nine innings, not ERA. Looking only at earned runs tends to overrate three kinds of pitchers:

1. Pitchers who play in parks where scorers hand out more errors. Looking at error rates between parks tells us scorers differ significantly in how likely they are to score any given play as an error (as opposed to an infield hit);

2. Groundball pitchers, because a substantial proportion of errors occurs on groundballs; and
3. Pitchers who aren't very good. Good pitchers tend to allow fewer unearned runs than bad pitchers, because good pitchers have more ways to get out of jams than bad pitchers. They're more likely to get a strikeout to end the inning, and less likely to give up a home run.

Projections

Many of you aren't turning to this book just for a look at what a player has done, but a look a what a player is going to do: the PECOTA projections.

PECOTA, initially developed by Nate Silver (who has moved on to greater fame as a political analyst), consists of three parts:

1. Major-league equivalencies, to allow us to use minor-league stats to project how a player will perform in the majors;
2. Baseline forecasts, which use weighted averages and regression to the mean to produce an estimate of a player's true talent level; and
3. A career-path adjustment, which incorporates information on how comparable players stats changed over time.

Now that we've gone over the core stats, let’s go over what's in the book.

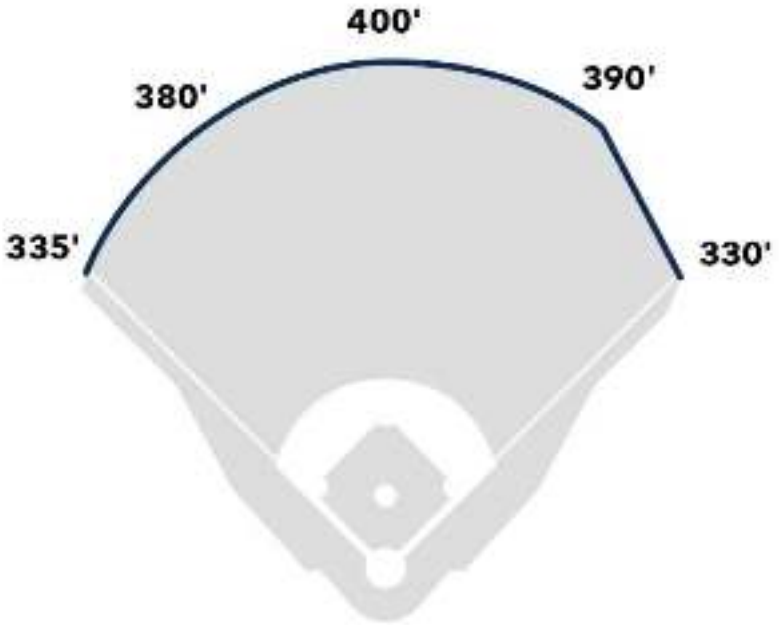
Team Prospectus

The bulk of this book comprises team chapters, with one for each of the 30 major-league franchises. On the first page of each chapter, you will be greeted by a box laying out some key statistics for each team. You can see Atlanta's box here.

BRAVES PROSPECTUS

2015 W-L: 67-95, 4TH IN NL EAST

Pythag	.374	30th	DER	.695	26th
RS/G	3.54	30th	B-Age	28.8	24th
RA/G	4.69	27th	P-Age	25.7	1st
TAv	.254	23rd	Salary	$97.1M	22nd
BRR	2.93	14th	M$/MW	$4.5M	8th
TAv-P	.284	29th	DL Days	1169	20th
FIP	4.37	27th	$ on DL	14%	12th



Outfield wall profile: **8'**

Three-Year Park Factors

Runs	Runs/RH	Runs/LH	HR/RH	HR/LH
93	99	101	99	95

Top Hitter WARP	2.9	Andrelton Simmons
Top Pitcher WARP	2.1	Shelby Miller
Top Prospect		Dansby Swanson

At the top, 2015 W-L is exactly as it sounds, the unadjusted tally of wins and losses. Pytha presents an adjusted 2015 win percentage by taking the runs scored per game (RS/G) and allowed (RA/G) by the team last season and running them through a version of Bill James' Pythagorean formula refined and developed by David Smyth and Brandon Heipp, called "Pythagenpat."

A team's runs scored is accompanied by True Average (TAv) and Baserunning Runs (BRR), both of which were described above, to give a picture of how a team scores its runs. In terms of run-prevention ability, we present a team's TAv allowed (TAv-P), FIP and Defensive Efficiency Rating (DER), which is simply its rate of balls in play turned into outs.

