BOOK REVIEW

Baseball Science

Talent. For some people it's a blessing. For others, such as Billy Beane, it can seem like a curse. There are few things as sad as promise gone unfulfilled, and by all measures Beane was one of the most promising baseball talents of his generation. Standing 6 feet 4 inches, with blazing speed and a quick bat, Beane was labeled a "can't-miss" prospect. The New York Mets selected the 18-year-old in the first round of the 1980 amateur draft, along with another high school phenom, Darryl Strawberry. The two were supposed to be the pillars around which a championship team would be built. Strawberry lived up to this role — at least for a while. He was a star on the 1986 team that won the World Series, and had several more good seasons for the Mets before personal problems and injuries cut short his career.

Billy Beane's career, on the other hand, never really got off the ground. He played six mediocre seasons in the Major Leagues, mostly as a backup, compiling a career batting average of just .219.

The can't-miss prospect proved to be a bust. Why? Nobody really knew at the time, including Billy Beane. Maybe he lacked dedication. Maybe he lacked confidence. Or maybe he just wasn't as good as people thought. After all, Beane had little to recommend him other than raw talent and gaudy high-school statistics. He had never proven himself against top-notch competition before the Mets spent a first-round pick on him.

Unlike another talented young slugger from the San Diego area, Mark McGwire, Beane hadn't played college baseball. McGwire, in contrast, already had three years at the University of Southern California and a trip to the 1984 Olympic Games under his belt when he was drafted. In other words, McGwire had more than just talent, he had a track record. One could use a wide range of objective measures to evaluate McGwire, while with Beane one had to rely on subjective measures. McGwire, of course, would go on to become one of the most prolific home-run hitters in baseball history, while Beane knocked only three pitches out of the park during his entire career.

To longtime baseball scouts, though, subjective measures were paramount. They believed they could spot a future star just by looking at him. As long as a player was fast, strong, and had a good arm, he could be turned into a big-leaguer. Billy Beane fit this profile perfectly. He benefited from the way scouts judged players. But after his playing days were over, Beane would devote his efforts to proving these

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"baseball minds" wrong. He would strive to make baseball a science — one where quantifiable, testable measures prevailed over subjective evaluations.

Moneyball is the story of Beane's efforts to implement his theories as general manager of the Oakland Athletics, more commonly known as the A's. Written by Michael Lewis, the book follows the team during the 2002 season, a year in which Oakland won the American League West championship despite having one of the lowest payrolls in all of baseball. Beane and his staff, especially his assistant Paul DePodesta, were able to build a club that could compete with much richer opponents, even the hated New York Yankees, a team that many fans believed were destroying the game by buying up the game's best players. How did Beane and his staff do it? Through careful scouting of amateur players and shrewd free-agent acquisitions.

Consider the way they approached the draft. As Beane could personally attest, many scouts favored talented high-school players — young studs, as it were — over older college players. And while some of these high-school players would have fantastic major league careers — for instance, high schooler Alex Rodriguez was selected first overall in the 1993 draft and is now arguably the game's best player — many more would simply fade from the spotlight. College players were much safer, if less spectacular, bets. Beane and his staff toured the country in search of college players who many teams simply ignored.

For instance, in 1997 the A's drafted right-handed pitcher Tim Hudson. Although Hudson was the Southeastern Conference player of the year his senior season, posting a 15-2 record with the Auburn Tigers, few teams were interested in him. The A's were able to snap him up in the sixth round. Hudson became a regular member of Oakland's starting rotation in 1999, and since then has three times finished in the top 10

for the Cy Young Award, given annually to the league's top pitcher.

The A's also have been able to find bargains in the free-agent market, including many players that teams were anxious to discard. These players did not perform well on certain measures usually given great weight by baseball insiders, such as batting average and stolen bases. But to the A's, these were not particularly important statistics.

Beane and DePodesta were followers of baseball writer Bill James, who published his own *Baseball Abstract*

from 1977 to 1988. James' data-heavy books were the products of intense research and some controversy. His approach, called "Sabermetrics," employed statistical and mathematical techniques to analyze baseball records. Early on, James created his own formula called "Runs Created." The idea was to develop a testable hypothesis about what accounted for a team's offensive output. The formula went as follows: Runs Created = (Hits + Walks) x Total Bases/(At Bats + Walks).

James tested his formula using Major League data. If the actual

number of runs scored by a team differed dramatically from his predicted number, his model was clearly wrong. "As it turns out, James was onto something," writes Lewis. "His model came far closer, year in and year out, to describing the run totals of every big league baseball team than anything the teams themselves had come up with."

According to the Runs Created formula, the two conventional measures that contributed most to a team's offensive success were on-base percentage and slugging percentage. If a guy could get on base (it didn't matter how — getting a hit or taking a walk both counted) or hit for power, he could help his team score runs. So James combined the two statistics to create a new one: On Base Plus Slugging, known simply as OPS. Beane and DePodesta searched for players with high OPS scores, and found one in Scott Hatteberg.

