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A Comparison of Three Hand Positions of a Right Handed Pitcher on the Pick-Off Move to First Base in Baseball

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A COMPARISON OF THREE HAND POSITIONS OF A RIGHT HANDED PITCHER ON THE PICK-OFF MOVE TO FIRST BASE IN BASEBALL

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BY

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CHAPTER I

INTRODUCTION

A pitcher rarely has the opportunity to pitch an entire baseball game without a baserunner. Sooner or later in the game, the pitcher will have to face the situation of pitching with a man on first base. Much has been written concerning the footwork of the pitcher during an attempted pick-off, but very little has been written about the speed of the move. Since the success of the pick-off depends upon the speed and deception of the move, the writer feels that investigation in one of these areas would be most beneficial to coaches and managers in the game of baseball.

THE PURPOSE OF THE STUDY

The purpose of this study was to determine which move, from three different hand positions of a right handed pitcher, was quickest on an attempted pick-off throw to first base.

DEFINITION OF TERMS

The three positions being compared in this study are defined as Position A, Position B, and Position C. All three positions began with the legal position as described in the 1965 Baseball Rules Book.

> For the set position, the pitcher before starting his delivery, shall stand with his non-pivot foot in front of a line through the front edge of the plate with the ball in both hands in front of his body for at least one second. Natural preliminary motions such as a stretch may be made. If he elects to use the set position, he must have his pivot foot in front of it, before he takes any preliminary stretch with his arms. During these preliminaries and during the set position until a delivery motion occurs, the pitcher may turn on his pivot foot or lift it in a jump turn to step with the non-pivot foot toward a base while throwing or feinting as outlined in Article 4 of Section 2 or he may lift his pivot foot in a step backward off the plate. After the pitcher has placed his pivot foot on the ground clearly behind the plate, his right to throw or feint to a base is the same as that of any other fielder.[1]

Position A. - Position A refers to the first and most natural position of the hands. In this manner, the pitcher has the ball in both hands at about belt level, or slightly higher. This is usually referred to as the set position.

Position B. - Position B refers to the position of the hands when extended over the head. This position of the hands is difficult to master. The pitcher begins his move when the ball and the glove meet.

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[1] 1965 Baseball Rules Book, (Chicago: National Federation of High School Athletic Associations), p.22.

Position C. - Position C is sometimes referred to as the break and turn method. After reaching the position described in Position B, the individual lowers his hands which are holding the ball. This move is initiated when the hands reach a position slightly above the belt. The hands are separated and the move commences.

Move. - The term "move" refers to the footwork involved in the attempted pick-off to first base.

Receivable Throw. - A "receivable throw" is a ball thrown by the pitcher to the first baseman which with normal effort can be caught.

Pick-Off. - The "pick-off" is an attempt by the pitcher to catch a runner off base by throwing to either first, second, or third base. This study will deal entirely with the throw to first base.

Deception. - The "deception" of the pick-off attempt refers to any aspect of the pitcher's movement which does not seem natural or common from the baserunner's viewpoint.

Balk. - If there is a runner or runners, any of the following acts by a pitcher while he is touching the pitcher's plate is a balk:

a. Any feint toward batter or first base or any dropping of the ball even though accidental.

b. Failing to step with the non-pivot foot directly toward a base when throwing or feinting there in an attempt to put out, or drive back a runner.

c. Making an illegal pitch from any position not defined in Section 1.

d. Failing to pitch to the batter immediately after making any motion of any part of the body such as he habit-

ually uses in his delivery.

e. Failing to pitch to the batter when the entire non-pivot foot passes behind the perpendicular plane of the front edge of the pitching plate except when feinting or throwing to second base in an attempt to put out a runner.[1]

LIMITATIONS OF THE STUDY

The fact that this study was not conducted under game conditions might have had some effect on the results. The absence of a runner leading from first base could have had an effect on the pitcher since he usually uses the runner as a key when he is going to throw to first base or when he is going to throw to home plate.

It was not possible to have each pitcher practice from each position for any valuable amount of time. Therefore, it is possible that the amount of practice each individual had from each of these positions prior to the study might have had a limiting factor on the study. The writer believes from his experience that pitchers in professional baseball receive instruction and time for practice from each of the three different hand positions. Most pitchers have a favorite position from which to throw, but this does not necessarily mean that it is the quickest. Professional pitchers were chosen as subjects due to their past experience in the game of baseball. It was thought by the writer that the pitchers selected would be more homogeneous in ability than college or high school

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[1] Ibid., p. 24.

students would have been.

Since time was an important factor in the study, the writer feels that this is a limitation of the study. A certain amount of time was allotted for the study by the St. Louis Cardinal Baseball Club. The period of one week was given the writer to conduct the necessary experiments. The period of one week was very acceptable, except that one hour a day was the amount of time to be used for the actual experiments. It might have been more beneficial to have had each subject tested each day, but time did not allow this.

The study was based on the hypothesis that quickness of the move is the deciding factor in picking off runners. There is one factor which might play as important role in the pick-off play, and that is the deception of the move. It was impossible to measure this, so the writer decided to hold this constant by removing a baserunner from the experiment.

Other factors which may have had an effect on this study are: the mental attitude of the subject when participating in the experiment, the physical condition of each individual, and the amount of effort used in warming-up for the experiment.

NEED FOR THE STUDY

The ability to pick a runner off first base is very important, espesially in the late innings of a close baseball game. Besides the double play, the pick-off appears to have an important psychological effect on the offensive team. When a late inning rally begins with a base hit or

base on balls, the defensive team automatically has pressure applied to them by the threat of the winning or tying run scoring. A pitcher with a quick move to first base can relieve this tension and eliminate the run from scoring on an extra base hit by picking the runner off first base.

