

Photograph by Eversman Bros.

Diamond showing infield "grooves," home-run "grooves" and safety zones for bunts. Hard, hit balls following the direction of these "grooves" ought to go safe. It should be borne in mind in studying the photograph that these "grooves" are continually being made narrower and are often eliminated entirely by the team work of the defense, and that with a man like Wagner or Evers in the infield these "grooves" are reduced to scant width. The calculations are made on the basis of the velocity of balls traveling at the rate of one and a half seconds for one hundred feet and on the basis of the speed of players being six seconds for fifty yards. This photograph merely accentuates where the "grooves" and safety zones are; the photograph and diagram on pages 6 and 7 show more clearly the territories in a baseball field where line hits go safe.

extreme limit of finger reach and the foul line is a foot and a half. Therefore, to get back a millionths of watts, as there is $26\frac{1}{2}$ feet of ground unguarded out of 180 feet of defensible territory, Mr. Watts would argue that one ball every $6\frac{1}{2}$ hit on the ground at an average speed of $1\frac{1}{2}$ seconds for 100 feet will be safe. The fact is that, in the major leagues, only about one in 16 get past. Why?

Last season I arranged with scorers to record hits of various kinds, and secured the scores thus kept on 40 Central League games, 26 American Association games, and fourteen college games to compare with major league scores kept in the same manner. In the college games one grounder in every $8\frac{1}{2}$ passed the infielders. In the Central League one in $10\frac{1}{2}$, in the American Association one in $12\frac{1}{2}$, and in the American and National Leagues (45 games of my own scoring) one in every $15\frac{1}{2}$. The figures were amazing, as they followed so closely the classification of the leagues. They proved that there is reason for the "class," but the proof

is not found in mathematics, but in two words (unless you hyphenate them), "team work."

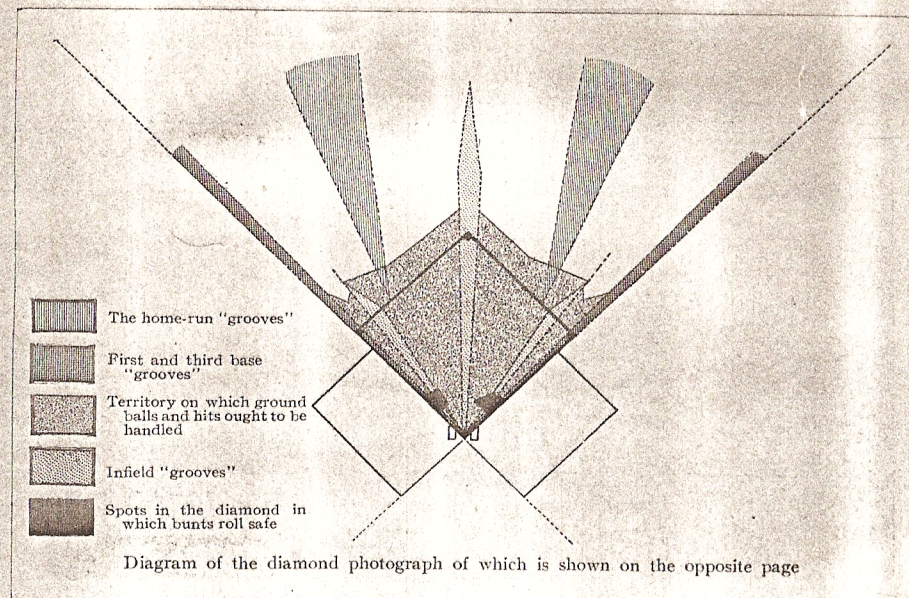
The truth is that the figures were truthful when baseball was in its swaddling clothes, but they lie egregiously now. The falsity of baseball mathematics is that the gaps in the infield exist just as wide as ever, but are closed by team work. The college player who reaches 8 in 9 grounders may be faster than the major league player who gets his hands on 16 out of 17, but he does not understand the science of filling the grooves.

The best testimonial to the ability of Johnny Evers, of the Chicago club, to fill these grooves was given on the bench of an opposing team last summer.

"Hit 'em where they ain't," growled one player to another who had just been thrown out by Evers.

"I do; but he's always there," retorted the other.

This science of defensive work which enables four men to cover 180 feet of ground is the most



fascinating part of modern baseball. It has become so intricate and involved that the spectator at a game of baseball between two highly developed teams really does not see the game at all. He sees the plays, the stops, the throws, the catches. He sees men shift and swing, change position, move forward, move back, move to the right or left, and then move back again, but all the beauty of the inside game is lost to him, nor does he imagine that behind each move is the master mind of a field general. The spectator yells himself purple in the face because Johnson fumbles a grounder and wonders why the manager "doesn't release that big stiff" for fumbling. Then he sits indignantly striving to imagine why the manager is plastering language upon Smith for failing to stop a ball he "couldn't have got anyhow."

"Inside baseball" is merely the art of getting the hits that "he couldn't have got anyhow."

Now watch this play closely. See whether or not you can discover what is going on. "Pat" Moran stoops behind the batter and hides his right hand back of his mitt. Ed Reulbach, pitcher, shakes his head affirmatively. Johnny Evers stoops, pats his hand in the dust, touches it to his knee and rests it upon his hip. Jimmy Sheppard trots twenty feet across left field angling in toward the diamond. Steinfeldt creeps slowly to his left; Tinker moves toward second base and Evers takes four or five steps back and edges toward Chance, who has

backed up five feet. Reulbach pitches a fast ball high and on the out corner of the plate. Mike Mitchell hits it. The crowd yells in sudden apprehension. The ball seems a sure hit—going fast toward right field. Evers runs easily over, stops the ball, tosses it to Chance and Mitchell is out.

You saw all that. The ball was hit in "the groove" directly at the $7\frac{1}{2}$ -foot gap the geometrician will say is vacant, yet Evers fielded it. Now this is what happened: When Moran knelt down he put the index finger of his right hand straight down, then held it horizontally on the top of his mitt. Evers saw that Moran had signaled Reulbach to pitch a fast ball high and outside the plate. He rubbed his hand in the dirt, signaling Tinker, who patted his right hand upon his glove, replying he understood. Then Evers rested his hand upon his hip, signaling Sheppard, the outfield captain, what ball was to be pitched. Sheppard crept toward the spot where Mitchell would hit that kind of a ball 95 out of 100 times. While Reulbach was "winding up," swinging his arm to throw the ball, Evers called sharply to Chance (whose good ear is toward him), and Tinker called to Steinfeldt. While Reulbach's arm was swinging every man in the team was moving automatically toward right field, in full motion before Mitchell hit the ball. The gaps at first base, between first base and second, over second base and between third and short, were