



# CHEATING IN BASEBALL

## REFLECTIONS ON ELECTRONIC SIGN-STEALING

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ON SEPTEMBER 22, 2016, an intern in the Houston Astros' organization, Derek Vigoa, showed the Astros' general manager Jeff Luhnow a PowerPoint presentation about of an Excel-based application. The application was programmed with an algorithm which could detect the pitch signs opposing catchers were flashing to pitchers. Since 2014, when video replays of action on the field were made available to major league baseball teams in order to help them challenge certain calls made by umpires, teams had access, in so-called video rooms, usually located close to dugouts, to television and computer monitors receiving live feeds of television broadcasts of games. The broadcasts fed to teams typically made use of centerfield cameras, which often offered the best look at pitches as they were delivered to batters. The cameras captured the hand signals catchers flashed to pitchers in order to suggest a particular pitch, as well as the sequences in which those signals were flashed. The application program allowed someone watching the live feed to log an opposing catcher's sequence of hand signals, and the actual signals flashed, into a spreadsheet, along with the pitches thrown which corresponded to those signs. The algorithm used that data to associate particular hand signals and their sequences with particular pitches. After a sufficient amount of data was fed into the spreadsheet, the algorithm was able to predict the

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types of pitches opposing pitchers were about to deliver. Astros staffers called the application Codebreaker because of its ability to decode signs opposing catchers gave to pitchers, long regarded within baseball as perhaps the most central piece of confidential information teams seek to conceal from their opponents.<sup>1</sup>

On November 12, 2019, former Astros pitcher Mike Fiers, who had been released by the Astros after the 2017 season and was at the time on the roster of the Oakland Athletics, told *The Athletic* magazine that the Astros had employed Codebreaker in the 2017 season. The Astros placed a television monitor with a live feed of the game on the wall of a tunnel between their dugout and clubhouse (nearly all major league stadiums contain such tunnels, designed to allow players to move between dugouts and clubhouses during a game and at other times). An employee familiar with Codebreaker would look at the monitor, and when he became aware of what pitches were about to be thrown, seek to communicate that information to Astros batters.<sup>2</sup>

Two months into the 2017 season, some Astros coaches and players, notably bench coach Alex Cora and veteran player Carlos Beltran, refined the process by which forthcoming pitches were communicated. A plastic trash can was positioned in the tunnel near the monitor, and when an Astros staff member determined that a breaking pitch or off-speed pitch was coming, he banged on the can, loud enough for batters to hear. *The Athletic* article also contained comments from Danny Farquhar, a former pitcher for the Chicago White Sox, known for his change-up, that on two occasions in September 2017, in games against the Astros played at the Astros' ballpark, he heard banging noises as he was about to deliver change-up pitches. Suspecting that signs for change-ups might have been detected, Farquhar and his catcher changed their signs, and the banging stopped.<sup>3</sup>

*The Athletic* article covered only the 2017 season, in which the Astros won the World Series, and indicated that the Astros only employed the Codebreaker scheme during home games. Major League Baseball's reaction

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<sup>1</sup> Jared Diamond, "How the Houston Astros Cheated," *Wall Street Journal*, February 8, 2020.

<sup>2</sup> Ken Rosenthal and Evan Drellich, "The Astros stole signs electronically in 2017," November 12, 2019, [www.theathletic.com/1363451/2019/11/12/the-astros-stole-signs-electronically-in-2017-part-of-a-much-broader-issue-for-major-league-baseball/](http://www.theathletic.com/1363451/2019/11/12/the-astros-stole-signs-electronically-in-2017-part-of-a-much-broader-issue-for-major-league-baseball/).

<sup>3</sup> Id.