Then we have several measures not directly related to on-field performance. B-Age and P-Age tell us the average age of a team's batters and pitchers, respectively. Salary tells us how much the team cost to put on the field, and Doug Pappas' Marginal Dollars per Marginal Win (M$/MW) tells us how much a team paid above the bare minimum it had to pay and how much production above replacement it received for that money.

Finally, we count up the number of disabled-list days a team had, as well as the amount of salary paid to players while they were on the DL, expressed as a percentage of the total payroll.

Next to each of these stats, you see the team's MLB rank in that category, where 1st signifies a good outcome (e.g. highest TAv, lowest Tav-P) and 30th a bad outcome (highest on DL, lowest DER), except for salary, where we make no value judgments—1st is highest.

After the team information comes a variety of data about the home ballpark: a diagram of the park's dimensions showing distances to the outfield wall; a graphic that shows the height of the wall from the left-field pole to the right-field pole, reading left to right; and a table showing the three-year park factors presented in their usual 100-scale fashion, with 100 bein average, 110 meaning that the park inflates the stat by 10 percent and 90 meaning the stat deflates the stat by 10 percent.

On the second page of each chapter, you will see three graphs. The first graph, titled “201 Hit List Ranking,” shows the Hit List Rank for this team on every day of the 2015 season and is intended to give you an idea of the shape of the season. Hit List Rank is a measure of overall team performance that drives the Prospectus Hit List power ranking at baseballprospectus.com. It is based on team run differential and includes adjustments for park, league and quality of opposition. You can see more about Hit List Ranking at http://bbp.cx/a/4383.

The second graph is entitled “Committed Payroll” and is intended to give you an idea of ho this team’s player budgets match up with the competition historically and going forward. The payroll figures are current as of January 1, 2016; with several big-ticket free agents still

unsigned as of this writing, keep in mind the final 2016 figure will be significantly different for many teams. You can always find current data at Baseball Prospectus' Cot's Baseball Contracts page. MLB and division averages are also plotted to allow for quick comparison.

The third graph is entitled "Farm System Ranking" and shows the Baseball Prospectus prospect team's ranking of this team's farm system for the last several years.

Following the graphs is the "Personnel" section. Here you'll find some of the important people in the organization, and any former Baseball Prospectus staff who are currently part o the team's front office or scouting staff

Position Players

After a bylined opening essay about each team, the chapters move to the player comments, which are also bylined, though the vagaries of player movement and the group-project nature of the book means that the names you see at the head of each chapter are more a rough guide than a precise accounting of the division of labor.

Each player is listed with the major-league team by whom he was employed as of mid-December 2015, meaning that players who changed teams via free agency, trade or otherwise later in the offseason will be listed under their previous employer.

As an example, take a look at this winter's major free-agent hitter, Jason Heyward.

Jason Heyward RF

Born: 8/9/89 Age: 26 Bats: L Throws: L Height: 6'5" Weight: 245

YEAR	TEAM	LVL	AGE	PA	R	2B	3B	HR	RBI	BB	K	SB	CS	AVG/OBP/SLG	TAv	BABIP	BRR	FRAA	WARP
2013	ATL	MLB	23	440	67	22	1	14	38	48	73	2	4	.254/.349/.427	.290	.281	1.2	RF(86): 6.7, CF(20): -0.0	2.7
2013	GWN	AAA	23	28	1	1	0	0	6	4	7	1	0	.300/.423/.350	.308	.429	0.0	RF(3): 0.1	0.2
2014	ATL	MLB	24	649	74	28	3	11	58	67	96	20	4	.271/.351/.384	.288	.308	1.0	RF(149): 27.6	6.2
2015	SLN	MLB	25	610	79	33	4	13	60	58	90	23	3	.293/.359/.439	.294	.329	6.1	RF(144): 15.9, CF(10): 2.1	5.9
2016	*CHN*	*MLB*	*26*	*643*	*90*	*30*	*3*	*21*	*72*	*65*	*114*	*16*	*4*	*.265/.343/.436*	*.279*	*.295*	*2.5*	*CF -8*	*3.2*
2017	*CHN*	*MLB*	*27*	*593*	*78*	*27*	*2*	*19*	*74*	*61*	*103*	*16*	*4*	*.264/.346/.436*	*.284*	*.293*	*2.7*	*CF -8*	*3.0*