Hatteberg, in the view of most Major League executives, was just an average player. In a single season, he had never hit above .277 or driven in more than 43 runs for his former team, the Boston Red Sox. Still, Beane and DePodesta noticed that he consistently had an OPS score around .800, thanks in large measure to a good eye at the plate. Hatteberg was no star. But he was a solid player who fit into the Oakland system. And that was exactly what Oakland was developing — a system.

Before the 2002 season, the A's had lost their best player, Jason Giambi, to the New York Yankees, who signed him as a free agent. Beane and DePodesta knew that they could not replace Jason Giambi. There were few players in the league as good — and those who were carried too high a price tag. But they could try to replace Jason Giambi's numbers by acquiring overlooked journeymen who would play their roles as Beane and DePodesta saw them. Hatteberg was the prototypical cog in the Oakland machine. The plan worked perfectly: Even without their star, the A's still won 103 games in 2002

and drew more than 2 million fans.

It's hard to argue with Beane's approach. The A's have performed impressively under his guidance. Since 2000, they have compiled a win-loss record of 392-255, and have gone to the playoffs every year. But some questions remain.

First, why do the A's seem unable to win the big game? The A's make it to the playoffs year after year but fail to advance to the World Series. Could there, in fact, be some "intangibles" necessary to get a team over the hump? For instance, are there, in fact, "clutch players," guys who have an uncanny ability to deliver when the stakes are high? If so, Beane and his staff would not be well prepared to identify such players since their contributions are, by definition, erratic and hard to predict. Also, might the proverbial "character guys" — players who lead the team in the clubhouse instead of on the field — be a key ingredient for a championship team? Again, if this is true, the A's would be likely to overlook them since their real value doesn't show up in a statistical formula.

Second, if Beane's approach is so good, why haven't other teams adopted it? Part of the explanation may be simple inertia. Baseball, more than any other sport, is tradition-bound. Old habits — and prejudices — die hard. Other general managers may look at the A's and simply think that their recent success has been a fluke. In their minds, the traditional way of running a baseball team — from judging talent to managing a budget — has worked for generations (even if it really hasn't) and with time will be proven superior to Beane's unorthodox methods.

To some extent, other teams are adopting Beane's approach. For instance, at the end of the 2002 season the Boston Red Sox named 28-year-old Theo Epstein as the team's general manager. Epstein first discovered Bill James' writings in the fourth grade and hired the Sabermetrics guru as a team consultant. J. P. Ricciardi, who worked closely with Beane in Oakland, was hired by the Toronto Blue Jays in November 2001 to run that team's front office. The Toronto management was impressed by what the cash-strapped A's were able to accomplish and hoped that Ricciardi could bring similar success north of the border. And before the 2004 season DePodesta was lured away from Oakland to become the general manager of the Los Angeles Dodgers.

Third, why haven't Beane's methods been applied to other sports? The pressure to win in professional basketball, for instance, is equally intense. If a more scientific approach would help a team win games, one would think that

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coaches and general managers would move — however gradually — to adopt it. Yet, if anything, we are seeing the opposite occur. Teams are increasingly basing their draft selections on talent and less on measurable performance. For instance, the number of high-school players being picked has sky-rocketed, while it has become fairly rare to see a college senior chosen with a high pick.

Perhaps this has to do with the differing nature of the two games. In baseball there is a lot of one-on-one action. In a battle between pitcher and hitter, for instance, it's pretty easy to isolate how each player performed. But in basketball, it's not so easy. A guy could be a 30-point scorer because the offense is geared to feature him. On another team he may not look like such a star. Still, there are some objective measures — such as free-throw and field-goal shooting percentages — that could be used to construct formulas similar to the ones employed by Beane and his staff. It's not clear why this hasn't been done.

Whatever shortcomings there may be with Beane's approach to running a Major League baseball team — and the questions above suggest there are some, arguably minor, issues to be resolved — there is no doubt that his methods are interesting. Likewise, *Moneyball* is a fascinating read. Lewis has taken a good story and produced a great book that will appeal to a broad audience.

For instance, the person who first recommended *Moneyball* to me has only a passing interest in America's national pastime. A few years ago, I took him to a Chicago Cubs game. He enjoyed himself. After all, the bratwursts were tasty and the weather was good. But the actions on the field seemed nonsensical, even chaotic to him. Why, for example, did the grounds crew sweep the infield every three innings? It would be more reasonable, he argued, to send them out there as needed — for instance, after an especially long inning in which a lot of runners reached base. Or why did the manager have to wear a uniform like the players, since there was no chance he was going to enter the game? NBA, NFL, and NHL coaches didn't suit up, and he saw no good reason why baseball managers should be any different. To my friend, baseball relied too much on ritual and convention — and I think that's one of the reasons he liked *Moneyball*. To him, it was the story of science and order being applied to a game that, in his view, was unscientific and disorderly.

Of course, to many fans, that's the beauty of baseball. It's a simple game whose quirks are to be appreciated, not scorned, a game with an internal logic all its own. I suspect that those people will get as much enjoyment from reading *Moneyball* as my friend did, even if for very different reasons. **RF**