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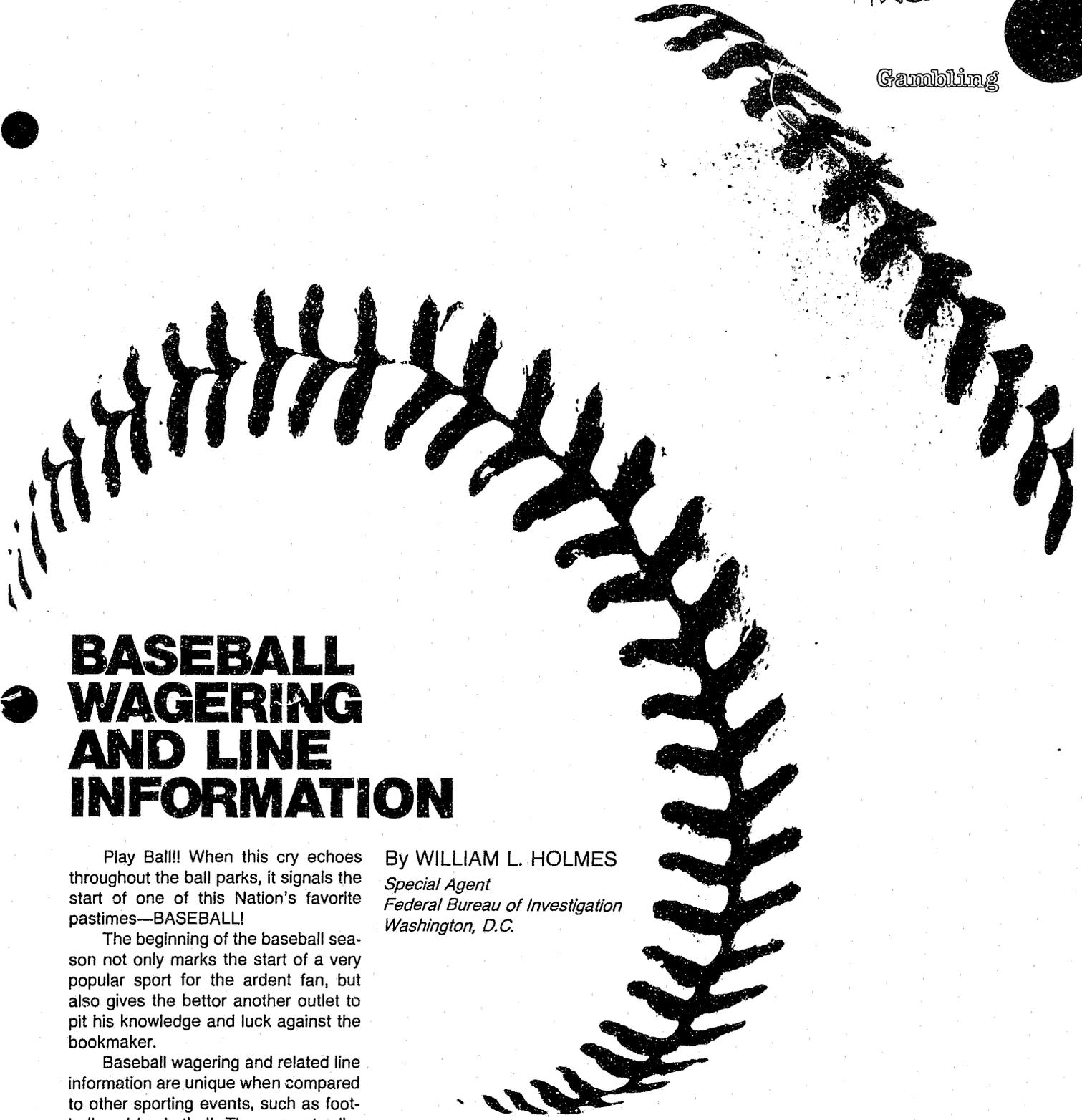
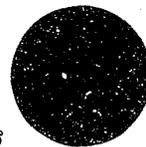
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BASEBALL WAGERING AND LINE INFORMATION

Play Ball!! When this cry echoes throughout the ball parks, it signals the start of one of this Nation's favorite pastimes—BASEBALL!