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to the article was to launch an investigation, which concluded with an announcement on January 13, 2020 that Astros' manager A.J. Hinch and general manager Luhnow were suspended from baseball for a year and the club was fined \$5 million, the highest fine allowable under the Major League Baseball Constitution. Astros' owner Jim Crane responded by firing both Hinch and Luhnow. MLB subsequently expanded its investigation to cover the 2018 season, during which both the Astros and the Boston Red Sox, whose new manager was Alex Cora, were suspected of continuing to engage in electronic sign-stealing. Fallout from the investigation eventually resulted in Cora's resigning from the Red Sox and Carlos Bertran, who had just been hired as the New York Mets' manager for the 2020 season, being let go as well. No other players or coaches who were on the Astros during the 2017 season were suspended or fined, apparently because MLB could not figure out a way to fine-tune punishments for those players and coaches, all of whom knew of the existence of Codebreaker but some of whom had participated far more actively in sign-stealing than others, and many of whom had been promised immunity from punishment in exchange for candid testimony about electronic sign-stealing.<sup>4</sup>

MLB's swift and arguably substantial punishments of Hinch, Luhnow, and the Astros franchise were allegedly motivated in part by a series of memorandums and rules pertaining to electronic sign-stealing issued by MLB Commissioner Rob Manfred between the fall of 2017 and the spring of 2019. The first of those memorandums was a warning that electronic sign-stealing was prohibited; the second, a year later, a repeat of that warning; and the third an explicit statement that electronic sign-stealing was illegal, accompanied by several efforts to deter it, including banning all live-feed television cameras except those used by broadcast stations, imposing an eight-second delay on live feeds from outfield cameras to monitors used by teams, and stationing MLB-authorized monitors near team staff members who observed monitors during the game to ensure that they engaged in no improper communication of opposing teams' signs.<sup>5</sup> The apparently blithe disregard of those warnings by the Astros, and very possibly other major

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<sup>4</sup> Peter Botte, "Astros cheating scandal: A.J. Hinch, Jeff Luhnow suspended full season for sign stealing," *New York Post*, January 13, 2020.

<sup>5</sup> Tyler Kepner, "In Astros Inquiry, Rob Manfred Raises Possibility of Big Penalties," *New York Times*, November 19, 2019.

league clubs, during the 2017 and 2018 (and even 2019) seasons allegedly served to fuel MLB's punitive response.

We are, at this writing, perhaps only at the tip of an iceberg which may end up revealing that electronic sign-stealing, like the use of steroids and other performance-enhancing drugs in baseball in the 1990s, has been endemic, extending throughout Major League Baseball. But the exposure of the Astros' electronic sign-stealing, whatever its implications for future developments, has already provoked a spectrum of comments from players, former players, and commentators. On one end of that spectrum have been comments, from such media personalities as ESPN analyst Jessica Mendoza, that Mike Fiers's knowledge that the Astros were engaged in electronic sign-stealing should have been kept to himself,<sup>6</sup> and postings on social media to the effect that "everybody cheats" in baseball and "cheating" is just another way of "getting an edge," so the revelations about the Astros amount to a tempest in a teapot. On the other end are comments by such former players as Hank Aaron, baseball's all-time leader in runs batted in, that any player shown to have been engaged in electronic sign-stealing should be banned from baseball for life.<sup>7</sup> So there might be something to be said, at this point, for introducing some perspective on "cheating" in baseball, and what it has tended to mean over the years.

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Let's begin that inquiry by fashioning some distinctions. Sports have what can be called "written" and "unwritten" rules. In baseball there is a written rule that if a batter standing in the batter's box is hit by a pitch, he is awarded first base. But there are also two unwritten rules connected to that written rule. One is that sometimes pitchers will throw balls in the direction of batters, forcing them to move out of the way of the ball or be

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<sup>6</sup> Joe Rivera, "Jessica Mendoza has curious, confusing take on Mike Fiers and the Astros' sign stealing," *Sporting News*, January 16, 2020. Mendoza originally said that "to go public, it didn't sit well with me," and that "it's something you don't do." She subsequently attempted to "clarify" her comments, stating that she objected to Fiers's talking to a reporter rather than first approaching Major League Baseball. Howie Kussoy, "Jessica Mendoza, Mets advisor, backtracks after ripping Mike Fiers," *New York Post*, January 16, 2020.

<sup>7</sup> Des Bieler, "Hank Aaron thinks sign-stealing Astros players should be banned from baseball," *Washington Post*, February 7, 2020.

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hit, in order to prevent batters from standing in an advantageous position in the batter's box. That action by pitchers is often referred to as "brushing back" or "dusting off" a batter. It is not usually treated as a violation of anything; sometimes it is treated as good strategy.

