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Moe Berg (1902–1972) grew up in Newark, New Jersey, and studied modern languages at Princeton, graduating near the top the class of 1923. He was also the star of the baseball team. The day after graduation he joined the Brooklyn Dodgers to earn tuition money—he wanted to do graduate work at the Sorbonne in Paris. By 1930, Berg had earned a degree from Columbia Law School, and had become the Chicago White Sox starting catcher. This most erudite major leaguer was also a talented writer. In 1941, Berg, then a Red Sox coach, received a letter from Edward Weeks, editor of *The Atlantic Monthly*, who said he wondered about pitchers and asked Berg to write him a “paper” on what it takes “to be better than average.” The piece, so redolent of both Berg’s learning and his exotic personality, amounts to a concise primer on the essential workings of the game, and remains the best “inside baseball” essay ever written by a major-league practitioner.

Moe Berg

Pitchers and Catchers

I

Baseball men agree with the philosopher that perfection—which means a pennant to them—is attainable only through a proper combination of opposites. A team equally strong in attack and in defense, well-proportioned as a unit, with, of course, those intangibles, morale, enthusiasm, and direction—that is the story of success in baseball. Good fielding and pitching, without hitting, or vice versa, is like Ben Franklin’s half a pair of scissors—ineffectual. Lopsided pennant failures are strewn throughout the record books. Twenty-game winners or .400 hitters do not ensure victory. *Ne quid nimis*. Ty Cobb, baseball genius, helped win pennants early in his career, but from 1909 through 1926, his last year at Detroit, he and his formidable array of hitters failed—they never found the right combination. Ed Walsh, the great White Sox spitball pitcher, in 1908 won forty or practically half of his club’s games, to this day an individual pitching record, but alone he couldn’t offset his own ‘hitless wonders.’ Walter Johnson the swift, with over 400 victories, waited almost twenty

years before his clubmates at Washington helped him to a championship. Every pennant winner must be endowed both at the plate and in the field. Even Babe Ruth's bat, when it loomed largest, couldn't obscure the Yankees' high-calibre pitching and their tight defense in key spots.

With all the importance that hitting has assumed since the Babe and home runs became synonymous, I note that Connie Mack, major-league manager for almost half a century, household name for strategy wherever the game is played, still gives pitching top rating in baseball.

A Walter Johnson, a Lefty Grove, a Bob Feller, cannon-ball pitchers, come along once in a generation. By sheer, blinding speed they overpower the hitter. Johnson shut out the opposition in 113 games, more than the average pitcher wins in his major-league lifetime. Bob Feller continues this speed-ball tradition. We accept these men as pitching geniuses, with the mere explanation that, thanks to their strong arms, their pitches are comparatively untouchable. When Walter Johnson pitched, the hitter looked for a fast ball and got it; he looked—but it didn't do him much good. Clark Griffith, then manager of the Washington Club, jestingly threatened Walter with a fine any time he threw a curve. 'Griff' knew that no variation in the speed king's type of pitch was necessary. But what of the other pitchers who are not so talented?

Many times a pitcher without apparent stuff wins, whereas his opponent, with what seems to be a great assortment, is knocked out of the box in an early inning. The answer, I believe, lies in the bare statement, 'Bat meets ball'; any other inference may lead us into the danger of overcomplication. The player himself takes his ability for granted and passes off his success or lack of it with 'You do or you don't.' Call it the law of averages.

Luck, as well as skill, decides a game. The pitcher tries to minimize the element of luck. Between the knees and shoulders of the hitter, over a plate just 17 inches wide, lies the target of the pitcher, who throws from a rectangular rubber slab on a mound 60 feet, 6 inches distant. The pitcher has to throw into this area with enough on the ball to get the hitter out—that is his intention. Control, natural or acquired, is a prerequisite of any successful pitcher: he must have direction, not only to be effective, but to exist.

Because of this enforced concentration of pitches, perhaps the game's most interesting drama unfolds within the limited space of the ball-and-strike zone. The pitcher toes the mound; action comes with the motion, delivery, and split-second flight of the ball to the catcher. With every move the pitcher is trying to fool the hitter, using his stuff, his skill and wiles, his tricks and cunning, all his art to win.