The beginning of the baseball season not only marks the start of a very popular sport for the ardent fan, but also gives the bettor another outlet to pit his knowledge and luck against the bookmaker.

Baseball wagering and related line information are unique when compared to other sporting events, such as football and basketball. These sports dictate the use of a basic point-oriented line which allows the bookmaker to compensate for existing differences when the best or favorite team and the worst or underdog team oppose each other.

By WILLIAM L. HOLMES
*Special Agent
Federal Bureau of Investigation
Washington, D.C.*

Generally speaking, a "line" is the points that are added to the underdog's final score or subtracted from the favorite's final score to match the teams more evenly for the purpose of wagering.*

The differences that exist between baseball and other sports are dictated by certain inherent characteristics of the game. These characteristics not only affect the derivation of the line, but also the method of calculating the potential payoff on winning or losing wagers.

Inherent Characteristics of the Game

A contributing factor that creates baseball's unique wagering traits is the length of the regular playing season. The first game of the season usually occurs during the first week of April, with the last game of the season usually being played during the first part of October. Thus, the regular season is approximately 6 months long.

A 6-month period is not a significant factor in and of itself. But when combined with the fact that there are 26 teams playing 2,106 regular season games during this period, it becomes a prime factor.

The 14 teams in the American League play 1,134 games, as compared to the 12 National League teams playing 972 games. In addition to the regular season games, there are approximately 24 preseason games per team and as many as 10 playoff games and 7 World Series games. The ratio of games played to the number of participating teams produces a situation where usually several games are played on any one day, and as in the case of doubleheaders, two games will be played on the same day by the same two teams.

Games played in rapid succession, as in baseball, put the bookmaker in a position where his line must be obtained in a relatively short period of time. This time factor reduces the feasibility of using a national baseball line.

A national line, such as in football, is developed primarily in Las Vegas, Nev., which acts as a clearinghouse for

the statistical and intelligence information assisting the individuals who formulate this line. Compilation of line information is time consuming, but since a professional football team plays on the average of once a week, there is sufficient time for this process.

The statistical data required for the football line, to put it simply, is based on a team's overall performance. However, there are several other interacting variables, including the knowledge and experience of the individuals formulating the line.

“. . . the baseball line is based primarily on the performance of one individual—the pitcher.”

The primary difference between the football line and the baseball line lies in the performance factor. This characteristic, which contributes to the uniqueness of baseball, is the fact that the baseball line is based primarily on the performance of one individual—the pitcher. Since one team may play four games in 3 days and a starting pitcher may only pitch one of those four games, a statistical analysis would not project the true capabilities of that team because of the varying capabilities of each pitcher.

The Line

The baseball line is commonly expressed in two forms, the "pitchers" line and the "odds" line. However, before either of these is explained, it is necessary to have a fundamental knowledge of what odds are in relation to baseball.

The baseball line, as with any line, is compiled of several types of statistical data, as well as intelligence information. This data reflects the pitching record of a certain pitcher, his record against a specific team, whether he is left- or right-handed, the team's overall performance against the opponent, etc., with the final results expressed as "odds."

Odds

The expression "true odds" is a method of illustrating what the probability is of an event occurring within the relationship of a total series of events. An example would be to calculate what the odds would be to roll a seven on one roll of a pair of dice. With 2 dice, each bearing numbers 1 to 6, there are 36 possible combinations. A seven may be rolled six different ways; therefore the probability of rolling a seven on any given throw would be 6/36 (reduced to 1/6) or true odds of 5 to 1 against rolling a seven. This concept is based on a series of events occurring over a period of time. The concept of true odds *per se* cannot be applied to events where the outcome depends on the performance of man or beast. This is because the statistical data produced is not consistent from one contest or race to the next.

In sport events, each game is handicapped on the results of performance of prior games. Therefore, the odds projected for one team in a single contest would change for that same team in the next game in which it participated.