The other unwritten rule connected to pitches that force a batter to move out of the way or get hit is not just directed at the existence of such pitches, but at pitchers' motivation. Sometimes a "brush-back" pitch directed at a batter will be treated as provocative by that batter's team. Or sometimes a pitch that hits a batter will be treated as deliberate on the pitcher's part, and also provocative. When that happens there is an unwritten rule that the pitcher whose teammate was brushed back or hit by a pitch is expected to "retaliate" by hitting, or trying to hit, an opposing player. That unwritten rule is so widely understood in major league baseball that after some "brush backs" which are thought to be retaliatory, umpires will warn both teams that future attempts will result in players being ejected from the game, or will even eject players (and sometimes managers) without a warning.

The written and unwritten rules about pitches thrown in the direction of batters illustrate the hazy lines between what is "illegal," what is "unethical," and what is simply good strategy in baseball. Hitting a batter with a pitch is treated as illegal in the sense that it results in a penalty against the pitcher's team: the batter is awarded first base even though he did nothing except get hit. Retaliatory "brush back" pitches are treated as unethical, and sometimes illegal (when they result in players being ejected) in that they increase the risks that players may get injured and implicitly encourage pitchers to throw at batters. But pitches thrown in the direction of batters to discourage them from standing in particular positions in the batter's box are not only not regarded as illegal or unethical, but as efforts on the part of pitchers to achieve a strategic advantage. Moreover, the two unwritten rules associated with pitches thrown in the direction of batters assume that players can correctly interpret the motivation of pitchers. Statements from pitchers, on hitting or nearly hitting batters, that the pitch "just got away from me" are routine, and players typically assume that they are in a position to assess whether the statements are candid.

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With the above distinctions in place, let's consider the various "sign-stealing" practices in baseball.

First, consider signals between pitchers and catchers. Because baseball pitches are of varying speed, spin, and direction, it is to a batter's distinct advantage to know whether a forthcoming pitch is a "fastball," with high velocity but little break; various sorts of "breaking balls," such as curves, sliders, or cutters; or a "change up," a pitch that appears to be of high velocity when released by the pitcher but is actually slower because of the way the pitcher holds and delivers the ball. Since hitting a baseball requires instantaneous reaction to a small projectile being thrown at high speed to a particular location, pitchers obviously don't want batters to know in advance what sort of pitch to expect.

But pitchers cannot just throw any pitch they choose without letting their catchers know in advance. This is because catchers are entrusted with keeping balls secure after they pass a batter. And if catchers don't know what pitches are coming, they may not be able to react in time to secure them. Catching a pitched baseball requires the same sort of instantaneous reaction as hitting it.

Hand signs between catchers and pitchers, indicating what will be coming, have long been a part of baseball. Signs are typically given to the pitcher by the catcher, who displays combinations of fingers on his bare hand, which is positioned between his legs (to conceal signs from opposing players) as he squats to receive a pitch. The pitcher, on seeing the catcher's signals, responds by nodding or taking no action, either of which can indicate that he will throw the pitch the catcher has suggested, or shaking his head, indicating that he does not want to throw the suggested pitch and inviting the catcher to flash another round of signals with a different pitch selection.<sup>8</sup>

It is possible for opponents to view the catchers' signs from some places on the field. One is second base. Another is the batter's box itself, where

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<sup>8</sup> In modern major league baseball, pitch selections are often made by a pitching coach or manager seated in the dugouts located along the foul lines of baseball fields. The coach or manager flashes signs from the dugout to the catcher, who begins the sequence of each pitch by looking into the dugout, receiving the pitch selection, and relaying it to pitcher. Should the pitcher "shake off" that selection, it is the catcher, not someone in the dugout, who typically signals the next selected pitch.

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the batter himself can simply turn his head and view the catcher's signals at close range. But one of the longest and most rigorously enforced unwritten rules of baseball is that batters are not to "peek" back at the catcher. If a batter is felt by the opposing team to be "peeking," it is a virtual certainty that he will soon have a pitch thrown in his direction.

Because runners on second base, being on the same viewing plane with respect to home plate as pitchers, have the capacity to view catchers' signs, a common ritual of play, when a runner reaches second base, is for the pitcher, catcher, and middle infielders to meet at the pitcher's mound to alert each other about the revised signals. The expectation is that any baserunner discerning a sign would attempt to alert a batter through some signal of his own, and that revising the catcher's signals prevents baserunners from amassing a large enough sample size of signals and pitches to learn what pitches might be coming.