Well known to ball players is the two-o'clock hitter who breaks down fences in batting practice. There is no pressure; the practice pitcher throws ball after ball with the same motion, the same delivery and speed. If the practice pitcher varies his windup or delivery, the hitters don't like it—not in batting practice—and they show their dislike by sarcastically conceding victory by a big score to the batting practice pitcher and demanding another. This is an interesting phenomenon. The hitter, in practice, is adjusting himself to clock-like regularity of speed, constant and consistent. He is concentrating on his timing. He has to coordinate his vision and his swing. This coordination the opposing pitcher wants to upset from the moment he steps on the rubber and the game begins. The very duration of the stance itself, the windup and motion, and the form of delivery are all calculated to break the hitter's equilibrium. Before winding up, the pitcher may hesitate, outstaring the notoriously anxious hitter in order to disturb him. Ted Lyons, of the Chicago White Sox, master student of a hitter's habits, brings his arms over his head now once, now twice, three or more times, his eyes intent on every move of the hitter, slowing up or quickening the pace of his windup and motion in varying degrees before he delivers the pitch. Cy Young, winner of most games in baseball history,—he won 511,—had four different pitching motions, turning his back on the hitter to hide the ball before he pitched. Fred Marberry, the great Washington relief pitcher, increased his effectiveness by throwing his free, non-pivot foot as well as the ball at the hitter to distract him.

In 1884, when Connie Mack broke in as a catcher for Meriden, Charlie Radbourne—who won 60 games for Providence—could have cuffed, scraped, scratched, finger-nailed, applied resin, emery, or any other foreign substance to, or spit on the two balls the teams started and finished the game with. 'Home-Run' Baker, who hit two balls out of the park in the 1911 World Series to win his nickname,—and never more than twelve in a full season,—characterizes a defensive era in

the game. During the last war it was impossible to get some of the nine foreign ingredients that enter into the manufacture of our baseball. To make up for the lack of the superior foreign yarn, our machines were adjusted to wind the domestic product tighter. In 1919, when the war was over, the foreign yarn was again available, but the same machines were used. The improved technique, the foreign ingredients, Babe Ruth and bat, conspired to revolutionize baseball. It seems prophetic, with due respect to the Babe, that our great American national game, so native and representative, could have been so completely refashioned by happenings on the other side of the world.

II

The importance of the bat has been stressed to such an extent that, since 1920, foreign substances have been barred to the pitcher, and the spitball outlawed. The resin bag, the sole concession, is used on the hands only to counteract perspiration. The cover of the ball, in two sections, is sewed together with stitches, slightly raised, in one long seam; today's pitcher, after experimentation and experience, takes whatever advantage he can of its surface to make his various pitches more effective by gripping the ball across or along two rows of stitches, or along one row or on the smooth surface. The pitcher is always working with a shiny new ball. A game today will consume as many as eight dozen balls instead of the two roughed and battered ones which were the limit in 1884.

With the freak pitch outlawed and the accent put on hitting in the modern game, the pitcher has to be resourceful to win. He throws fast, slow, and breaking balls, all with variations. He is fortunate if his fast ball hops or sinks, slides or sails, because, if straight as a string or too true, it is ineffective. The ball has to do something at the last moment. The curve must break sharply and not hang. To add to his repertory of balls that break, the pitcher may develop a knuckle ball (fingers applied to the seam, knuckled against, instead of gripping the ball), a fork ball (the first two fingers forking the ball), or a screw ball (held approximately the same as an orthodox fast or curve ball but released with a twist of the wrist the reverse of a curve). The knuckle and fork balls flutter through the air, wavering, veering, or taking a sudden lurch, without revolving like the other pitches; they are the modern counterpart of the spitball, a dry spitter.

The pitcher studies the hitter's stance, position at the plate, and swing, to establish the level of his natural batting stroke and to detect any possible weakness. Each hitter has his own individual style. The pitcher scouts his form and notes whether he holds the bat on the end or chokes it, is a free swinger or a chop hitter. He bears in mind whether the hitter crowds, or stands away from, the plate, in front of or behind it, erect or crouched over it. Whether he straddles his legs or strides forward to hit, whether he lunges with his body or takes a quick cut with wrist and arm only, whether he pulls a ball, hits late or through the box—all these things are telltale and reveal a hitter's liking for a certain pitch, high or low, in or out, fast, curve, or slow.

