IN THIS ISSUE:

Craig Wright

ON THE WALK

(PART ONE)

An Analyst Exclusive!

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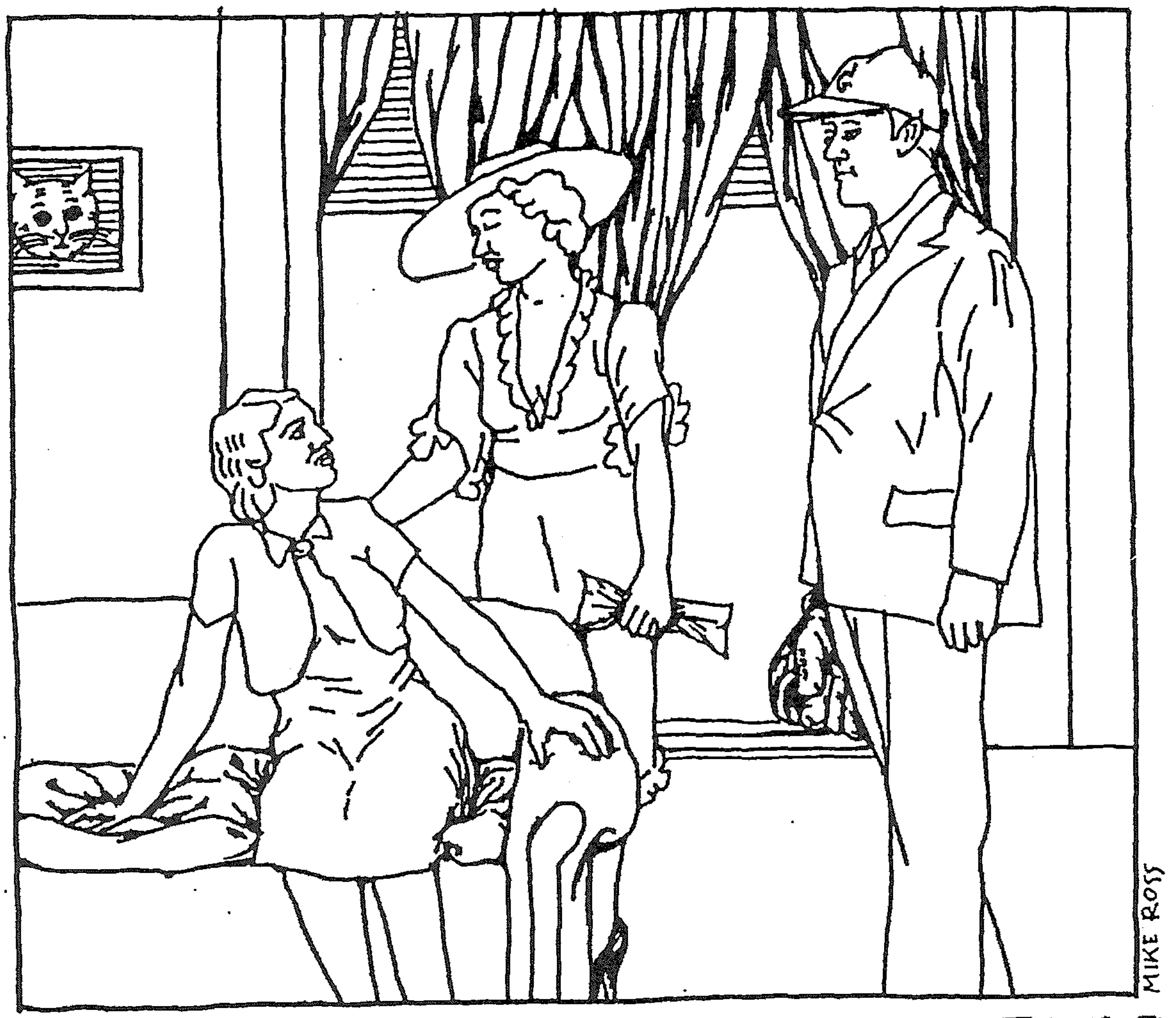
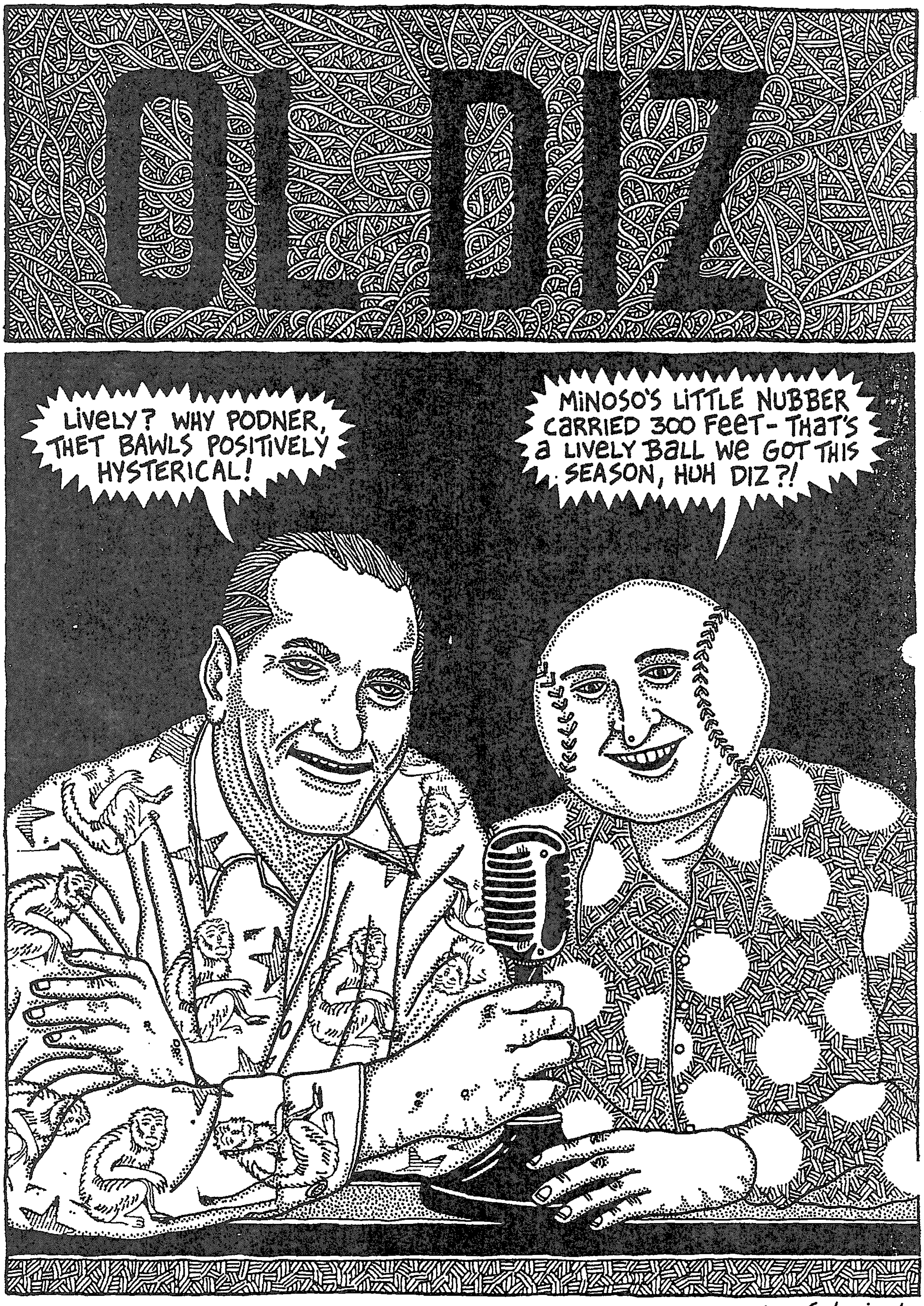
ONE OF THE MANY ROLES OUR NATIONAL PASTIME PLAYS IN REGULAR LIFE



HE WAS TIRED OF PLAYING LEFT FIELD, AND CRAVED THE TORRID EXCITEMENT OF THE HOT CORNER. SHE WAS INFORMED THAT GEORGE WAS TAKING HIS BALL & BAT TO GO PLAY THIRD BASE IN NICKI'S DREAMS


OL DIZ
MINOSO'S LITTLE NUBBER CARRIED 300 FEET- THAT'S a LIVELY BALL WE GOT THIS SEASON, HUH DIZ?!
LIVELY? WHY PODNER, THET BAWLS POSITIVELY HYSTERICAL!