Breakout: 4% Improve: 57% Collapse: 1% Attrition: 4% MLB: 98% *Comparables: Nick Markakis, Gary Sheffield, Rusty Staub*

The player-specific sections begin with biographical information before moving onto the column headers and actual data. The column headers begin with standard information like year, team, level (majors or level of the minors), and the raw, untranslated tallies found on th back of a baseball card: PA (plate appearances), R (runs), 2B (doubles), 3B (triples), HR (home runs), RBI (runs batted in), BB (walks), K (strikeouts), SB (stolen bases) and CS (caught stealing).

Following those are untranslated "slash" statistics: batting average (AVG), on-base percentage (OBP) and slugging percentage (SLG). The slash line is followed by True Averag (TAv), which, as described above, rolls all those things and more into one easy-to-digest

number.

BABIP stands for Batting Average on Balls in Play, and is what it sounds like: How often di a ball put in play by the hitter fall for a hit? An especially low or high BABIP may mean a hitte was especially lucky or unlucky. However, hitters who hit the ball hard tend to have especially high BABIPs from season to season; so do speedy hitters who are able to beat out more grounders for base hits.

Next is Baserunning Runs (BRR) which, as mentioned earlier, covers all sorts of baserunning accomplishments, not just stolen bases. Then comes Fielding Runs Above Average (FRAA); for historical stats, we have the number of games played at each position i parenthesis. For multi-position players, we are only able to display the two positions the fielde played most frequently that season.

The last column is Wins Above Replacement Player. WARP is our total-value stat that, for hitter, combines a player's batting runs above average (derived from True Average), BRR, FRAA, an adjustment for positions played and a credit for plate appearances based upon the difference between the "replacement level" (derived by looking at the quality of players added to a team's roster after the start of the season) and the league average.

The final line below the comment is PECOTA data, which is discussed further below.

Catchers

New this year is a separate box for catchers showing some of the defensive metrics that apply particularly to them. As an example, let's check out Russell Martin.

Russell Martin

YEAR	TEAM	P. COUNT	FRM RUNS	BLK RUNS	THRW RUNS	TOT RUNS
2013	PIT	16495	10.6	0.4	1.7	12.7
2014	PIT	14470	15.1	-0.1	2.4	17.5
2015	TOR	15667	11.6	-0.5	2.5	13.6
2016	*TOR*	*18439*	*15.7*	*-0.3*	*2.8*	*18.2*
2017	*TOR*	*16071*	*12.8*	*-0.3*	*2.3*	*14.9*

The YEAR and TEAM columns are what you'd expect. P. COUNT is the number of pitches the catcher “received,” though really it's the number of pitches thrown by pitchers when the catcher was in the battery; that is, it includes swinging strikes, fouls and balls in play. FRM RUNS is the total runs the catcher added by getting the umpire to call strikes where the average catcher did not (or vice versa). The calculation of this statistic is described above. BLK RUNS, also described above, expresses in runs above or below average the catcher's ability to prevent wild pitches and passed balls. Finally, THRW RUNS sums the catcher's ability to dissuade runners from stealing and to catch them when they do run. This statistic is calculated similarly to the Framing and Blocking stats, and takes into account various factors including the pitcher (who may have a quick or slow delivery, or a good or bad pickoff move) and the baserunner (who may be Billy Hamilton or Billy Butler). The final column, TOT RUNS is the sum of the previous three.

Pitchers

Now let's look at how pitchers are presented, using the biggest free-agent splash of the offseason, Zack Greinke.

Zack Greinke RHP

Born: 10/21/83 Age: 32 Bats: R Throws: R Height: 6'2" Weight: 195

YEAR	TEAM	LVL	AGE	W	L	SV	G	GS	IP	H	HR	BB/9	K/9	GB%	BABIP	WHIP	ERA	FIP	DRA	WARP	cFIP	MPH
2013	LAN	MLB	29	15	4	0	28	28	177²	152	13	2.3	7.5	48%	.276	1.11	2.63	3.20	3.27	3.5	95	94.8
2014	LAN	MLB	30	17	8	0	32	32	202¹	190	19	1.9	9.2	50%	.311	1.15	2.71	2.94	3.47	3.3	82	94.8
2015	LAN	MLB	31	19	3	0	32	32	222²	148	14	1.6	8.1	49%	.229	0.84	1.66	2.79	2.17	7.6	85	94.7
2016	ARI	MLB	32	14	10	0	32	32	214¹	188	21	2.2	8.4	48%	.304	1.12	3.24	3.27	3.87	3.6	86	
2017	ARI	MLB	33	11	10	0	29	29	179	159	17	2.3	7.9	48%	.303	1.14	3.34	3.66	3.99	2.9	89	