Second, consider signals between coaches, managers, and players, which, like those between catchers and pitchers, have long been a part of baseball. First- and third-base coaches signal baserunners and batters about base-stealing, bunts, "hit and run" maneuvers, and other plays. Managers often flash hand signals (and other signals – adjusting a baseball cap, brushing a sleeve, and the like) from the dugout to coaches and players. As with the catcher's signals to the pitcher, the expectation is that mixing and changing signals will make it difficult for the opposing team to decipher the messages being transmitted. Unlike a batter's "peeking" to view a catcher's signals, which is not made illegal by any written rule of baseball but has invariably been treated as unethical and subject to unwritten sanctions, discerning these signals is not treated as either illegal or unethical, but is instead *encouraged*.

Third, consider the difference between on-field and off-field detection and sharing of signs. The scope of "sign-stealing" has been implicitly limited by another of baseball's unwritten rules – the rule that sign-stealing needs to be done "on the field." If a clever baserunner, stationed on second base, determines a pattern between a catcher's set of signals and the pitches thrown by a pitcher, he is encouraged to try to communicate with the batter using signals of his own. Baseball lore is filled with stories of such clever characters.

Stealing signs from off the field, through the use of devices to allow long-distance viewing of catchers' signs or electronic communications from

persons off the field to managers or players, has long been disapproved of,<sup>9</sup> although evidence has surfaced suggesting that the practice has regularly been attempted, sometimes successfully.

It has been reported, for example, that in 1951 the New York Giants stationed a player, Hank Schenz, in the manager's office in their clubhouse behind the center field stands, more than 450 feet from home plate, with a "spyglass" folding telescope, trained on the opposing catcher. After Schenz had viewed enough signals and pitches to determine what pitches were being called, he communicated that information to players in the Giants' bullpen, located beyond the outfield stands in center field, by sounding a buzzer. If the forthcoming pitch was a fastball, Schenz would take no action; if it was a breaking ball, he would sound the buzzer. Between every pitch the Giants' bullpen catcher, Sal Yvars, would either take no action if a fastball was coming, or throw a ball in the air if a breaking ball was expected. The Giants' batter would look towards the bullpen to receive the signal.

It has been alleged that the Giants were stealing signals when Bobby Thomson hit a historic home run off the Brooklyn Dodgers' pitcher Ralph Branca in the ninth inning of the deciding game of the three-game 1951 National League playoff between the Giants and the Dodgers. Thomson's home run came on Branca's second pitch, a high inside fastball, after Branca had taken a fastball strike on the first pitch. The home run won the playoff for the Giants, 5-4. Approximately 50 years later some players on the Giants' roster and their relatives, including Yvars and Schenz's son, disclosed the sign-stealing. Other players, while acknowledging that it took place, denied that it had occurred in the 1951 playoffs, and Thomson denied having any

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<sup>9</sup> Major league baseball had a longtime rule essentially prohibiting sign-stealing from anywhere except second base, although that rule was not enforced with respect to teams' efforts to discern signs given by coaches on the field and managers or coaches in dugouts. In the spring of 2019 MLB announced that it was updating the rule limiting sign-stealing only to second base to ban all in-house cameras from foul pole to foul pole; limiting live feeds of broadcasts, designed to allow teams to ask for replays of umpire decisions on the field, to designated replay officials, who were monitored to prevent them from communicating information about signs to other team personnel; and imposing an eight-second delay for television monitors in team bullpens and clubhouses to receive game broadcasts. Tom Verducci, "MLB Set to Pass New Rules Designed to Crack Down on Sign Stealing," *Sports Illustrated*, Feb. 19, 2019.

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advance notice of what pitches Branca was throwing. Branca, who was also alive when the Giants' sign-stealing was revealed, said that he believed Thomson may have known a fastball was coming on the second pitch.<sup>10</sup>

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All of this suggests that two somewhat irreconcilable attitudes about cheating in baseball are affecting the reactions to the Astros' and Red Sox's practices. One is the attitude that competition in sports is not just about winning but about "fair play," meaning competing within the rules of a sport so as to not take undue advantage of competitors. "Competing within the rules," according to this attitude, means adhering not merely to the letter of rules but also to their spirit.