Joe Schwind

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IN THIS ISSUE:

ABOUT THE COVER: Our cover this time comes from Mike Ross of London, England.

THE INSIDE COVER: "Ol' Diz" is the work of Joe Schwind of Lawrence, Kansas.

READER'S POLL: Don't forget to send in your vote for Baseball's Least Exciting Moment. All letters will be kept strictly confidential. There really has been an awful lot of just plain standing around in this great game of ours. Let us officialy recognize some of the more somnolent moments of our favorite pastime. Send all suggestions to our editorial office.

CRAIG WRIGHT:

BASE-ON-BALLS ABSTRACT

I. RESEARCH OF WALK VALUES

One of the least understood and appreciated offensive elements in the game of baseball is the walk. Not only are most of the traditional theories based on weak, shallow observations, but most seem hypercritical of the offensive value of the walk. The theoretical statements appearing most suspect when actually investigated are:

1. Drawing walks is chiefly a side-effect of superior performance when swinging the bat. A hitter with a high average, big power, or a "clutch-hitter", "RBI-man" is going to be pitched to more carefully and thus be issued more walks.

2. Walks are chiefly the province of the pitcher. It is more a case of the pitcher issuing walks rather than the batters drawing walks.

3. Based on Theory 2, walks have little offensive value. They are being issued not only to the more dangerous hitters, but the pitchers tend to issue them in the least damaging situation, i.e., runners in scoring position, where the pitcher needs to pitch carefully. Walks in this situation generally won't help score the lead runner and often the walk creates a double play or force-out situation.

4. Based on Theory 2, the extra walks drawn by a heavy walker are less valuable than the average walk. That is, he is getting his extra walks by taking the close pitches that pitchers are more inclined to throw when the resultant walk will be less damaging.

5. Batters with the "good-eye", those who draw more walks than their offensive performance would dictate (see Theory 1), tend to be poorer situational hitters. Such hitters are believed to prey on pitchers' mistakes. The pitcher tends to concentrate on preventing what is most damaging according to the situation. As concentration rises, mistakes fall, and the cripple-shooter has less chance to do what the situation deems most valuable.

6. Batters with the "good-eye" also tend to be weaker "clutch-hitters". While the added walks are believed to reflect a patient, controlled character, they also are believed to reflect a lack of aggressiveness and emotionalism, characteristics believed to drive certain players to "rise to the moment".

Even though subsequent investigation destroys the conclusive body of each theory, as usual there is a kernel of truth in each theory that simply was expanded on erroneously. When pursuing what is true, one is often faced with long standing fortresses of what is believed to be true. The resistance of such fortresses tempt a heavy-handed, overzealous destruction. Too often lost in such wanton destruction are those kernels of truth. These theories need to be dismantled with care; what is true needs to be recognized, freed of false encumbrances, and treated with respect or the new towers we build will be as false and fated to fall as those before.

Advocates of Theory 1 rely on superficial evidence such as Ruth and Ted Williams being the most walked men in baseball history and the games' two greatest offensive players. Theory 1 proponents also point out how many of the leading hitters for both average and power on the great teams tended to also be their team's leader in walks, including non-intentional walks.

Knowing where this investigation ends, let me identify here what will be salvaged from Theory 1. There is no disagreement that superior offensive hitters draw more intentional walks. There really is no disagreement that superior offensive hitters are pitched to more carefully. These are reasonable accurate observations, but they can exist quite nicely without leading to, "Drawing walks is chiefly a side-effect of superior offensive performance". We are now talking about magnitude of impact and that remains to be shown. Once that has been measured, we will still need to consider the possible role of superior plate discipline heightening offensive performance.