To fool the hitter—there's the rub. With an assortment at his disposal, a pitcher tries to adapt the delivery, as well as the pitch, to the hitter's weakness. Pitchers may have distinct forms of delivery and work differently on a given hitter; a pitcher throws overhand, three-quarter overhand (which is about midway between overhand and side-arm), side-arm, or underhand. A cross-fire is an emphasized side-arm pitch thrown against the forward foot as the body leans to the same side as the pitching arm at the time of the motion and delivery. Not the least important part of the delivery is the body follow-through to get more stuff on the pitch and to take pressure off the arm. Having determined the hitter's weakness, the pitcher can throw to spots—for example, 'high neck in,' low outside, or letter high. But he never forgets that, with all his equipment, he is trying to throw the hitter off his timing—probably the best way to fool him, to get him out. Without varying his motion, he throws a change-of-pace fast or curve ball, pulls the string on his fast ball, slows up, takes a little off or adds a little to his fast ball.

Just as there are speed kings, so there are hitters without an apparent weakness. They have unusual vision, power, and great ability to coordinate these in the highest degree. They are the ranking, top hitters who hit everything in the strike zone well—perhaps one type of pitch less well than another. To these hitters the pitcher throws his best pitch and leaves the result to the law of averages. Joe DiMaggio straddles in a spread-eagle stance with his feet wide apart and bat already cocked. He advances his forward foot only a matter of inches, so that, with little stride, he doesn't move his head, keeping his eyes steadily on the ball. He concentrates on the pitch; his weight equally

distributed on both feet, he has perfect wrist action and power to drive the ball for distance. Mel Ott, on the other hand, lifts the front foot high just as the pitcher delivers the ball; he is not caught off balance or out of position, because he sets the foot down only after he has seen what type of pitch is coming. With DiMaggio's stance one must have good wrist action and power. With Ott's, there is a danger of taking a long step forward before one knows what is coming. But Mel does not commit himself.

Rogers Hornsby, one of the game's greatest right-hand hitters, invariably took his position in the far rear corner of the batter's box, stepped into the pitch, and hit to all fields equally well. Ty Cobb was always a step ahead of the pitcher. He must have been because he led the American League in hitting every year but one in the thirteen-year period 1907-1919. He outstudied the pitcher and took as many positions in the batter's box as he thought necessary to counteract the type of motion and pitch he was likely to get. He adapted his stance to the pitcher who was then on the mound; for Red Faber, whose spitball broke sharply down, Cobb stood in front of the plate; for a curve-ball left-hander, Ty took a stance behind the plate in order to hit the curve after it broke, because, as Ty said, he could see it break and get hold of it the better. For Lefty O'Doul, one of the greatest teachers of hitting in the game, there are no outside pitches. Lefty stands close to the plate; his bat more than covers it, he is a natural right-field pull hitter. Babe Ruth, because of his tremendous, unequaled home-run power, and his ability to hit equally well all sorts of pitches with a liberal stride and a free swing, and consistently farther than any other player, has demonstrated that he had the greatest coordination and power of any hitter ever known. Ted Williams, of the Boston Red Sox, the only current .400 hitter in the game, completely loose and relaxed, has keen enough eyes never to offer at a bad pitch; he has good wrist and arm action, leverage, and power. Jimmy Foxx, next to Babe Ruth as a home-run hitter, steps into a ball, using his tremendous wrists and forearms for his powerful, long and line drives. These hitters do not lunge with the body; the front hip gives way for the swing, and the body follows through.

III

The game is carried back and forth between the pitcher and the hitter. The hitter notices what and where the pitchers are throwing. If the pitcher is getting him out consistently, for example, on a curve outside, the hitter changes his mode of attack. Adaptability is the hallmark of the big-league hitter. Joe Cronin, playing manager of the Red Sox, has changed in his brilliant career from a fast-ball, left-field pull hitter to a curve-ball and a right-field hitter, to and fro through the whole cycle and back again, according to where the pitchers are throwing. He has no apparent weakness, hits to all fields, and is one of the greatest 'clutch' hitters in the game. *Plus ça change, plus c'est la même chose.*