Breakout: 13% Improve: 32% Collapse: 34% Attrition: 7% MLB: 88% *Comparables: Kelvim Escobar, Jason Schmidt, Chris Carpenter*

The first line and the YEAR, TEAM, LVL and AGE columns are the same as in the hitters example above. The next set of columns—W (wins), L (losses), SV (saves), G (games pitched), GS (games started), IP (innings pitched), H (hits), HR (home runs), BB9 (walks per nine innings), K9 (strikeouts per nine innings)—are the actual, unadjusted stats compiled by the pitcher during each season.

Next is GB%, which is the percentage of all batted balls that were hit on the ground, including both outs and hits. The average GB% for a major-league pitcher in 2015 was about 45 percent; a pitcher anywhere north of 50 percent can be considered a good groundball pitcher. As mentioned above, this is based on observation by human stringers and can be skewed based upon a number of factors. We've included the number as a guide, but please approach it skeptically.

BABIP is the same statistic as for batters, but often tells you more in the case of pitchers, because most major-league pitchers have little control over their batting average on balls in play. A high BABIP is often due to a poor defense or bad luck rather than a pitcher's own abilities, and may be a good indicator of a potential rebound. A typical league-average BABIP is around .290–.300.

WHIP and ERA are common to most fans, with the former measuring the number of walks and hits allowed on a per-inning basis while the latter prorates earned runs allowed on a nine innings basis. Neither is translated or adjusted in any way.

FIP was discussed above: It puts onto an ERA scale a measurement of how the pitcher performed on the events that do not involve the fielders behind him.

Deserved Run Average (DRA) was also described above. It is the basis of pitcher WARP and measures how many runs (not earned runs) the pitcher “deserved” to allow per nine innings. For the sake of comparison, the average runs allowed per nine in MLB in 2015 was 4.28. One important point about minor leaguers is that because we do not have all the data we would need to fully calculate minor-league DRA, what is listed under “DRA” for minor leaguers is really a runs-allowed-per-nine figure calculated based on cFIP's components.

Because, as has been true of BP's pitching metrics in the past, neither DRA nor the conversion from DRA to WARP contains a “leverage” multiplier, WARP for relief pitchers (especially closers) may seem lower than you might see elsewhere and may conflict with how

we feel about relief aces coming in and "saving" the game. This is by design: Saves give extr
credit to the closer for what his teammates did to put him in a save spot to begin with; WARP
is incapable of feeling excitement over a successful save, and judges them dispassionately.
Furthermore, DRA controls for players who have the benefit of pitching in short durations and
at maximum ability.

cFIP, described above, adjusts FIP for a variety of factors and scales it on the familiar 100
scale; because these are pitchers preventing runs, below 100 is good, and above 100 is bad.

MPH, which is also new for 2015, is the pitcher's 95th percentile velocity for that season—
the goal is to give you a sense of the pitcher's peak fastball velocity, not his average. This
comes from PITCHf/x data, and thus is not publicly available for minor leaguers.

PECOTA

Both pitchers and hitters have PECOTA projections for next season, as well as a set of
biographical details that describe the performance of that player's comparable players
according to PECOTA. For the first time, this book contains two years of PECOTA projection
for every player.

The 2016 and 2017 lines are the PECOTA projection for the player at the date we went to
press in late December. The player is projected into the league and park context as indicated
by his team abbreviation. All PECOTAs represent a player's projected major-league
performance. The numbers beneath the player's stats—Breakout, Improve, Collapse, Attritio
—are a part of PECOTA. These estimate the likelihood of changes in performance relative to
a player's previously established level of production, based upon the performance of the
comparable players:

Breakout Rate is the percent chance that a player's production will improve by at least 20
percent relative to the weighted average of his performance over his most recent seasons.

Improve Rate is the percent chance that a player's production will improve at all relative to
his baseline performance. A player who is expected to perform just the same as he has in th
recent past will have an Improve Rate of 50 percent.