Theoretical Odds

The theoretical odds, when applied to sports, is what the handicapper believes would be the outcome of an event that occurs a specified number of times. A theoretical line of 6/5 would indicate that if 2 teams oppose each other 11 times, the favorite would win 6 times and lose 5 to the underdog. From a theoretical standpoint, the odds translated into a wagering situation would be expressed as:

L.A. Dodgers Hooton 6/5 over
Yankees Figueroa

In this example, the Dodgers with Hooton pitching are favored to win 6/5 over the Yankees with Figueroa pitching. Thus, when these two teams meet, and if these two pitchers oppose one another, Hooton should win six games while losing five.

*See "Sports Wagering and the Line," *FBI Law Enforcement Bulletin*, Vol. 46, No. 11, November 1977, pp. 3-8.

Wagering terminology can be misleading. A wager placed by a bettor using the phraseology "Hooton 6/5" merely means that if Hooton pitches for the Dodgers, the line is 6/5.

Now if a bettor will bet on the Dodgers only if Hooton pitches, he will indicate "PMG" or "pitcher must go." If Hooton does not pitch, the bet is off. If a bettor has no preference as to who will pitch for the Dodgers, he will indicate this by saying, "Give me the Dodgers with action." For example, a bettor placing a wager of \$500 on the favorites, the Dodgers, at a line of 6/5 would be required to put up or risk \$600 to win \$500. To place a wager on the underdog, the Yankees, the bettor would be required to put up or risk \$500 to win \$600.

Figure 1 illustrates what the profit or loss potential for a bookmaker would be using the same teams and a 6/5 line for different betting situations. It makes one very important point—a bookmaker will only make a profit when the winning team has the least amount of wagers bet on it.

In order for a bookmaker to operate under these conditions, he would have to be very selective about the wagers he accepts and would have to know consistently which team was going to win.

In reality, this situation does not exist, since a bookmaker is profit motivated and would use a system that would guarantee him some profit potential.

A line used by a bookmaker has this built-in profit margin called "juice" or "vigorish."

Dodgers 6/7 Hooton over
Yankees Figueroa

The line indicated here has the vigorish included and would be expressed as Dodgers 7 to 5 and Yankees as 5 to 6.

Figure 2 illustrates what the final outcome would be, from the bookmaker's standpoint, in the same wagering situations as shown in figure 1 using a line with the vigorish built in.

A most important factor revealed in figure 2 is that when a bookmaker accepts an equal amount of wagers on both sides of a single contest, he cannot lose. He will either break even or show a profit. This situation is known as a "balanced book."

As a practical matter, a bookmaker often will purposely accept more wagers on one team than the other in a single contest to increase his gross profit potential. He makes this decision based on various factors, including his personal knowledge and the betting patterns of "wise" bettors (individuals who are very knowledgeable regarding the potential outcome of sport events).

If a bookmaker does maintain a balanced book, as in football wagering, he will be assured of an approximate 5 percent profit. This is because the vigorish charged is separate and apart from the line. Therefore, no matter what the line is, or how often it may change, he will still be assured of that 5 percent potential profit margin over a long period of time.

To reiterate, since the juice or vigorish is included in the line in baseball wagering, it becomes much more difficult to determine whether or not a balanced book exists. Additional factors contribute to this difficulty. For example, a split line may be used, or there may be several different lines for each game that is played in any one day.

Figure 1

Team	Odds	Wager	Dodgers Won			Yankees Won		
			Pay	Collect	Bal.	Pay	Collect	Bal.
Dodgers	6/5	\$500	\$500				\$600	
Yankees	5/6	500		\$500	Even	\$600		Even
Dodgers	6/5	1,000	1,000				1,200	
Yankees	5/6	500		500	-500	600		+600
Dodgers	6/5	500	500				600	
Yankees	5/6	1,000		1,000	+500	1,200		-600

Figure 2

Team	Line	Wager	Dodgers Won			Yankees Won		
			Pay	Collect	Bal.	Pay	Collect	Bal.
Dodgers	6/7	\$500	\$500				\$700	
Yankees		500		\$500	Even	\$600		+100
Dodgers	6/7	1,000	1,000				1,400	
Yankees		500		500	-500	600		+800
Dodgers	6/7	500	500				700	
Yankees		1,000		1,000	+500	1,200		-500

As a result of these variables, it would not be practical to estimate what the baseball bookmaker's potential profit margin would be over a long period of time.