The writer did extensive research in attempting to locate written material on this subject. From the investigation, it appeared that no experiment had been conducted concerning the speed of the pick-off throw from the different hand positions. There is general disagreement among coaches as to the quickest position. Since no research on the subject could be found, the writer felt that research and experimentation was needed to reach definite conclusions concerning the different hand positions.

CHAPTER II

REVIEW OF RELATED LITERATURE

Investigation of literature on baseball produced very little material on the right handed pitcher's pick-off move to first base. An abundance of literature was found on pitching in general, with regard to the techniques, skills, and strategy. The writer found no research that had been completed in this area prior to the investigation.

A difference of opinion was found among coaches as to the importance of the stretch above the head with the arms and hands. Dick Siebert, baseball coach at the University of Minnesota, states that "some right handed pitchers do not stretch at all, but take a sign with the arms at the waist and the gloved hand a few inches above and to the side of the throwing hand."[1] Ethan Allen, baseball coach at Yale University, contends that "an advantageous time for a right handed pitcher to throw is either as the hands are being raised overhead, or as they start down to the set position because the runner is then taking his lead."[2]

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[1]Dick Siebert, Learning How-Baseball, (Mankato: Creative Educational Society, 1961), p. 40.

[2]Ethan Allen, Baseball Play and Strategy, (New York: Ronald Press, Inc., 1959), p. 48.

Don Weiskopf, former major league pitcher, contends that the pitcher should stretch his arms above his head for the purpose of relaxing the shoulders and arms.[1] Donald K. Edwards, high school baseball coach in San Francisco, California, asserts that the majority of pitchers lift their hands up over their head and lower them slowly bringing the hands together just as they start down. "The advantage of raising the hands over the head is that the pitcher can turn and throw quickly to first base as the hands are going up or being lowered down to the set position."[2] Al Campanis, Director of Scouting for the Los Angeles Dodger National League Baseball Club, states that "the throw from the top of the stretch is a nuisance type of throw, . . . and that pitchers seldom pick-off a runner from this position."[3] The writer understands that it is impossible to have unanimous agreement on all areas of a particular skill, but the large majority of references agree that the move from the top of the stretch is all important in the pitcher's repertoire.

James Smilgoff, baseball coach at Taft High School, Chicago, Illinois, feels that the ability to throw from various positions is just as im-

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[1]Don Weiskopf, "Big League Pitching Styles," Athletic Journal, XLII (December, 1961), p. 14.

[2]Donald K. Edwards, "Mechanics of Pitching," Athletic Journal, XLII (March, 1962), p. 40.

[3]Letter from Mr. Al Campanis, Director of Scouting, Los Angeles Dodger National League Baseball Club, Los Angeles: November 19, 1965.

portant as the throw from the top of the stretch.[1] Allen also agrees that "the ability to throw quickly to the various bases from a stretch position is a factor in catching baserunners."[2] Clyde King, Pitching Coach for the Pittsburgh Pirate National League Baseball Club, states that: "We feel that it is important for the right handed pitcher to have all three moves to first base."[3] George "Specs" Toporcer feels that the best way to prevent the runner from anticipating the delivery to the plate is to: " . . . have your pitcher vary the different positions from which he attempts to pick-off the runner."[4] King also declares that he teaches the three exact positions described earlier in this study to his major league pitchers.[5] Campanis,[6] Ed Lopat, Executive Vice-President of the Kansas City Athletics American League Baseball Club,[7] Don Lund, Director of Minor League Operations and Player Development for the Detroit

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[1]James Smilgoff, Winning High School Baseball, (Englewood Cliffs: Prentice Hall, Inc., 1963), p. 146.

[2]Allen, loc. cit., p. 49.

[3]Letter from Clyde King, Pitching Coach, Pittsburgh Pirate National League Baseball Club, Pittsburgh: November 18, 1965.

[4]George "Specs" Toporcer, "Pitching," Athletic Journal, XXXII (April, 1963), p. 12.

[5]King, loc. cit., (Letter.)

[6]Campanis, loc. cit., (Letter.)

[7]Letter from Ed Lopat, Executive Vice-President, Kansas City Athletics American League Baseball Club, Kansas City: November 17, 1965.

Tigers American League Baseball Club,[1] and A. B. "Vadie" Himsl, Director of Player Procurement and Development for the Chicago Cubs National League Baseball Club,[2] all agree that the selected three positions are the basic ones that they teach to their professional players.

Much has been said about the correct footwork involved in the move to first base. There are many types of footwork that are used in professional baseball today for the throw to first base from a right handed pitcher on an attempted pick-off. King states that he also incorporates the " . . . jump and turn in the air move. I teach them to do it in one motion, that is: pick both feet off the ground at the same time and pivot while in the air toward first base."[3] This move could take more time to execute than the others since the individual is in the air at the time of the release of the baseball. Another method is described by Mr. Otto Vogel, baseball coach at the University of Iowa. "In throwing to first base from the set position, the right handed pitcher shifts his weight to the left foot, bends his right knee, raises his heel of the right foot and turns toward first base on the ball of his right foot. The weight is shifted to the right foot followed immediately by a step with the left

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[1]Letter from Don Lund, Director of Minor League Operations, Detroit Tigers American League Baseball Club, Detroit: November 15, 1965.