The superficial evidence offered for Theory 1 will first be answered in the superficial sense. How is it that Ed Yost, a career .254 hitter and .371 slugger with 139 career homers, had a walk frequency 73% greater than Joe DiMaggio who hit .325, slugged .579, and had 361 homers? What about all those great teams where the leading walker was clearly not the star offensive player?

The 1968 Tigers hit 52 more homers than any other team in baseball that year. Who was the walk leader? Was it Willie Horton who was second in the league to Frank Howard in homers and slugging percentage? No. Was it Freehan or Cash who tied for fifth in the league in homers? No. Was it Northrup who led the Tigers in RBI's? No. Dick McAuliffe led the team in walks while hitting .249 with 56 RBI's. Pitchers walked him more frequently than they did the league's best pinch-hitter Gates Brown who hit .370 and slugged .685. When the Tigers finished first again in 1972, the walk leader was Dick McAuliffe again.

Joe Morgan always seemed to lead his team in walks even when his teammates were MVP's. In 1972 Morgan had 16 homers and 73 RBI's and outwalked MVP Johnny Bench who led the league with 40 homers and 125 RBI's. In 1977, MVP George Foster hit .320 with 52 homers and 149 RBI's. Morgan had almost <u>twice</u> as many walks while hitting .288 with 22 homers and 73 RBI's.

On Earl Weaver's six first-place clubs the walk leaders were Don Buford three times, Bobby Grich twice, and Ken Singleton once. No Frank Robinson, no Boog Powell, and no Eddie Murray. One of Grich's leading seasons he hit .251 with 12 homers and 50 RBI's.

On Oakland's five consecutive divisional winners the leading walkers were Bando twice, and Tenace three times. No Joe Rudi, no Mike Epstein, and no Reggie Jackson. Bando led once while hitting .236 with 15 homers, and Tenace did it hitting .211.

On the last two great Yankee teams the leading walker was Willie Randolph. In 1980 the Yankees won 103 games with Jackson hitting .300, a league-leading 41 homers, and 111 RBI's. But it was Randolph who led the league with 119 walks despite just 7 homers and 46 RBI's.

The Brooklyn Dodgers are the only post-WWII team to three times score over 100 runs more than any other team in the league.

1949	BA	2B	3B	HR	RBI
Hodges	.285	23	4	23	115
Robinson	.342	38	12	16	124
Furillo	.322	27	10	18	106
Snider	.292	28	7	23	92
Campanella	.287	22	2	22	82
Reese	.279	27	3	16	73

Reese led in walks.

1950	BA	2B	3B	HR	RBI
Hodges	.283	26	2	32	113
Robinson	.328	39	4	14	81
Furillo	.305	30	6	18	106
Snider	.321	31	10	31	107
Campenella	.281	19	3	31	89
Reese	.260	21	5	11	52

Reese led in walks.

1953	BA	2B	3B	HR	RBI
Hodges	.302	22	7	31	122
Furillo	.344	38	6	21	92
Snider	.336	38	4	42	126
Campenella	.312	26	3	41	142
Gilliam	.278	31	17	6	63
Reese	.271	25	7	13	61

Gilliam led in walks; Reese was second.

Call it a stand-off. Examples never make convincing evidence, but initial observation seems to argue as much against as for Theory 1. Coming up with hard evidence to investigate Theory 1 is a bit more time-consuming. I took the 102 American League players who had 400+ plate appearances and broke them into equal thirds (34 in each group) according to their non-intentional walk percentages. The 102 players averaged 543 plate appearances. The following chart compares the composite players of each group projected into 543 plate appearances.

	AB	H	BA	2B	3B	HR	BB *	BB% *	HRC%
Player A	481.0	129.7	.270	23.5	3.4	15.2	62.0	.114	.158
Player B	499.3	139.2	.279	26.2	3.7	13.0	43.7	.081	.164
Player C	514.6	140.7	.274	24.6	3.9	14.0	28.4	.052	.157
Combined	498.3	136.5	.274	24.8	3.7	14.1	44.7	.082	.160

* Non-intentional walks

Rather startling and totally at odds with Theory 1 is that composite Players A, B, and C are, with the exception of their walks, like brother players, very typical players to be given 400+ plate appearances of playing time. The column which best illustrates this is the one headed HRC% which stands for "Hitters Runs Created Percentage". It takes the runs created formula without walks in it, so it represents runs created by batting average and power, and divides that figure by outs expended (AB-H).