Like Walter Johnson, Lefty Grove was a fast-ball pitcher, and the hitters knew it. The hitters looked for this pitch; Lefty did not try to fool them by throwing anything else, but most of them were fooled, not by the type of pitch, but by his terrific speed. With two strikes on the hitter, Lefty did throw his curve at times, and that, too, led almost invariably to a strike-out. In 1935, Lefty had recovered from his first serious sore arm of the year before. Wear and tear, and the grind of many seasons, had taken their toll. Now he had changed his tactics, and was pitching curves and fast balls, one or the other. His control was practically perfect. On a day in that year in Washington, Heinie Manush, a great hitter, was at bat with two men on the bases. The game was at stake; the count was three balls and two strikes. Heinie stood there, confident, looking for Lefty's fast ball. 'Well,' thought Heinie, 'it might be a curve.' Lefty was throwing the curve more and more now, but the chances with the count of three and two were that Lefty would throw his fast ball with everything he had on it. Fast or curve—he couldn't throw anything else; he had nothing else to throw. Heinie broke his back striking out on the next pitch, the first fork ball Grove ever threw. For over a year, on the side lines, in the bullpen, between pitching starts, Lefty had practised and perfected this pitch before he threw it, and he waited for a crucial spot to use it. Lefty had realized his limitations. The hitters were getting to his fast and curve balls more than they used to. He wanted to add to his pitching equipment; he felt he had to. Heinie Manush anticipated, looked for, guessed a fast ball, possibly a curve, but Lefty fooled him with his new pitch, a fork ball.

Here was the perfect setup for out-guessing a hitter. Lefty Grove's development of a third pitch, the fork ball, is the greatest example in our time of complete, successful change in technique by one pitcher. When a speed-ball pitcher loses his fast one, he has to compensate for such loss by adding to his pitching equipment. Lefty both perfected his control and added a fork ball. Carl Hubbell's screw ball, practically unhittable at first, made his fast ball and curve effective. Lefty Gomez, reaching that point in his career where he had to add to his fast and curve ball, developed and threw his first knuckle ball this year. Grove, Gomez, and Hubbell, three outstanding left-handers,—Grove and Gomez adding a fork ball and a knuckle ball respectively to their fast and curve balls when their speed was waning, Hubbell developing a screw ball early in his career to make it his best pitch and to become one of the game's foremost southpaws,—so you have the build-up of great pitchers.

At first, the superspeed of Grove obviated the necessity of pitching brains. But, when his speed began to fade, Lefty turned to his head. With his almost perfect control and the addition of his fork ball, Lefty now fools the hitter with his cunning. With Montaigne, we conceive of Socrates in place of Alexander, of brain for brawn, wit for whip. And this brings us to a fascinating part of the pitcher-hitter drama: Does a hitter guess? Does a pitcher try to outguess him? When the pitching process is no longer mechanical, how much of it is psychological? When the speed of a Johnson or a Grove is fading or gone, can the pitcher outguess the hitter?

IV

We know that the pitcher studies the strength and weakness of every hitter and that the hitter notes every variety of pitch in the pitcher's repertory; that the big-league hitter is resourceful, and quick to meet every new circumstance. Does he anticipate what the pitcher is going to throw? He can regulate his next pitch arbitrarily by the very last-second flick of the wrist. There is no set pattern for the order of pitches. Possible combinations are so many that a formula of probability cannot be established. He may repeat the fast ball or curve ball indefinitely, or pitch them alternately; there is no mathematical certainty what the pitch will be. There is no harmony

in the pattern of a pitcher's pitches. And no human being has the power of divination.

But does this prevent a hitter from guessing? Does he merely hit what he sees if he can? Is it possible for a hitter to stand at the plate and use merely his vision, without trying to figure out what the pitcher might throw? The hitter bases his anticipation on the repertory of the pitcher, taking into account the score of the game, what the pitcher threw him the last time at bat, whether he hit that pitch or not, how many men are on base, and the present count on him. The guess is more than psychic, for there is some basis for it, some precedent for the next move; what is past is prologue.