[2]Letter from A. B. "Vadie" Himsl, Director of Player Procurement and Development, Chicago Cubs National League Baseball Club, Chicago: November 19, 1965.

[3]King, loc. cit., (Letter.)

foot directly toward first base as the throw is made."[1] The movement used in this study is closely related to Mr. Vogel's, except that the bending of the right knee with a shift of weight to the left foot was eliminated. The right knee will bend in the actual move, but not to the extent that Mr. Vogel stressed. As King states: " . . . only the highly skilled are able to master the jump and turn."[2]

Lew Watts, baseball coach at Plainfield High School, Summit, New Jersey, contends that "a right hander's best hope for a successful pick-off move is a quick move and a low hard throw. Thus, your idea of investigating the time element in the various moves approaches the situation from a truly critical standpoint."[3] Siebert states that: "Regardless of whether the pitcher takes his stretch or not, he must remember that quickness of the move is more important than the speed of the throw in picking the runner off first base."[4] There are also some who feel that the speed of the throw should not be sacrificed for the speed of the move. Weiskopf contends that "the pitcher must use as much speed as possible during the move without taking too much speed away from the

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[1]Letter from Mr. Otto Vogel, Baseball Coach, University of Iowa, Iowa City: December 2, 1964.

[2]King, loc. cit., (Letter.)

[3]Letter from Lew Watts, Baseball Coach, Plainfield High School, Summit, New Jersey: November 23, 1964.

[4]Siebert, loc. cit., p. 42.

throw."[1]

It is also interesting to mention the differences of opinion concerning the quickest move among the experts in the game of baseball. Lopat feels that "the best move has to come while the pitcher is in motion getting in the set position. Therefore, he has to practice and learn to throw from any given point from the start of his motion to the point where he gets into a set position. It is most difficult to have an outstanding move from a dead set position."[2] Campanis disagrees because: " . . . most runners are picked off from the set position."[3]

The related literature indicates that many baseball coaches and professional instructors employ all three positions whenever possible. Some feel that the top of the stretch position is not worthwhile, but the majority feel it has a place in the pitcher's repetoire. It is generally agreed upon that the effective right handed pitcher should possess an assortment of positions from which to throw for an attempted pick-off throw to first base.

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[1]Weiskopf, loc. cit., p. 15.

[2]Lopat, loc. cit., (Letter.)

[3]Campanis, loc. cit., (Letter.)

CHAPTER III

EXPERIMENTAL METHODOLOGY

The subjects for this experiment were right handed pitchers representing the St. Louis Cardinal National League Baseball Club and its Minor League Organization. The writer had a choice of thirteen pitchers who were made available by the minor league pitching coach. Ten were used in the experiment because two were not interested in participating, and the other was reluctant due to a sore arm. Each club in the organization was represented by two members. The clubs from which the members were selected were: (1) St. Louis Cardinals, (2) Jacksonville Suns, (3) Tulsa Oilers, (4) Raleigh Cardinals, and (5) Cedar Rapids Cardinals.

The experiment was conducted in St. Petersburg, Florida, at the new minor league headquarters of the St. Louis Cardinals. The study was conducted from April 6, 1965 through April 10, 1965.

The timing device used for the study was the Automatic Performance Analyzer, Model Number 631, which is produced by the Dekan Timing Device Company, located in Glen Ellyn, Illinois. Instruments or accessories which were used with the timing device were: (1) Linemaster Treadlite Switch, (2) Special Start Switch, (3) Control Line with Alli-

gator Clips, and (4) A Line Control Adapter. The timing device is used to measure movement, reaction time, or both, by the recording of time intervals. The unique factor concerning this machine is that human error is virtually eliminated. The unit records the elapsed time in one/one-hundredth (1/100) of a second.

Since this study was designed to time the move itself, an arbitrary distance from the pitcher's plate was selected as the point at which the timing device would stop. It was believed by the writer that the entire throw to first base would not indicate the speed of the move, but rather the speed of the throw. The distance from the pitcher's plate was set at ten feet. There was no significant reason for setting the distance at ten feet, except that a constant distance was needed which would reduce the importance of the entire throw to first base.

The purpose for, and the method of conducting the study, was explained to the subjects in a classroom within the confines of the training area. The workings of the machine were explained and demonstrated. A short experiment concerning the reaction time of each individual was administered to each subject to familiarize the individuals with the machine. Any questions concerning the machine or the move were discussed until each subject understood thoroughly the method of recording the times, and the position from which each would throw. The footwork to be used was also demonstrated and it was found that each subject used this method on his own pick-off move to first base. The pitcher

took a position on the mound facing third base with the right foot in front of, but touching the front of the pitcher's plate. In either of the three moves, the subject would shift the weight to the right foot while lifting the left foot slightly off the ground. The left foot was swung toward first base using the right foot as a pivot. As the pivot was completed, the left foot would touch the ground almost in a direct line from the pitcher's plate to first base. This basic footwork was used throughout the experiment. This was done to minimize the number of variables within the specific move.

The arc of the throwing arm was also investigated while each man threw to first base. It was determined, through observation, that each man threw from a three-quarter position. The three-quarter position is usually thought of as the mean between sidearm and completely overhand. The arm is about forty-five degrees above the sidearm position, and forty-five degrees below the overhand position. Although it was impossible to determine, through observation, the exact degree of each throwing arc, it was believed that each subject threw reasonably close to the three-quarter position. A variance of two or three degrees on one side or the other of the three-quarter position was not thought to be a limiting factor by the writer.