Collapse Rate is the percent chance that a position player's runs produced per plate
appearance will decline by at least 25 percent relative to his baseline performance.

Attrition Rate operates on playing time rather than performance. Specifically, it measures
the likelihood that a player's playing time will decrease by at least 50 percent relative to his
established level.

Breakout Rate and Collapse Rate can sometimes be counterintuitive for players who have

already experienced a radical change in performance level. It's also worth noting that the projected decline in a player's rate performances might not be indicative of an expected decline in underlying ability or skill, but rather something of an anticipated correction following a breakout season.

MLB% is the percentage of similar players who played in the major leagues in their relevan season.

The final pieces of information are the player's three highest-scoring comparable players a determined by PECOTA. Occasionally, a player's top comparables will not be representative of the larger sample that PECOTA uses. All comparables represent a snapshot of how the listed player was performing at the same age as the current player, so if a 23-year-old hitter compared to Sammy Sosa, he's actually being compared to a 23-year-old Sammy Sosa, not the decrepit Orioles version of Sosa, nor to Sosa's career as a whole.

A few points about pitcher projections. First, we aren't yet projecting peak velocity, so that column will be blank in the PECOTA lines. Second, projecting DRA is trickier than evaluating past performance, because it is unclear how deserving each pitcher will be of his anticipated outcomes. However, we know that cFIP estimates future run-scoring very well, and that cFIP and DRA are based on a similar structure and model. Thus, the projected DRA figures you see are based on the past cFIPs generated by the pitcher and comparable players over time along with the other factors described above.

Lineouts

The stats box in the Lineouts section contains all the same information, but only has the 201 stats for each player.

Managers

Each team chapter ends with a manager's comment and data breaking down his tactical tendencies. Though it's often difficult to isolate a manager's contribution to a team, comparin specific data modeled after well-documented plays and styles to the league average helps determine what a manager likes to do, even if we are still unable to translate that information into actual wins and losses.

Following the year, team and the actual record, Pythag +/- lets us know by how many

games the team under- or over-performed its Pythagenpat record. That isn't necessarily a reflection on the manager, but it does tell us how well a team performed compared to a somewhat less noisy assessment of the underlying talent.

Pitching staff usage follows, first with AVG PC reporting the average pitch count of his starting pitchers; 100+P and 120+P track the number of games in which the starters exceeded those thresholds. QS is the number of quality starts—a start of at least six innings and with no more than three runs allowed—that a manager received from his starting pitchers. BQS is Blown Quality Starts, a Baseball Prospectus stat that measures games in which the starter delivered a quality start through six innings before losing it in the seventh inning or later. A Blown Quality Start is not necessarily an indictment of a manager's abilities or tactics—a number of factors, ranging from excellent offensive support to extremely poor bullpen support, can lead a manager to leave his starter in a game after he's thrown six quality innings. Conversely, the decision by a manager to "bank" quality starts by restricting his starters to only six innings can have downsides as well, as it increases the bullpen's workload and gives it more opportunities to blow games in which the starter was cruising.

The next stats in the manager table tally how many pitching changes a manager made ove the course of the season (REL) and how many times the reliever called upon didn't allow any runners, his own or inherited, to score (REL w Zero R). Bequeathed runners also count against “REL w Zero R,” meaning that relievers who exit with runners on who subsequently score prevent a manager from "padding" his tally here. Concluding the pitching section, IBB i simply the number of intentional walks the manager ordered during the given season, which can be a mark of managerial strategy so long as outlying intentional-walk recipients like Migu Cabrera are accounted for.

Managers do more than manage pitchers, however; their usage of the bench can lead to added or lost performance. PH is the number of pinch-hitters used, and PH Avg and PH HR report the offensive statistics of pinch-hitters called upon.

We then turn to the so-called small-ball tactics, starting with the running game. The manager's aggressiveness on the bases is broken down by successful steals of second and third base (SB2, SB3) and times caught (CS2, CS3). We also provide the number of sacrifice a team attempted (SAC Att) and their success rate (SAC %). Be sure to keep in mind the differences between leagues, as National League sacrifice attempts, like pinch-hitter usage, are greatly inflated by the fact that pitchers bat. To correct for this, we list the number of times a manager got a successful sacrifice from a position player (POS SAC), which allows for comparisons between the two leagues. Squeeze counts the number of successful squeez plays the team executed over the season.