An illustration is the "no peeking" rule for batters. Why might this unwritten rule exist, and why is it not written? The answer to the latter question seems to be that "stealing signs on the field" is not prohibited in baseball, indeed it is implicitly encouraged, and when a batter, standing in the batter's box, peeks behind him in an effort to decode the catcher's signs, he is "on the field."

The answer to the former question has to do with the attitude about "fair play." Every player knows that pitchers try to conceal the particular pitches they are throwing, in order to throw off a batter's timing and prevent him from "being comfortable" preparing to hit, expecting only one type of pitch. Every player also knows that catchers need to recognize what pitch is coming in advance, in order to anticipate their courses and secure them once they have passed a batter.

A basic "fairness" in baseball is thus achieved by the pitcher's not being able to throw any type of pitch without advising the catcher what type is coming, and the batter's not being able to know what type of pitch to expect. Since pitching effectiveness is greatly increased by pitchers being able to throw types of pitches that react differently when they approach the batter, allowing the batter to learn in advance what type of pitch will be thrown gives the batter an unfair advantage. On the other hand, allowing pitchers unlimited freedom to throw any pitch they choose without the

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<sup>10</sup> For comments by Schenz's son, Yvars, Thomson, and Branca about sign-stealing in 1951 and the National League playoffs that year, see the YouTube documentary on the 50th anniversary of the 1951 playoff, [www.youtube.com/watch?v=IHSdzb37vOg](http://www.youtube.com/watch?v=IHSdzb37vOg) (2001).

catcher's knowledge might well result in numbers of pitches being missed by catchers and create chaos on the field.

But then why doesn't baseball extend the "no peeking" rule to all hand signals? Why not have unwritten rules prohibiting opposing teams from trying to determine whether a coach or manager has hand-signaled a player to steal a base, bunt, engage in a "hit and run," or simply avoid swinging at a given pitch altogether? Coaches and managers, after all, are constrained from shouting out those instructions within earshot of their opponents and are limited in the number of times they can visit players on the field to give instructions. They are in that respect like catchers: most of the time, when instructing players about what to do next, they need to resort to covert hand signals.

When opposing players or coaches detect those kinds of hand signals, they are at a distinct advantage. They can, for example, order the pitcher to "pitch out" if they know a player is about to steal a base (that is, throw a ball well out the strike zone so that the catcher can easily handle it in preparation for trying to throw the base runner out). And, of course, if a base runner on second base has stolen the catcher's signals to the pitcher, they can alert a batter to what type of pitch may be coming.

We have seen, however, that not only is detecting hand signals on the field (except by batters "peeking") not barred by written or unwritten baseball rules as unfair, it is affirmatively encouraged, and players and coaches who are gifted at detection are regarded as objects of admiration and respect. Here one sees evidence of the other attitude affecting responses toward alleged "cheating" in baseball. The attitude is that winning competitive matches is as important, perhaps even more important, than "fair play." If one is able to bend, or even break, written rules to one's advantage ("bending" the rule by not strictly adhering to it, "breaking" it by violating it but not getting sanctioned for the violation), the attitude suggests that "all's fair" so long as bending or breaking rules promotes winning.

Over the years, numerous MLB players have gained a competitive advantage by their ability to bend or break rules. It is illegal, in the sense of warranting expulsion from a game, for pitchers to deliberately hit batters, base runners to "take out" infielders seeking to complete double plays by going out of their way to slide into them, baserunners to slide into bases with their spikes raised (that is, threaten to cut players guarding the bases

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unless they move out of the way), or infielders to throw balls directly in the path of baserunners to discourage them from seeking to break up a double play. It is illegal for pitchers to alter the surface of baseballs by covering them with saliva, resin, vaseline, or other substances designed to alter the flight of pitches. And so on and so on. Yet baseball has been populated with players, several of them now in the Hall of Fame, known for such practices. The euphemistic term for such players has been “fierce competitors.”<sup>11</sup> And of course clubs have consistently sought to configure their home fields to their advantage, raising or lowering the ground near foul lines in response to whether their teams contain speedy runners, apt to beat out bunts or slow infield grounders, and reducing or extending the distances to outfield fences in response to how many prospective “long-ball” hitters a team’s lineup contains. No one suggests those club practices are illegal or even unethical.