For warm-up, each subject played catch at a distance of fifty feet for five minutes, and then lengthened the distance to seventy feet for three additional minutes. After playing catch, each individual did leg

stretching exercises for five minutes to reduce the possibility of leg injury, and also to insure that each subject was completely loose for the experiment. The pitcher then assumed his position on the mound and practiced each position three times. A MacGregor "97" rubber center baseball, with a horsehide cover was used. An eye hook was inserted into the ball and the control line was attached. At the other end of the control line was a spacer, which was attached so that the circuit could be kept open until it was detached from the machine. A special adapter was inserted in the "Special Stop" outlet of the timing device, with the control line spacer inserted in the adapter.

The timing device was placed two feet in front of the pitcher's plate and one foot to the third base side of the mound. This location was used for all subjects throughout the experiment to keep the actual distance of the line constant.

Since any movement of the shoulders, hips, or body, which precedes the movement of the left leg limits the pitcher to throw to home plate, it was assumed by the writer that the initial action of the left foot would be the logical point of departure for the study. The pitcher usually steps toward home plate with his left foot before assuming the set position. The exact location of the position of the left foot had to be determined through observation of the entire move, and through trial and error.

The treadlite switch was placed on the ground in the immediate area of the tentative position of the left foot for all three positions. As the left foot depressed the switch, the machine was readied for action. When the left foot was lifted, the circuit was opened and the timing device began to move in a clockwise motion on the dial. The circuit was open while the individual attempted his move. The ball, which was attached to the ten foot control line, was then released toward first base. As the flight of the ball progressed, the slack in the cord was rapidly decreasing. When the ball reached the distance of ten feet from the pitcher's plate, the force exerted by the throw pulled the spacer out of the adapter which was inserted in the "Special Stop" outlet, and the timer was stopped. The time was read on the dial of the machine. This reading represented the time it took the individual to attempt the pick-off from the different positions and was recorded in hundredths of a second. These times were then transferred to a master sheet containing the times of the trials of the other subjects. The timer was then reset, and the next trial was timed.

As was previously explained, the warm-up consisted of playing catch, leg exercises, and practice throws from each of the three positions. Two subjects were tested each day. After the warm-up period, subject number one would take three trials from Position A, while subject number two continued to play catch at a very short distance. The two subjects would then change positions and subject number two would

take his trials from Position A, while subject number one played catch. The same pattern was followed for each position so that fatigue or staleness would not be an important factor in the results of the study. The last four days were used to test subjects three through ten. The times were recorded for each trial, thus, for each individual nine times were recorded.

The arrangement of using two subjects each day was selected because of a limited time factor. The experiment was conducted each morning from 8:00 a.m. until 9:00 a.m., at which time the regular workout for the day began. The writer would have liked to test each subject on each day of the week, thus resulting in more trials, but due to the time allotment this was not possible. Two a day was selected because it was felt by the writer that a half-hour was needed for each subject. For the time available, it was thought that the chosen method would produce the results sought.

CHAPTER IV

PRESENTATION AND INTERPRETATION OF RESULTS

Ten subjects attempted three trials from Position A, Position B, and Position C, for a total of thirty samples from each position.[1] The data from Position A are presented in Table 1. It was observed that most of the subjects recorded their slowest time on the last trial. The fastest time was .17 seconds, while the slowest time was .49 seconds.

Table 2 contains the data gathered from the trials from Position B, plus the mean time of each subject. Noticeable facts from this table show that subject number one had both the fastest and slowest time. The fastest time was .20 seconds, while the slowest was .41 seconds. The position resulted in more consistent times for each individual than did Position A. The range in this table was .21 seconds as compared to a range in Table 1 of .32 seconds. This was an indication that Position A produced a much wider variety of times as compared to Position B which showed some consistency.

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[1] Supra., p. 2.

TABLE 1

TIMES PER TRIAL PLUS MEAN TIME OF POSITION A*

Subject	Trial 1	Trial 2	Trial 3	Mean
1	.21	.17	.41	.263
2	.41	.45	.47	.443
3	.29	.34	.34	.323
4	.40	.37	.48	.416
5	.27	.23	.34	.280
6	.42	.45	.49	.453
7	.22	.19	.24	.216
8	.23	.27	.23	.233
9	.32	.27	.23	.273
10	.23	.31	.31	.293

*All times are expressed in hundredths of a second

TABLE 2

TIMES PER TRIAL PLUS THE MEAN TIME OF POSITION B*

Subject	Trial 1	Trial 2	Trial 3	Mean
1	.20	.22	.41	.276
2	.37	.31	.29	.323
3	.35	.31	.29	.318
4	.37	.33	.39	.363
5	.36	.40	.30	.353
6	.37	.37	.41	.383
7	.36	.39	.31	.353
8	.35	.31	.33	.330
9	.33	.31	.32	.320
10	.33	.31	.29	.310

*All times are expressed in hundredths of a second

The data from Position C and the mean times for each subject are presented in Table 3. The range of this position was less than the two other positions. The fastest move from Position C was .29 seconds as compared to .20 seconds and .17 seconds for Position B and Position A respectively.

The mean of each position is presented in Table 4. The position from which the lowest time was recorded was Position A, while the highest in elapsed time was recorded from Position C.