The HRC% of Player A is nearly a mirror image of Player B's and C's. Player A hits for a little less average but has a bit more home run power. Can you imagine the pitchers walking Player A twice as frequently as Player C because he is expected to hit one more homer per 500 P.A.? Can Theory 1 explain the way this evidence has lined up?

To a certain extent it can. Theory 1 also states that "RBI-men", "clutch-hitters" draw the extra walks because the pitchers fear them. Player A could be perceived that way. If so perceived by his manager, he is also likely to bat third or fourth in the batting order which means more situations with men in scoring position, a situation which leads to more walks being issued.

Fortunately, we are capable of showing that Player A did not go to the plate more with men in scoring position in comparison to Player B or C and thus we can assume he was not consistently a middle of the order hitter which would suggest his manager did not view him as an "RBI-man/clutch-hitter" and that the opposing pitchers would do the same.

The Elias statistics separate plate appearances into four categories, bases empty, not leading off (BE-LOI), leading off the inning (LOI), runners in scoring position (RSP), and man on first only (MOF). A consistent lead-off hitter like Rickey Henderson had a lot of his plate appearances leading off in 1983 (37%) and less with runners in scoring position (22%) while Jim Rice had only 13% of his leading off the inning and 28% with men in scoring position. The plate appearance distribution for groups A, B, and C show they had similar blends of players by line-up roles.

PLATE APPEARANCE DISTRIBUTION

	Player A	Player B	Player C
BE-LOI	32.1%	32.2%	31.7%
LOI	23.6%	24.8%	23.2%
MOF	19.0%	17.8%	19.1%
RSP	25.3%	25.1%	26.0%

The conclusive body of Theory 1 is left without a leg to stand on. In light of the available evidence, which is considerable, it is impossible to view the drawing of non-intentional walks as chiefly a side-effect of the player's ability to swing the bat. Clearly something else is in operation here.

As Theory 1 falls, Theory 2 is considerably weakened. Theory 2 takes the basic truth that the pitcher initiates the action and is chiefly responsible for where the ball is thrown and thus to a certain extent controls the chances of a specific pitch being a ball or strike. It then bypasses the natural corollary that the pitcher influences the distribution of the walks he issues and instead leaps forward to a statement that walks are chiefly the province of the pitcher, that the pitcher issues his walks rather than the batter drawing the walks.

Theory 1 followed that thought of the pitcher being in control. Now Theory 2 is left facing the same evidence that broke Theory 1. As it stands the evidence seems to suggest the batter exercises a large amount of control over the walks he receives. That will remain the case unless some logic is found to explain why the pitchers should choose to walk Player A more than Players B and C and Player B more than Player C.

Lacking the desire and creative intelligence to save Theory 2 it is best to go on to Theories 3 and 4 which are based on Theory 2. If Theories 3 and 4 can be shown false, that would cast further and likely final doubts on the accuracy of Theory 2.

Theory 3 begins with the obvious reality that a pitcher can comprehend when a walk is near as damaging as a single (bases empty or a man on first only) and when it is not (runners in scoring position, usually first base open). It then assumes that such comprehension leads to controlled walk distributions that render the general non-intentional walk nearly harmless as an offensive weapon.

Let us begin by going back to the superficial evidence examined earlier in relation to Theory 1. Ted Williams was a great hitter, the all-time leader in walk percentage, but was anything but fleet of foot. There were three modern players (post-1900) who hit higher than Williams and were considerably faster runners (Ty Cobb, Joe Jackson, Rogers Hornsby). Now who scored more runs per game played? Williams led with .784 (Cobb - .740, Hornsby - .699, Jackson - .656). Looks like those walks were good for something.