Finally, we have a couple of statistics that attempt to measure the manager's hit-and-run

tactics. Swing is the number of times a hitter swung at a pitch while the runners were in motion, while In Play reflects how many times hitters swung and made contact while those runners were off to the races. Granted, swings on steal attempts do not always translate to hit-and-run attempts, but managers who greatly deviate from the average can be assumed t be staunch proponents or opponents of the strategy.

PECOTA Leaderboards

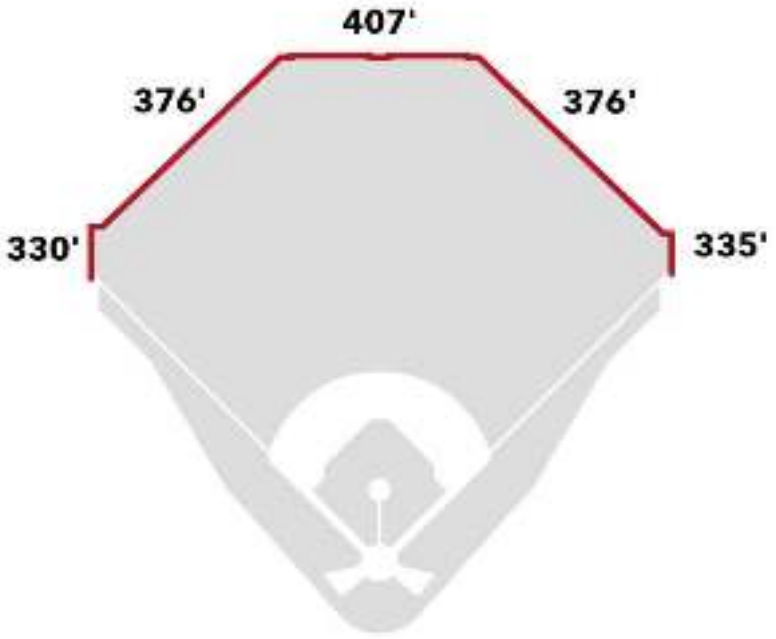
As a result of the way it weights previous seasons, PECOTA can tend to appear bullish on players coming off a bad year and bearish on players coming off a great year. And because we list the 50th percentile projections—the middle of the range the system thinks this player capable of producing—it rarely predicts any player will hit 40 home runs or strike out 250 batters. At the end of this book, though, we've ranked the top players according to their projections. It's often as helpful to know who the system thinks will be the top second baseman as what his actual stats are likely to be.

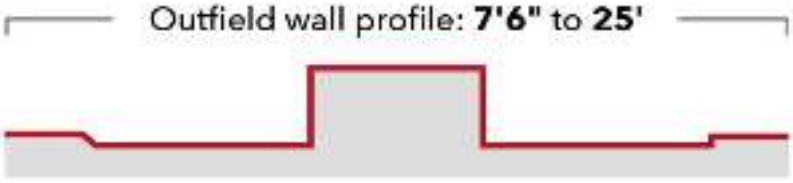
Arizona Diamondbacks

DIAMONDBACKS PROSPECTUS

2015 W-L: 79-83, 3rd in NL West

Pythag	.505	15th	DER	.706	11th
RS/G	4.44	8th	B-Age	26.4	2nd
RA/G	4.40	19th	P-Age	26.7	3rd
TAv	.266	7th	Salary	$88.2M	25th
BRR	14.69	3rd	M$/MW	$2.5M	22nd
TAv-P	.267	21st	DL Days	1071	17th
FIP	4.24	24th	$ on DL	15%	14th





Three-Year Park Factors

Runs	Runs/RH	Runs/LH	HR/RH	HR/LH
101	108	110	104	103

Top Hitter WARP	9.2	Paul Goldschmidt
Top Pitcher WARP	2.0	Brad Ziegler
Top Prospect		Braden Shipley

Essay by Zachary Levine

Player comments by Matt Sussman, Craig Goldstein, and BP authors

The phrase “mystery team” entered our vocabulary courtesy of then-*Sports Illustrated* writer and Arby’s enthusiast Jon Heyman in 2010, putting its date of birth sometime after “walk-off” but before “churro dog.” The original context was the Cliff Lee pursuit, the hot story of the winter meetings, with reporters using sources from agents to executives to flight-tracking systems to monitor the race between the Yankees and the Rangers for the services of the to free-agent pitcher in baseball. In the final stretches of the race, there emerged a mystery team, thought to be a ploy by an agent to drive up Lee’s price, but proven to be legitimate when the Phillies swooped in and signed their former ace back.