Since the raw times and mean times did not in themselves provide conclusive evidence that Position A was significantly quicker, the "T" test of differences, as described in Tate,[1] between the means of two independent samples was applied. The hypothesis tested by the "T" test of significant difference was that Position A was significantly quicker than the other positions. The five percent level of confidence was selected as the basis for acceptance or rejection of the hypothesis. Since the study dealt with three independent samples, it was necessary to apply the "T" test three times in order to use all possible combinations. The "T" test rejected the hypothesis at the five percent level which meant that there was no real difference in the times of the three positions. The writer felt that some factors not presented thus far might

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[1]Merle W. Tate, Statistics in Education, (New York: The Macmillan Company, 1955), pp. 455-471.

TABLE 3

TIMES PER TRIAL PLUS MEAN TIME OF POSITION C*

Subject	Trial 1	Trial 2	Trial 3	Mean
1	.43	.31	.40	.380
2	.38	.37	.3[illegible]	.370
3	.38	.34	.34	.353
4	.42	.48	.40	.433
5	.42	.33	.35	.366
6	.39	.38	.36	.376
7	.42	.32	.40	.380
8	.34	.36	.29	.330
9	.38	.33	.39	.366
10	.34	.35	.35	.346

*All times are expressed in hundredths of a second

TABLE 4

MEAN TIMES OF POSITION A, POSITION B, AND POSITION C

Subject	Position A	Position B	Position C
1	.2[illegible]	.376	.380
2	.443	.323	.370
3	.323	.318	.353
4	.416	.363	.433
5	.280	.353	.366
6	.453	.383	.376
7	.216	.353	.380
8	.233	.330	.330
9	.276	.320	.366
10	.293	.310	.346

*All times are expressed in thousandths of a second

have had a bearing on the study.

It was felt that the experience of the subjects might have been an important factor in the experiment. The subjects had a wide variety of experience in professional baseball. The classification of baseball each was engaged was also thought to be very important since the acquisition of certain skills is expected at different levels. An individual in the major leagues or in Triple A certainly would need to have a move from each position so that the baserunners would be unable to detect an exact pattern. The lower minor leagues do not contain a vast number of individuals who are proficient from each of the positions due to the fact that an individual is usually expected to acquire these skills during the actual playing season.

In order to present the above information in a meaningful way, the subjects were ranked according to each position in numerical order. The fastest time was ranked number one and the slowest time ranked number ten. Table 5 presents this data from each position and the mean rank of each individual throughout the three positions. The most consistent were the individuals who ranked low from the different positions. The only other individual who recorded consistent times was subject number nine who ranked fourth from each position. Since subjects number six and four appeared to be consistently slow in the elapsed time of the pick-off move, attention was directed towards the classification of the game that each was assigned.

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TABLE 5

RANK OF EACH INDIVIDUAL FOR POSITION A, POSITION B, AND POSITION C PLUS THE MEAN RANK OF THE THREE POSITIONS*

Subject	Position A	Position B	Position C	Mean Rank
1	3	1	7	3
2	9	5	6	8
3	7	3	3	5
4	8	9	10	9
5	5	7	4	7
6	10	10	9	10
7	1	7	7	6
8	2	6	1	1
9	4	4	4	4
10	6	2	2	2

*The mean rank was calculated from the individual ranks

Table 6 contains the mean rank, the professional club, and the level of classification of each club.

TABLE 6

THE PROFESSIONAL CLUB OF EACH SUBJECT AND ITS CLASSIFICATION*

Subject	Mean Rank	Club	League Classification
1	3	Tulsa Oilers	AA
2	8	Raleigh Cardinals	A
3	5	Tulsa Oilers	AA
4	9	Cedar Rapids Cardinals	A
5	7	Raleigh Cardinals	A
6	10	Cedar Rapids Cardinals	A
7	6	Jacksonville Suns	AAA
8	1	St. Louis Cardinals	Majors
9	4	St. Louis Cardinals	Majors
10	2	Jacksonville Suns	AAA

*Organized baseball is divided into four classifications. The classifications from highest to lowest are:

Major Leagues
Triple A (AAA)
Double A (AA)
Single A (A)

Organized baseball is divided into four major classifications of play, and is a progressively organized system which starts at the lowest classification and proceeds to the top, or the major leagues. The "A" classification is the lowest, followed by "AA", and then "AAA", which is followed by the major leagues. As previously stated, one can observe that the lowest ranked individuals participated in the lowest classification. The top five individuals were separated by a very small difference. The number one ranked individual, subject number eight, had two years of major league experience with the Chicago White Sox, and the St. Louis Cardinals. The high ranking of subject number ten might have been due to the fact that he spent half of last year with the St. Louis Cardinals. It appeared that the subjects from the higher classifications had more experience in throwing from the various positions, thus resulting in lower times than the individuals in the lower classifications.

The fact that there was no significant difference between the mean times of each position is important to repeat. Since this was the purpose for conducting the study, the apparent results should be remembered along with the observations by the writer.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

The writer conducted this study to determine which of three positions of the hands of a right handed pitcher's pick-off move to first base resulted in the quickest elapsed time. Position A was defined as the set position, in which the hands were held for one second at about belt level. Position B was defined as the position where the hands were extended over the head. Position C followed Position B in that the pitcher lowered his hands from the top of the stretch and without coming to a complete stop as in Position A, separated his hands and threw to first base.

An experiment was devised to accumulate times from the three different positions. All times were recorded in hundredths of a second so that the comparison of times between individuals would be possible. Subjects were selected from the St. Louis Cardinal Major and Minor League Organization. Since the study dealt with the elapsed time of the move, an electric timer was used to obtain the times. From the ten subjects, ninety times were gathered.

The "T" test for significant difference was applied to the possible combinations using the means from Position A, Position B, and Position C. In raw times, Position A was the quickest, but not significantly at

the five percent level. When the "T" test was applied to the other positions, no significant difference was found.