The few extraordinary hitters whose exceptional vision and power to coördinate must be the basis for their talent can afford to be oblivious of anything but the flight of the ball. Hughie Duffy, who has the highest batting average in baseball history (he hit .438 in 1894), or Rogers Hornsby, another great right-hand hitter, may even deny that he did anything but hit what he saw. But variety usually makes a hitter think. When Ty Cobb changed his stance at the plate to hit the pitcher then facing him, he anticipated not only a certain type of motion but also the pitch that followed it. He studied past performance. Joe DiMaggio hit a home run to break Willie Keeler's consecutive-games hitting record of 44, standing since 1897, and has since carried the record to 56 games. In hitting the home run off Dick Newsome, Red Sox pitcher, who has been very successful this year because of a good assortment of pitches, Joe explains: 'I hit a fast ball; I knew he would come to that and was waiting for it; he had pitched knucklers, curves, and sinkers.' Jimmie Foxx looks for a particular pitch when facing a pitcher—for example, a curve ball against a notorious curve-ball pitcher—and watches any other pitch go by. But when he has two strikes he cancels all thought of what the pitcher might throw; he then hits what he sees. Jimmie knows that if he looks for a certain pitch and guesses wrong, with two strikes on him, he will be handcuffed at the plate watching the pitch go by. Hank Greenberg, full of imagination, has guessed right most of the time—he hit 58 home runs one year.

Just as Lefty Grove perfected control of his not-so-speedy fast ball and curve, and added the fork ball to give him variety, so even

the outstanding hitters have to change their mode of attack later when their vision and reactions are not quite so sharp as they used to be.

v

The catcher squatting behind the hitter undoubtedly has the coign of vantage in the ball park; all the action takes place before him. Nothing is outside his view except the balls-and-strikes umpire behind him—which is at times no hardship. The receiver has a good pair of hands, shifts his feet gracefully for inside or outside pitches, and bends his knees, not his back, in an easy, rhythmic motion, as he stretches his arms to catch the ball below his belt. The catcher has to be able to cock his arm from any position, throw fast and accurately to the bases, field bunts like an infielder, and catch foul flies like an outfielder. He must be adept at catching a ball from any angle, and almost simultaneously tagging a runner at home plate. The catcher is the Cerberus of baseball.

These physical qualifications are only a part of a catcher's equipment. He signals the pitcher what to throw, and this implies superior baseball brains on his part. But a pitcher can put a veto on a catcher's judgment by shaking him off and waiting for another sign. The game cannot go on until he pitches. Every fan has seen a pitcher do this—like the judge who kept shaking his head from time to time while counsel was arguing; the lawyer finally turned to the jury and said, 'Gentlemen, you might imagine that the shaking of his head by His Honor implied a difference of opinion, but you will notice if you remain here long enough that when His Honor shakes his head there is nothing in it.' (Judges, if you are reading, please consider this *obiter*.) One would believe that a no-hit, no-run game, the acme of perfection, the goal of a pitcher, would satisfy even the most exacting battery mate. Yet, at the beginning of the seventh inning of a game under those conditions, 'Sarge' Connally, White Sox pitcher, said to his catcher, 'Let's mix 'em up; why don't you call for my knuckler?' 'Sarge' was probably bored with his own infallibility. He lost the no-hitter and the game on an error.

Of course, no player monopolizes the brains on a ball club. The catcher gives the signals only because he is in a better position than the pitcher to hide them. In a squatting position, the catcher hides

the simple finger, fist, or finger-wiggle signs between his legs, complicating them somewhat with different combinations only when a runner on second base in direct line of vision with the signals may look in, perhaps solve them, and flash back another signal to the hitter.

Signal stealing is possible in many ways. The most prevalent self-betrayals are made by the pitcher and catcher themselves. Such detection requires the closest observation. A catcher, after having given the signal, gets set for the pitch; in doing so he may unintentionally, unconsciously, make a slight move—for example, to the right, in order to be in a better position to catch a right-hander's curve ball. But more often it is the pitcher who reveals something either to the coaches on the base lines or—what is more telling—to the hitter standing in the batter's box.

The pitcher will betray himself if he makes two distinct motions for two different pitches—as, for example, a side-arm delivery for the curve and overhand for the fast ball. A pitcher may also betray himself in his windup by raising his arms higher for the fast ball than for the curve. In some cases his eyes are more intent on the plate for one pitch than for another. Usually the curve is more difficult to control. If a pitcher has to make facial distortions, they should be the same for one pitch as for another.