Remember Dick McAuliffe, the 1968 .249 hitter who led the Tigers in walks? He led the league in runs scored. He scored more runs than the lead-off man for the National League pennant winner. A guy named Brock hit 30 points higher than Dick and put himself in scoring position 128 times to McAuliffe's 58 times. But the one thing he couldn't do was get on base as often. McAuliffe's OBA was .344 versus Brock's .326. The difference was McAuliffe's walk percentage of .126 versus Brock's .065. Those walks were valuable.

In Bill James' 1983 Baseball Abstract he points out that the 1982 Orioles scored 45 more runs than the Tigers even though the teams had identical batting averages, their differences in homers and extra-base hits was in the 2-3% range, their slugging averages were within a point of each other, and the Tigers stole nearly twice as many bases. To that I can add that Detroit hit .285 with men on base while the Orioles hit .281. Hey, where did Baltimore's 45 extra runs come from? As James points out the fact that Baltimore had 634 walks and Detroit 470 may have had something to do with it.

No pitcher ever had a reason to walk the lead-off man of the inning but it still happens. In 1983 American League pitchers issued 86 non-intentional walks per 1,000 batters with men in scoring position, the situation where they are most willing to walk a batter. They also walked 71 per 1,000 of the batters leading off. Their absolute best situation for getting the ball over was a man on first only, and they still were issuing 52 per 1,000.

Overall, 72% of the 6,528 non-intentional walks in the American League in 1983 were not issued with men in scoring position. Those 4,700 walks gave the offensive team their first runner or moved a runner into scoring position while producing a runner.

Theory 3 seems a case of gross exaggeration of simple facts leading to a false conclusion. Pitchers do not exercise near enough control over how their walks are distributed by situation to make them relatively harmless.

Theory 4 states that the extra walks drawn by a heavy walker tend to be less valuable than your average walks. The thought is that the patience or "good-eye" of a hitter like Player A is going to pay off in walks only in situations where the pitcher is inclined to be extra fine because a walk is not as costly.

The actual distribution of plate appearances and non-intentional walks among the 102 players per 543 PA would be the first two columns below.

	PA	Walks	Theory 4	Normal	Actual
BE-LOI	174	15.1	15.1	21.0	21.2
LOI	130	9.6	9.6	13.4	13.1
MOF	101	6.8	6.8	9.5	9.6
RSP	138	13.0	30.4	18.1	18.1

The third column titled "Theory 4" is an approximation of what Theory 4 would predict for Player A, the extra walks coming with RSP. The fourth column titled "Normal" is the first column's distribution projected into Player A's walk total. The fifth column is the actual non-intentional walk distribution for Player A. Clearly, normal distribution applies to Player A. For the record, research shows it applies to Players B and C, too.

Theory 4 is simply flat-out wrong. The actual truth of the matter is that, relative to each other, batters walk more or less independent of the pitcher reacting to the situation. The extra walks drawn by an 80-walk player generally have just as much individual value as the walks drawn by a 30-walk player. In other words, a player who walks twice as much as another player tends to do so in every situation.

I have already relied a great deal on my analysis of composite Players A, B, and C and will do so to even a greater extent in testing Theories 5 and 6. In talking about them as three individual players it is easy to lose an appreciation of the magnitude of the sample size and thus the confidence that the findings are far from fluke distributions.

The 102 players with 400+ plate appearances account for 65% of all the appearances in the American League in 1983. Each group has approximately the plate appearances of three full teams. Each group has over 4,000 more plate appearances than Henry Aaron amassed in a 23-year career. Even when talking about, say, Player B leading off an inning, it is 100 more plate appearances than Steve Garvey had on his 30th birthday.

Having made that impression, let us go on to Theory 5 which believes that batters with the "good-eye" tend to be poorer situational hitters, that a Player A type is essentially a cripple-shooter and that the pitcher consciously protects against the mistakes that would be most costly given the situation - fewer mistakes, fewer chances for Player A to take advantage of the situation.