CONCLUSIONS

The following conclusions resulted from the experiment:

1. There was no significant difference in the elapsed time between the three positions of the hands of a right handed pitcher on the pick-off move to first base.
2. The references who commented that one move was quicker than another appear to be in error due to the above conclusion.
3. On the basis of the evidence presented in this study, the experience of each individual was a factor in the experiment in that the more experienced individuals had results of quicker times and the less experienced individuals had results of slower times.

RECOMMENDATIONS

The following recommendations are presented as a result of the experiment:

1. Further studies should be undertaken using a larger population so that more trials could be obtained.
2. Further studies should be undertaken to determine the most effective position in picking off a runner from first base. Deception might play a more important role in the success of the move than speed.

3. Further studies should be undertaken using high school or college subjects instead of professional players. A marked difference might be found at a lower level of proficiency.

4. Further studies should be undertaken using the total elapsed time from the beginning of the move to the time the ball reaches first base. This would take into consideration not only the speed of the move, but also the speed of the throw to first base.

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Himsl, A. B. "Vedie." Director of Player Procurement and Development, Chicago National League Baseball Club. Chicago: November 15, 1965, (Letter).

King, Clyde. Pitching Coach, Pittsburgh National League Baseball Club. Pittsburgh: November 18, 1965, (Letter).

Lopat, Ed. Executive Vice-President, Kansas City American League Baseball Club. Kansas City: November 17, 1965, (Letter).

Lund, Don. Director of Minor League Operations and Scouting, Detroit Baseball Club. Detroit: November 15, 1965, (Letter).

Vogel, Otto. Baseball Coach, University of Iowa. Iowa City: December 2, 1964, (Letter).

Watts, Lew. Baseball Coach, Plainfield High School. Summit: November 23, 1964, (Letter).

APPENDICES

APPENDIX A

Test subjects from the St. Louis Cardinal Major and Minor League Organization.

Ackley, Fritz

Bakenhaster, David

Braddock, Ronald

Campisi, Sal

Cecil, Edward

Cosman, James

Fanok, Harry

Hughes, Richard

Torrez, Michael

Willis, Ronald

APPENDIX B

SPRINGFIELD COLLEGE SPRINGFIELD 9, MASSACHUSETTS

December 9, 1964

Mr. Barton Zeller
59 University Apartments
South Fourth Street
Charleston, Illinois

Dear Mr. Zeller:

Your letter of November 18 has been received and I have been giving your request considerable thought. It appears to me that you are trying to determine the best position from which to make the quickest throw to first base, disregarding the runner. I do not see what you will prove.

I would like to suggest that you compare two types of stretches, the one you apparently use and the one I attempt to use. Your method seems to be one from a stationary stance with perhaps the right foot slightly open. Do you watch the runner or disregard him? Then you stretch your arms directly over your head before coming set. The method I use is one of disregarding the runner, stepping and stretching away from him, and then returning to an open set position. From this method the pitcher can throw to first as he starts the stretch, at the end of the stretch, half way back or at the set position. My aim is to condition the runner into becoming careless. Perhaps it may be a slower method of throwing to first base, I do not know. I would be interested to find out.

Please let me know your comments, and if I can be of further help feel free to contact me.

Sincerely yours,

Archie Allen

Archie Allen
Baseball Coach

AA:mw

LOS ANGELES Dodgers

1000 ELYSIAN PARK AVENUE
LOS ANGELES 12, CALIFORNIA
TELEPHONE - 225-1411

November 19, 1965

Mr. Barton W. Zeller
University Apartments #6
South Fourth Street
Charleston, Illinois

Dear Barton:

This is regarding your request for right handed pitchers pick-off moves to first base. You have three positions listed, 1.) set position, 2.) top of the stretch, and 3.) halfway down without stopping. In our organization we teach our pitchers to throw to first base from all three positions. The throw to first base from the top of the stretch is a nuisance type of throw. Pitchers seldom pick a runner off from this position. The halfway down position is used when the runner on first takes a hopping or a skipping lead off first base. Most runners, however, are picked off from the set position. Our pitchers are taught to maintain a set position from below their waist line. Years ago, pitchers used to have a fairly high set position of the hands (around the letters), however, since the hands must come down to throw to the plate or to first base - this is a loss of time. We feel that it is important for the right handed pitcher to have all three moves to first base.

Hope this is of some value to you.

Regards,

Al Campanis
Director of Scouting

AC:mr

IICAGO CUBS
UNDED 1870

PHONE 281-5050
A CODE 312

CHICAGO NATIONAL LEAGUE BALL CLUB (INC.)
WRIGLEY FIELD • CLARK AND ADDISON STS. • CHICAGO, ILLINOIS 60613

November 15, 1965

Mr. Barton W. Zeller
University Apartments #6
Eastern Illinois University
South Fourth Street
Charleston, Illinois

Dear Barton:

Your letter addressed to our Major League Pitching Coach has been referred to me for reply.

I formerly held that position and have worked with pitchers on the moves you describe. We have used stop watches and charted times as a positive proof to the individual that his moves had to be faster. A pitcher to have a successful move to first base should be able to throw from all three positions: set position, top of stretch, and half-way down. The success of the move depends on the speed of moving the hips, legs, and feet.

The pitcher who can flex the left knee slightly and turn will usually have the best move. Some fellows can jump, move both feet at the same time, more effectively. The study of individual agility is probably the most important feature of the move.