"A Baseball Line By Any Other Name. . ."

A recognized fact is that bookmakers from different parts of the country use, what appears to be on the surface, different types of lines. However, these lines have basically a common derivation—the odds line.

As stated previously, the baseball line, unlike the line in football, has the vigorish or juice included, and as a result, the bookmaker's profit potential will fluctuate according to the line. This is one important factor which makes it necessary for the bookmaker to have several different lines, allowing him to protect his profit potential.

Phraseology or terminology is an implied concept of usage association. Terms or phrases used by bookmakers follow this concept. A prime example is the term "pitchers line."

A bookmaker who disseminates a line, such as 6/7, and specifies a certain pitcher is stating that the line quoted is only valid if that particular pitcher starts. If this pitcher does not pitch, and the alternate pitcher is not of the same caliber, the bookmaker will change the odds or line.

The fact that two lines may exist for a particular game reinforces the concept that the outcome of a particular game relies heavily on the performance of the pitcher. This dual line factor raises the question of how to communicate this difference between the bookmaker and his customers, the bettors.

The term "pitchers line" resolves this problem. When a bettor calls his bookmaker and requests the pitchers line, it is known exactly what he means. The pitchers line tell the odds given for a pitcher designated in the starting line-up. If a bettor requests the line for a particular *game*, the bookmaker can assume that he wants his bet to go regardless who pitches.

Another example of this concept of implied usage association would be the term "money line." In this example a conversion factor is used to change the odds quoted into a monetary figure.

Other examples would be the "10 cent line" and the "20 cent line." In these lines, a mathematical calculation is used to convert the fractions (odds) to a decimal equivalent, which denotes primarily what the profit potential is percentage-wise.

A more detailed explanation of the above-mentioned lines, as well as others, will help the reader understand the complexities of baseball wagering.

". . . the baseline, unlike the line in football, has the vigorish or juice included. . ."

20 Cent Line

In football there are certain wagers for which bookmakers will charge the bettor 20 percent vigorish. In these situations it is relatively easy to determine what the wager will cost the bettor regardless which team he bets on. By adding 20 percent of the initial wager to the wager, the bettor can determine how much money he has to put up or risk to win an amount equal to the original wager.

As stated previously, a bookmaker will include the vigorish or juice in the baseball lines he disseminates to his customers. The basic information used to compile these lines is the theoretical odds line and the appropriate conversion factor.

The theoretical odds uses a base factor of 5. (See fig. 1.) Therefore, to convert this line to a 20 cent line, the following calculations are necessary. To add the 20 percent vigorish, which gives the bookmaker a predetermined profit potential, you take 20 percent of the base 5, which results in 1.00. You have two teams in a single game and must divide the 1.00 figure by 2 which is .50 or 1/2. This amount is then subtracted from the odds quoted for the underdog and added to the odds quoted for the favorite. (See fig. 3.)

Figure 3

Theoretical odds 6/5	
Favorite—put up 6 to win 5	
Underdog—put up 5 to win 6	
Conversion:	
Favorite	Underdog
6-5	5-6
+ 1/2	- 1/2
<hr/>	<hr/>
6 1/2-5	5-5 1/2
<hr/>	
20 Cent Line—5 1/2-6 1/2	

Another method, which is used more often by bookmakers, is to move only one side of the line, usually the underdog. This would result in risking 6 to win 5 on the favorite and risking 5 to win 5 on the underdog. This line is also known as 6 to 5 even and is later discussed in more detail. This method is what a bookmaker would use to form his betting line. When a bettor receives a line from his bookmaker, he could determine what type of line it was by the method shown in figure 4. The larger the profit potential the greater advantage the bookmaker has, and

Figure 4

Line 5 1/2-6 1/2	
Favorite 6 1/2-5	
Underdog 5-5 1/2	
<hr/>	
Difference between 5 1/2 and 6 1/2 is 1 thus 1/5 = .20 or 20 Cent Line	

conversely, the smaller the profit potential the greater the advantage is for the bettor.