So there are potentially two ways to think about electronic sign-stealing in terms of those competing attitudes. One is that it is simply a modernized version of a long-established and even encouraged means of “getting an edge” in a competitive sport where winning counts a good deal. According to this argument, electronic sign-stealing is like the use of video replays to help players observe their past at-bats or rehabilitative techniques designed to allow players to recover more quickly from injuries. It is simply improving an existing, sanctioned practice through the use of modern technology. If teams can use live broadcast feeds from games to determine whether to undertake replay challenges to umpires’ decisions, why can’t they use the same feeds to detect catchers’ signals? Teams seek competitive advantages on their rivals through technology in many ways, not only through the battery of digitally-driven player evaluations known collectively as “analytics,” but by a whole series of other business decisions directed at

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<sup>11</sup> Some illustrations: Ty Cobb, known for sliding into bases with his spikes pointed toward the player covering the base; Bob Gibson and Nolan Ryan, fastball pitchers known for hitting batters whom they felt stood too close to the plate to gain an advantage or even for bunting against them; Jackie Robinson, who regularly slid hard into infielders to “break up” potential double plays; and Early Wynn, a pitcher who won 300 games, largely through the covert use of “spitballs.” All those players are in the National Baseball Hall of Fame.

discerning the market value of players. Why is electronic sign-stealing any different?

The other way to think about electronic sign-stealing is that it is qualitatively different not only from other forms of sign-stealing but also from other technological innovations in baseball. Unlike those practices, it is an effort to gain competitive advantage that violates the fair play principle. It does so by injecting into competition an element that is not thought to be part of a baseball “game.” On-the-field sign-stealing is “part of the game” because all players, coaches, and managers are aware of the need for covert signals to communicate directives to players and can witness the attempts of team personnel to do so. If opponents are clever enough to detect signals, that is no less a “part of the game” than shifting the positions of infielders or outfielders in accordance with the known tendencies of batters to hit balls in various places on the field.

Sign-stealing, whether of the Giants’ 1951 variety or the Astros’ “Codebreaker” version, introduces elements into baseball that are not expected to be part of it and are known only to one side. If Sal Yvars had had extraordinary vision that enabled him to see opposing catchers’ signs from the Giants’ centerfield bullpen, his tipping off Giants’ batters to what pitches were coming would merely have been gaining an advantage within the rules. But using a concealed spyglass to do so – employing an instrument not acknowledged as part of the game whose use was hidden from the Giants’ opponents – was gaining an *unfair* advantage. The “Codebreaker” system employed by the Astros was no different. It had not been introduced as a part of Astros games; its existence was known only to the Astros; and they took pains to conceal it, not only because they did not want opponents to learn about it but because they knew that if exposed, it would be treated by MLB as an illegal rules violation.

In using “Codebreaker” the Astros were, in a word, “cheating” within the meaning of that term in baseball. They were using devices extraneous to on-the-field baseball to gain an unfair advantage. Their actions placed the principle of gaining competitive advantage in sport dedicated to winning in opposition to the principle of fair play, and the latter principle prevailed, resulting not just in significant fines to the Astros but the possible “tainting” of their successes in 2017 through 2019, when they won one World Series,

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lost another, and advanced to the American League championship series in a third season.

It may seem anomalous that the Astros should be denounced as “cheaters” when, over the years, so many MLB teams and players have sought to gain a competitive advantage by violating rules, and when much sign-stealing has not only been permitted but encouraged. But the “integrity” of major league baseball has been a persistent concern since at least the Black Sox scandal in 1919, and electronic sign-stealing, coupled with the growing permissiveness of professional sports toward sports betting, might be thought of as combining to create a nightmarish scenario in which gamblers might be motivated to seek information from players who knew their teams had gained an advantage from the practice. There is potentially a close line, in this scenario, between cheating in baseball and outright bribery or corruption. Baseball has been down that road once before, in 1919, so the Astros’ (and possibly the Red Sox’s) electronic sign-stealing is not, from a historical perspective, a trivial matter. On the contrary, it serves to demonstrate the very thin line between gaining competitive advantage, in a sport that prizes winning, and gaining unfair advantage. The line is thin, and sometimes blurry, but the integrity of the sport rests on its being maintained.