I hope this is the information you wanted and I would be interested in reading the results of your study.

Sincerely yours,

Vedie Himsl

A. B. "Vedie" Himsl, Assistant
Director of Player Procurement
and Development

VH:sh

"THE PIRATES"
PITTSBURGH BASEBALL CLUB
PITTSBURGH, PENNSYLVANIA 15213
FORBES FIELD TELEPHONE 682-5300

Nov. 18, 1965

Dear Bart,

It sure is nice to hear from you and right off the bat" let me apologize for not answering your first letter. It was not deliberate as I was in the Dominican Republic all Fall and Winter and by the time I finally received your letter I knew it was to late then. My wife says she will take the blame for not sending it me sooner -

Bart, I teach both type moves, the ones you mentioned, plus the jump and turn. the air move. I like the one you described et and use it when ever I can, but some ys are not quick enough to use your move. hen they are not, I teach them to do it all

(over)

in one motion. That is: pick both feet
off the ground at the same time and pivot
while in the air, toward 1st Base - Being careful
not to reach way back with the right arm,
which wastes time, but to throw with a short,
quick back swing of the arm - This move does
not fool a runner like your move, but the
quickness of it just simply does not give a
runner time to get back if he is far enough
off -

The good thing about your move is that
it does not let a runner time the pitcher. In
other words he cannot break when the pitcher gets
in a certain position with his hands - 2- It keeps
the runner from getting a big lead (several feet off the base,
because he does not know from what spot the pitcher
is apt to throw to first from - The one thing you
must watch with this move, however, is that the
runner does not get a walking lead - In other words
he'll start on the base and walk slowly off and then
walk into a run. This is what Manny Mota did to
us and he ran us crazy. Then we used the "jump &
turn" move and had much better luck with him.

(Continued)

"THE PIRATES"
PITTSBURGH BASEBALL CLUB
PITTSBURGH, PENNSYLVANIA 15213
FORBES FIELD TELEPHONE 682-5300

On your move the pitcher must keep his back foot (right foot) in contact with the ground (never lift it up as he turns to throw). If he does he is not only ~~[illegible]~~ loses time, he gets off the runner. The second he lifts his right foot, he cannot throw to the home plate and the runner knows this - He must learn to pivot on the ball of his right foot - Some times the hole in front of the mound will get so deep to do this, that he is responsible to keep it filled up, so that he can pivot easily and smoothly -

I believe it takes longer to throw from the set position because one has to start from scratch - In the other positions you are already in motion and you can move on the ball -

(over)

One final thing — the position of the shoulders is important. Do not let left shoulder be to far to the right or left. If it is to far to left (toward 1st base) then pitcher throws home runner gets to good break for second and, vice versa. A happy medium is best, which is an angle between 1st + Home, maybe a little more toward home than toward first base—

I sure hope this is what you wanted, if it isn't let me know and I'll try again. I'll be happy to help you in any way that I can as I can appreciate what a difficult job writing a thesis can be—

Good luck and don't hesitate to call on me—

Sincerely,

Rudy King

Kansas City Athletics

HUMBOLDT 3-9911

MUNICIPAL STADIUM, KANSAS CITY, MISSOURI 64127

November 17, 1965

Barton W. Zeller
Eastern Illinois University
University Apartments #6
South Fourth Street
Charleston, Illinois

Dear Barton:

Since you have played minor league baseball in the St. Louis Cardinals Organization, I am sure with your past practical experiences and the fundamentals taught and showed to you by the pitching coaches in the Cardinal Organization, should give you sufficient information you need for your Thesis on the speed of the pick-off move on right hand pitchers to first base.

It is my opinion that the more moves a right hand pitcher has to first base the better off he is. This takes a lot of time and practice on the individual to become an expert in holding a man on first or getting too much of a jump on his steal. In my recollection on some of the right hand pitchers who had the good move, only used the good move when they thought they had a chance to pick the man off the base. The other moves they used were in the purpose of setting up that base runner. I also feel and know from past experience and observation that the best move has to come while the pitcher is in motion getting to a set position. Therefore, he has to practice and learn to throw from any given point from the start of his motion to the point of where he gets into a set position.

It is most difficult to have an outstanding move from a dead set position. However, every now and then a pitcher comes along who does master that art. One of the fellows that I can recall at hand, who I just saw this past World Series, is Drysdale who works from a dead set position.

Trusting this information will be of some help to you. The best of luck to you on your Thesis and in your baseball.

Sincerely yours,

Ed Lopat

Ed Lopat
Executive Vice President

EL/cc

DETROIT BASEBALL CLUB
DETROIT, MICHIGAN 48216
962-4000

DONALD A. LUND
DIRECTOR
MINOR LEAGUE OPERATIONS
AND SCOUTING

November 15, 1965

Mr. Barton W. Zeller
University Apartments #6
South Fourth Street
Charleston, Illinois

Dear Mr. Zeller:

I am in receipt of your letter of November 12 in reference to your Master's Thesis.

During spring training our minor league pitching coach works with all young pitchers from the three positions you mentioned. Naturally some youngsters are able to grasp things easier than others.

Terry Fox, a relief pitcher on the Detroit Tigers pitching staff, has one of the best moves in the American League. May I suggest that you contact him at the following address - 2863 Addison, Apt. 34, Baton Rouge, La. These things are most difficult to explain on paper. It's unfortunate that you do not have the opportunity to speak to Terry. Possibly when the Tigers are in Chicago you could make an appointment with him.

Sorry that I cannot be of any further assistance. Best of luck to you on completion of your thesis.