A pitcher covers up the ball with his glove as he fixes it, to escape detection. Otherwise he may reveal that he is holding the ball tighter for a curve than for a fast ball, or even gripping the stitches differently for one than for the other. Eddie Collins, all-time star second baseman, was probably the greatest spy on the field or at bat in the history of the game. He was a master at 'getting' the pitch for himself somewhere in the pitcher's manipulation of the ball or in his motion. This ability in no small part helped make him the great performer that he was.

Ball players would rather detect these idiosyncrasies for themselves, as they stand awaiting the pitch, than get a signal from the coach. The coach, on detecting something, gives a sign to the hitter either silently by some move—for instance, touching his chest—or by word of mouth—'Come on,' for a curve. But this is dangerous unless the coach detects the pitches with one hundred per cent accuracy. There must be no doubt. Many times, in baseball, a club knows every pitch thrown and still loses. The hitter may be too anxious if he actually knows what is coming, or a doubt might upset him. And there is

always the danger of a pitcher's suspecting that he is 'tipping' himself off. He then deals in a bit of counter-espionage by making more emphatic to the opposition his revealing mannerism to encourage them, only to cross them up at a crucial time.

The whole club plays as a unit to win. The signs that the pitcher and catcher agree on reflect the collective ideas, the judgment of all the players on how to get the opposition out. Preventing runs from scoring is as important as making them. The players know how the pitcher intends to throw to each opponent. They review their strategy before game time, as a result of which they know how the battery is going to work, and they play accordingly. The shortstop and second baseman see the catcher's signs and get the jump on the ball; sometimes they flash it by prearranged signal to the other players who are not in a position to see it. The outfielders can then lean a little, but only after the ball is actually released.

He is a poor catcher who doesn't know at least as well as the pitcher what a hitter likes or doesn't like, to which field he hits, what he did the last time, what he is likely to do this time at bat. The catcher is an on-the-spot witness, in a position to watch the hitter at first hand. He has to make quick decisions, bearing in mind the score, the inning, the number of men on the bases, and other factors.

VI

Pitchers and catchers are mutually helpful. It is encouraging to a pitcher when a catcher calls for the ball he wants to throw and corroborates his judgment. The pitcher very seldom shakes a catcher off, because they are thinking alike in a given situation. By working together they know each other's system. Pitchers help catchers as much as catchers do pitchers. One appreciative catcher gives due credit to spit-baller Red Faber, knuckle-baller Ted Lyons, and fast-baller Tommy Thomas, all of the Chicago White Sox, for teaching him, as he caught them, much about catching and working with pitchers. Bill Dickey, great Yankee catcher, will readily admit that Herb Pennock taught him battery technique merely by catching a master and noting how he mixed up his pitches. Ray Schalk, Chicago White Sox, and Steve O'Neill, Cleveland Indians, were two of the greatest receivers and all-round workmen behind the plate in baseball history. Gabby Hartnett and Mickey Cochrane stood out as hitters as

well as catchers, Mickey being probably the greatest inspirational catcher of our time.

The catcher works in harmony with the pitcher and dovetails his own judgment with the pitcher's stuff. He finds out quickly the pitcher's best ball and calls for it in the spots where it would be most effective. He knows whether a hitter is in a slump or dangerous enough to walk intentionally. He tries to keep the pitcher ahead of the hitter. If he succeeds, the pitcher is in a more advantageous position to work on the hitter with his assortment of pitches. But if the pitcher is in a hole—a two and nothing, three and one, or three and two count—he knows that the hitter is ready to hit. The next pitch may decide the ball game. The pitcher tries not to pitch a 'cripple'—that is, tries not to give the hitter the ball he hits best. But it is also dangerous to overrefine. Taking the physical as well as the psychological factors into consideration, the pitcher must at times give even the best hitter his best pitch under the circumstances. He pitches hard, lets the law of averages do its work, and never second-guesses himself. The pitcher throws a fast ball through the heart of the plate, and the hitter, surprised, may even take it. The obvious pitch may be the most strategic one.

The pitcher may throw overhand to take full advantage of the white shirts in the bleacher background. Breaking balls are more effective when thrown against the resistance of the wind. In the latter part of a day, when shadows are cast in a stadium ball park, the pitcher may change his tactics by throwing more fast balls than he did earlier in the game.

The players are not interested in the score, but merely in how many runs are necessary to tie and to win. They take nothing for granted in baseball. The idea is to win. The game's the thing.