10 Cent Line

The 10 cent line also uses the theoretical odds as the basis for computing a betting line for baseball with a 10 percent profit margin potential. The theoretical odds line, as reflected in figure 3 (6/5), is used in figure 5 to illustrate the method of conversion.

Figure 5

Conversion:	Line 6/5
6 - 5	5 - 6
+ 1/4	- 1/4
6 1/4 - 5 Favorite	5 - 5 3/4 Underdog
10 Cent Line = 5 3/4 - 6 1/4	

In this case, to add 10 percent vigorish, multiply the base 5 by 10 percent. This equals 50, and since there are two teams per game, divide by 2, which equals 25 or 1/4. This is the conversion factor used in figure 5. As illustrated, 1/4 is added to the odds quoted for the favorite and subtracted from the odds quoted for the underdog.

The same method, as used for the 20 cent line, is used to determine if a given line is a dime or 10 cent line. In this case, the difference between the 5 3/4 and 6 1/4 is 1/2 or .50. Divide .50 by the base, which is 5, which equals .10 or 10 cent line.

Figure 6 is a list of the true odds which a bookmaker uses as the basis for deriving his betting line.

Using figure 6, the bookmaker can formulate several betting lines using one set of true odds. For example, a dime line, 20 cent line, 40 cent line, etc., depending on how much profit potential he wishes to include, can all be formed from the true odds of 6/5.

A bookmaker who uses a 40 cent line is taking advantage of his customers, inasmuch as he would have a 40 percent profit potential. Also this type of line would probably only be used

when the capabilities of the favored team are so overpowering that the underdog has very little or no chance of winning.

It should be noted, using figure 6, that as the ratio between the two digits of the quoted odds increases, the greater the difference between two opposing teams' capabilities becomes.

For example, the line "even" or "1 to 1" indicates that the two opposing teams are evenly matched and an equal probability exists that either team can win a single contest. The line "7 to 2" indicates that if two teams were to oppose each other nine times, the favorite would win seven and the underdog twice.

A bookmaker will not usually use all of the odds quoted in figure 6, because if the odds were overwhelming in favor of one team, he would not be able to attract wagering on the opposing team or underdog. Usually when the line nears 2 to 1, the bookmaker will revert to a runs line. In this situation, the bookmaker would formulate a line using "runs" and then charge the bettor 6/5 or 11/10 regardless which team was wagered on.

A prime example of this situation occurred during the 1977 baseball season (July 17) when the Houston Astros played the Cincinnati Reds. The Las Vegas line was Astros +1 1/2 and the Reds -2. This is to say that if a bettor wagered on the Reds, 2 runs would be subtracted from the Reds final score,

Figure 6

EVEN (1 to 1)	23 to 10
11 to 10	12 to 5
6 to 5	5 to 2
13 to 10	13 to 5
7 to 5	27 to 10
3 to 2	14 to 5
8 to 5	29 to 10
17 to 10	3 to 1
9 to 5	31 to 10
19 to 10	16 to 5
2 to 1	33 to 10
21 to 10	17 to 5
11 to 5	7 to 2

and if the remaining runs were greater than those scored by the Astros, the wager would have won. And conversely, if the wager was placed on the Astros, 1 1/2 runs would be added to their final score, and if this total was greater than the final score of the Reds, this wager would have won.

This type of line, "1 1/2 -2," is called a split line and indicates that each team of a single contest has a different line. This type of line prevents "ties" from occurring. Another example of a "runs line" would be "2." This means that if you bet on the favorite, you subtract 2 runs from the final score, and if betting on the underdog, add 2 runs to the final score. When runs are indicated, the number of runs are usually placed adjacent to the favorite and always denotes a minus figure, while the opposite or positive figure would refer to the underdog, providing, of course, that a split line is not used.

As you can see, a runs line is similar to the football line and is only used to determine which team is the winner of a specific contest. This type of line does not reflect the bookmaker's profit margin potential, and as a result, would not indicate to the bettor what he was going to charge, i.e. 6/5 or 11/10 (20 percent or 10 percent vigorish, respectively.)

Even

The terms "even" and "pick" are other examples of the usage association concept. In some sports these terms are used interchangeably, but in baseball each term has a special meaning.