Sincerely yours,

Don Lund

DAL/as

STATE UNIVERSITY OF IOWA

Intercollegiate Athletics

FIELD HOUSE
IOWA CITY, IOWA

December 2, 1964

Mr. Bart Zeller
59 University Apts.
South Fourth St.
Charleston, Illinois

Dear Bart,

In throwing to first base from the set position, the right handed pitcher shifts his weight to the left foot, bends his right knee, raises the heel of his right foot, and turns toward first base on the ball of his right foot. The weight is shifted to the right foot followed immediately by a step with the left foot directly toward first as the throw is made. It is executed the same whether the weight is equally distributed on both feet at set, or the weight is on the right foot at set. A pitcher may also make a jump shift, hopping into position with his right foot and stopping out simultaneously with his left as he makes the throw.

The target for the throw is the right knee of the first baseman. It makes no difference on footwork, whether the pitcher turns and throws when leather meets leather, half way down, or from the full stretch.

(A pitcher is not required to stretch.) This only helps loosen the shoulders or shirt around shoulders, or it is done from habit. The important phase in holding a runner on first is to have the same initial identical move to the plate and to first. This prevents the runner from getting a jump.

Many right handed pitchers make an initial move with the shoulder, arm, body, or leg in going to the plate, but not in going to first. This of course is easy to pick up. If a pitcher has such a fault, a quick heel raise and jam against the pitcher's plate, is a good move to develop.

The position of the forearms on the set is usually just above the belt, ball in contact with hands and glove and must be held still for at least one second. (Many cheat on this.)

The above position will vary some from pitcher to pitcher. The feet are comfortably apart, and usually the front foot is slightly opened. The position of the head varies according to the individual. Some must turn their head, others have peripheral vision and need not turn, but slightly.

So much depends on the individual and his own moves, that it is difficult to set down a formula. Each pitcher has to be worked with individually.

If you are up this way in the near future, I would be glad to talk with you. A discussion possibly would be helpful to you.

Sincerely,

Otto Vogel

OTTO VOGEL
BASEBALL COACH

OV:jm

10 Mt.Vernon Avenue
Summit, New Jersey

23 November 1964

Mr.Barton W.Zeller:-
59 University Apartments
South Fourth Street
Charleston, Illinois

Dear Mr.Zeller:-

Your letter requesting information is most flattering and I shall jot down a few ideas (not necessarily in cohesive form) as they hit me. Please accept my apologies for submitting such a hasty job. Teaching at a large public high school is new to me and has me somewhat snowed at the minute, particularly since we are in contention for the state football championship and wind up our season Thursday. (P. S.- I'm teaching Math and coaching at Plainfield High School).

A right-hander's best hope for a successful pick-off is a quick move and a low, hard throw. Thus, your idea of investigating the time element in the various moves approaches the situation from a truly critical standpoint. I would, however, temper my inclination toward sheer speed of the move as all-important with the realization that a change-of-pace is needed - i.e., whichever motion proves quickest should predominate, yet the others should be retained - for variety, if nothing else.

The ideal set-position for the head and feet (closely linked in this chain of events) is a moot point. An open stance permits a quicker move to first as well as a closer watch on the runner . A closed stance cuts down on the time element in delivering the ball to the plate as well as being conducive to better stuff. Which method to adopt should be a matter of personal preference and comfort, influenced by the empiricism of competitive results. Whichever one is employed, a pretty good rule-of-thumb is to throw over to first when you cannot see the runner out of the corner of your eye. (And try this - with men on first and second, when checking the runner on second, turn your head an extra few degrees; if you can see the runner on first - nail him.)

I feel that the most important facet of the pick-off move to first is the movement of the feet. Most pitchers content themselves with a quick pivot, aided to some degree by a jump-move. After studying Roger Craig and Art Mahaffey (the best, and they both favor a slightly open stance and a nodding - not shaking - motion of the head) I am convinced that the key to a good move is a pronounced pulling-back of the left foot, almost as though the throw were going to the second baseman. This is, needless to say, done simultaneously with the pivot of the right foot. In fact, it probably precedes the pivot slightly since its primary purpose would seem to be the speeding-up of the pivot itself.

Your three basic moves approach is an excellent one. But, probably the most effective time for an unconventional move is just as the pitcher is stepping back to the mound. The real cuties in my playing experience were the Cubans and this is what one of the trickiest of the whole lot told me.

I trust that these ideas will help. I appreciate your offer of the results of your study and look forward to seeing them.

With best wishes for the success of your project -

Sincerely, Lew Watts

VITA

BARTON W. ZELLER

The writer was born in Chicago Heights, Illinois, on July 22, 1941. He attended elementary school in Chicago Heights. The writer then moved to Park Forest, Illinois, where he attended Rich Township High School. He participated in football, basketball, and baseball while in attendance. The writer received his Bachelor of Science in Education degree from Eastern Illinois University with a major in physical education and a minor in mathematics. Football and baseball received the attention of the writer while at Eastern, wherein he lettered in both sports. Following graduation in 1963, he signed a professional baseball contract with the St. Louis Cardinal National League Baseball Club on May 29, 1963. In 1964, he played in Winnipeg, Canada, and in 1965 with the Jacksonville Suns in the International League. During the off season, the writer received a graduate assistantship in the Counseling Center at Eastern Illinois University, Charleston, Illinois, where he volunteered and acted as assistant freshman football coach. In the Spring of 1966, he plans to return to St. Petersburg, Florida, to train with the St. Louis Cardinals for the 1966 baseball season.