In a way, the Diamondbacks of this offseason were the perfect mystery team in their pursu and eventual signing of Zack Greinke. Not only was this supposed to be another two-team race, but had the Diamondbacks been the focus of any chatter, it could have easily been explained away by their trying to raise the price for the Giants and Dodgers.

But in another way, there’s something ultimately flawed about the mystery team concept. The largely unspoken part of the phenomenon is that while no. 1 and 2 teams may be at the top of the list of probabilities, there are 28 other organizations that could at least theoretically sign the player; when you add up the small probabilities for those 28, there’s a very substantial chance that a supposedly mystery team will sign *any* free agent. Perhaps in years past, the 28 probabilities were negligible next to the odds of the Yankees or Red Sox getting the player, but in this era of relative balance in spending, the mystery team has ceased to be all that interesting.

The Diamondbacks, with the Greinke signing and the trade of no. 1 overall pick Dansby Swanson (among others) to Atlanta for Shelby Miller, are more representative of another recent phenomenon, the birth of which came almost exactly one year later, also at the winter meetings. The key moment was Jose Reyes putting on a Miami Marlins jersey days after Heath Bell signed and days before Mark Buehrle gave their rotation sudden credibility.

It’s the team that appears out of nowhere—not in terms of likelihood of signing players but in terms of national relevance—to make a huge winter splash, win the offseason, become a trendy pick, become a trendier pick-against and enter the season as a massive story. Being Baseball Prospectus, we’re probably supposed to give it a name from baseball history, so ho about we call it the “Surprise Team Acquiring New Talent Outta Nowhere”?

The 2012 Marlins were the STANTON (named after former Yankees reliever Mike, of course) that we all saw coming, the master-planned STANTON. They were moving into a ne stadium and loading up on names to put in promotional items, all while having the most

important attribute of any true STANTON: They were a bad team.

Since the Marlins, there have been three other previously low-spenders who became instant buyers, whether by trade or free-agent signing, despite a poor prior-year record. The 2013 Blue Jays grabbed headlines with their acquisitions of R.A. Dickey and the 2012 Marlins and last year, the illustriously bad Padres and White Sox had huge offseasons and were popular picks in their respective playoff races.

And now we have the Diamondbacks, coming off a year better than any of the STANTONs of yesteryear. They won 79 games, while none of the other four topped 75, and finished 201 with a positive run differential, an MVP runner-up in Paul Goldschmidt and a young core that makes their offseason spending feel closer to final pieces than overhauls.

What should we expect from the latest of these big-mover sub-.500 teams? For one, attendance should go up. The other four averaged a 21 percent increase at the box office in the year after their big spends, though the 13 percent from the three teams not opening new stadiums might be a fairer estimate for where the Diamondbacks could be headed from their average 2015 attendance of 25,680, which ranked 23rd in baseball.

But if you believe in the n=4 (which, granted, you shouldn't do), Arizona isn't headed for much on the field. None of those four surprise offseason winners went up or down by more than three games. (See Table 1.) All that anticipation led to nothing: None of the teams was contention in July, and none came all that close to a winning season, much less the playoffs.

Table 1: Selected teams following offseasons of increased spending

Year/Team	Record			Average Attendance		
	Before	After	Change	Before	After	Change
2012 Marlins	72-90	69-93	-3	18,772	27,401	+46%
2013 Blue Jays	73-89	74-88	+1	25,922	31,316	+21%
2015 Padres	77-85	74-88	-3	27,103	30,367	+12%
2015 White Sox	73-89	76-86	+3	20,381	21,677	+6%

Fine. How about the fact that the Diamondbacks are historically young and on the upward slope of their aging curves? They were just the seventh team since 1950 to have their primar starter at every position and all five of their primary starting pitchers be 28 or younger. Like the records of the big spenders, this is a less encouraging tidbit than it sounds at first. (See Table 2.) Ever since the late-1960s Athletics, whose players like Reggie Jackson, Blue Moon Odom and Catfish Hunter would become centerpieces of the early-1970s powerhouses, young teams are bad teams that take a long time to be competitive.

Table 2: Teams with primary starter at all eight positions and top five starters 28 and under