The term "even," when used in conjunction with a line, can be expressed as "6/5 even" and becomes a part of that line. (See fig. 7.)

In the opinion of the handicapper, this line indicates the possibility of a close game, or more specifically, that one team has a slight advantage.

Figure 7

Line 6/5 even or 6 even

Favorite put up 6 to win 5

Underdog put up 5 to win 5

Difference between 5 and 6 is 1

Thus 1/5 or 20

This line is a 20 cent line; therefore, the profit potential is still 20 percent, but the bookmaker is given an added advantage. This advantage is reflected in the wagers he accepts on the underdog, where his payoff potential is reduced to even money as indicated in figure 7.

Pick or Pickem

A "pick" or "pickem" line is another indication of a close game. This type of line points out the fact that either team of the same contest has an equal probability of winning. A pick line expressed as "5½ pick" is shown in figure 8.

Figure 8

Line 5½ Pick

Team A put up 5½ to win 5

Team B put up 5½ to win 5

Difference between 5½ and 5 is ½ therefore ½/5 or .5/5 is .10

As indicated in figure 8, this line gives the appearance of being a 10 cent line. From the bettors standpoint this is true, because a mere better usually would only bet on one team of a single contest. But from the bookmaker's viewpoint, this is approximately a 20 cent line. The reason is that wagers accepted by the bookmaker on Team A yield a 10-percent profit potential and wagers accepted on Team B, at this line, also retain a 10-percent profit potential, thus you have approximately a 20 percent profit potential which is a 20 cent line.

Money Line or Pitchers Line

The "money line," or quite often referred to as the "pitchers line," is a method of expressing baseball lines, such as the dime line, 20 cent line or 40 cent line, in a dollars and cents figure. This method of expressing the baseball line has one principle advantage—it allows the bookmaker to calculate rapidly what his collections or payoff amounts will be for a specific wager. A line expressed as 6/7 can be converted to a money line by following the calculations in figure 9.

Figure 9

Line 6/7

Difference between 6 and 7 is 1 therefore 1/5 is .20 thus a 20 cent line conversion factor is 20

Multiply $20 \times 6 = 120$

$20 \times 7 = 140$

Money line is 120/140

In a like manner, the 10 cent line can be converted to a money line using 10 as the conversion factor.

A money line uses a base of 100; therefore, to bet on the favorite a bettor would put up or risk 140 to win 100. To bet on the underdog a bettor would have to risk 100 to win 120.

It is easy to see why this type of line would aid the bookmaker in calculating payoffs and collections, inasmuch as the 140 could denote \$1.40, \$140, \$1,400, etc.

The money line can also be expressed, using a shorthand method as "20/40." By dropping the hundredth's digit, you get the shortened version of the line (120/140) without changing its meaning.

Balanced Book

A balanced book, mentioned previously to explain its correlation with line information, requires a more detailed explanation to illustrate the differences which exist between a bookmaker accepting wagers on football and basketball games as opposed to one accepting wagers on baseball games.

A theoretical balanced book would denote the same amount of wagers being accepted on both sides of a single contest. This, as it applies to basketball and football games, gives the bookmaker approximately a 5 percent profit margin potential over a long period of time.

In reality, a bookmaker will not maintain a perfectly balanced book. In fact, in many instances, he will prefer to have more wagered on one side of a game than on the other to increase his profit potential. This decision is based on the bookmaker's knowledge of the capabilities of each of the participating teams. Another factor which helps to formulate this decision is the betting habits of his customers. If he has some bettors who are not knowledgeable, he may not move his line in order to attract wagers on the opposing team, and he will retain these wagers instead of laying them off.

Two methods a bookmaker has to balance his book are, as mentioned above, "moving the line" and "lay-off wagers."

Moving the line means to change the points that are added to the underdog's score or subtracted from the favorite's score to attract wagering on the team on which he has the least amount wagered. This, in effect, makes the team most wagered on less attractive or profitable to bet on, from the standpoint of the bettor.

Figure 10

Game	Line	New Line
Favorite	-7	-8
Underdog	+7	+8

A bettor may decide that the favorite can win by 7 points. So with a line of 7, he may make his wager. Now, if the line was changed or moved to -8 for the favorite, as in figure 10, he may decide he would rather take the 8 points and bet on the underdog, because he does not think the favorite will win by more than 8 points.

A layoff wager is where the bookmaker will rebet all or a portion of the excess wagers, over an equal amount on both teams, with another bookmaker to reduce the potential of a substantial loss.

In baseball wagering it is more difficult for the bookmaker to recognize whether or not his book is balanced because he uses a split line and his profit potential is included in that line.

Figure 11 illustrates what percentage of the total wagers accepted will have to be on the favorite, at a specific line, in order for the bookmaker to retain his profit potential.

Therefore, in figure 11, if the favorite wins, the bookmaker will make a profit, if less than 58.33 percent of the total amount wagered is bet on the favorite (St. Louis). If the underdog wins, the bookmaker will show a profit, if more than 54.55 percent of the total amount of money is wagered on the underdog (Pittsburgh).

Thus, the bookmaker will make a profit, regardless which team wins, if he maintains the amount of money bet on the favorite to be between 54.55 percent and 58.33 percent of the total amount wagered.

If the above percentages were converted to a betting situation, they would reflect the information shown in figure 12.

It is most likely that only the most sophisticated bookmaker would use this type of calculation to maximize the equalization of wagers because of its complicated nature and the time required to make these calculations.

A bookmaker would most likely use his experience, knowledge of his bettors' wagering capabilities, knowledge of the sport he is "booking," and depend on a reliable line to accomplish the same goal, i.e., what he feels is a balanced book.

This article attempts to explain the fundamental concepts of the methodology and terminology used by a "gambling business" (i.e. a bookmaker) accepting wagers on baseball games.

The "western line" is an example of this line variation. The western line is, as the name denotes, used on the

Figure 11

Line 6/7

(x) St. Louis 7-5
(y) Pittsburgh 5-6

x = amount of money that can be bet on St. Louis
100 = total amount wagered
Base = 5 or 5.00

Line ratio for favorite (St. Louis) = $\frac{\text{to win } 5.00}{\text{put up } 7.00}$

$\frac{5.00}{7.00}x = \% \text{ of } x$ Solve: $x + \frac{5.00}{7.00}x = 100$

$$\begin{aligned} 7.00 + 5.00x &= 700 \\ 12x &= 700 \\ x &= \frac{700}{12} \\ x &= 58.33\% \end{aligned}$$

Less than 58.33% is maximum amount that can be bet upon St Louis

y = amount of money that can be bet on Pittsburgh
100 = total amount wagered
Base = 5 or 5.00

Line ratio for underdog (Pittsburgh) = $\frac{\text{to win } 6.00}{\text{put up } 5.00}$

$\frac{6.00}{5.00}y = \% \text{ of } y$ Solve: $y + \frac{6.00}{5.00}y = 100$

$$\begin{aligned} 5.00y + 6.00y &= 100 \\ 11y &= 100 \\ y &= \frac{100}{11} = 45.45 \\ 100 - 45.45 &= 54.55\% \end{aligned}$$

More than 54.55% must be accepted on Pittsburgh

west coast, primarily in the Los Angeles, Calif., area. The only difference that exists between that line and the lines described in this article is that the derivation of the western line uses a base of 10 instead of a base of 5.

Since all variations of the baseball line use basically the same method of derivation, the bookmaker has the option of using whatever form he chooses without changing his profit margin potential.

When compared to other sports, there are two main factors which makes baseball wagering unique: First, the juice is included in the line, and second, the line is the product of the performance of primarily one player—the pitcher.

These factors tend to make baseball wagering appear complicated. Gaining an understanding of how a baseball line is derived and how to apply this line to betting situations should help remove this appearance of complexity and give the law enforcement officer confidence in dealing with baseball wagering. **FBI**

Figure 12

	Amt. Bet	To Win
(x) St. Louis	\$56.00	\$40.00
(y) Pittsburgh	45.00	54.00
If St. Louis wins:	pay-out	-\$40.00
	collect	+ 45.00
	profit	\$ 5.00
If Pittsburgh wins:	pay-out	-\$54.00
	collect	+ 56.00
	profit	\$ 2.00