Each of the 4 basic situations emphasizes the value of certain performances. When leading off the inning the key is getting on base. Singles and walks are equal and hitting for power means less as there are 3 full outs to be expended in bringing a runner around. With men in scoring position batting average takes precedence. A walk won't do much and a single can produce a run almost as easily as an extra-base hit. Bases empty, not leading off, pushes both OBA and power percentage [(TB-H)/AB]. A walk is the same as a single, but a power hit means a runner already in scoring position when there are fewer outs to bring the runner around. A man on first only also emphasizes OBA and P%. A walk is nearly as good as a single and a power hit can score the runner where a single cannot.

In Players A, B, and C we seem to have similar players in batting skills (as shown by their HRC%), but they walk at different levels. How does that affect their ability to do what is most valuable to a situation?

	Player A	Player B	Player C
BE-LOI OBA	.348	.348	.301
BE-LOI P%	.154	.146	.135
LOI OBA	.344	.323	.303
RSP BA	.281	.279	.283
MOF OBA	.345	.325	.317
MOF P%	.162	.156	.153

You do not have to look too hard to see that Player A is better than B or C and Player B than C. The added walks are valuable and they do not come at the expense of being good situational hitters. You have to look a little harder to realize that relative to their own overall performances Player B is a bit of a disappointment compared to Players A and C with runners in scoring position. Note Player C raised his average 10 points; Player A raised his 11 points while Player B stood even (See page 3 for their overall figures). This anomaly will be covered in greater detail later on.

We are now left with Theory 6 which claims that a Player A type is less of a "clutch-player" because his controlled, patient character lacks the aggressiveness and emotionalism necessary to "rise to the moment".

The reason I am always putting quotation marks around "clutch-hitter" is to emphasize that its usage lacks, at least for me, clear meaning or common definition. Elias has a definition for Late-Inning Pressure (LIP) situations: "Those appearances occurring in the seventh inning or later, when the batter's team is tied or trailing by three runs or less (or by four runs if there are two or more runners on base)." I think there are weaknesses to that definition, but Elias is doing the work, so I think they have the right to set the boundries. I am willing to accept the LIP data as the best evidence available that could be significantly studied as "clutch-hitting" situations. LIP covers 15% of the plate appearances of each of the three "Players" or groups, each sample consisting of at least 2,690 PA. There is no doubt which group is the better composite clutch-player by this definition.

LIP	AB	BA	2B	3B	HR	P%	BB	BB%	HRC%
Player A	2,334	.285	116	13	87	.173	356	.132	.182
Player B	2,497	.273	119	18	58	.132	249	.091	.152
Player C	2,614	.277	127	21	53	.125	178	.064	.145

In this one case I cannot separate the intentional walks. The walk totals and BB% include all walks. Still, the observation that the pitchers are willing to walk more batters in LIP situations is accurate. Overall, including all walks, the 1983 American League pitchers had a BB% of .090 in LIP situations versus .082 in all other situations. Next to runners in scoring position it is the situation in which the pitchers are least inclined to throw strikes.

Note the unusual dominance of Player A in LIP. His OBA is the highest by 40 points, his P% is 30 points higher and all of it is in homers which have heightened value in this situation, and Player A even leads in batting average despite having the lowest overall BA of the three. Theory 6 actually has it backwards. By this measure Player A is a superior clutch-hitter.

Having spent many hours of detailed work with the data that created Players A, B, and C, I think I can explain this phenomenon if allowed to characterize the three as I have come to understand them.

Player B is essentially Joe Average. He has an average knowledge of the strike zone and enough patience to draw the average walks. He is not, however, an "intelligent" hitter, one who can adjust to the way pitchers test a hitter with runners in scoring position. He handles the situations well where the walk levels are steady or the pitcher is inclined to throw even more frequent strikes, but he struggles in the two situations where the pitchers are less willing to come in with strikes. Player B's hitting statistics in LIP match closely those in RSP.

	BA	P%	HRC%
LIP	.273	.132	.158
RSP	.279	.131	.152

But is it the increased walk frequency that he can't adjust to? Perhaps Player B is one the pitchers can manipulate or simply is not as good a hitter in this dual definition of "clutch" situations. I cannot believe in the former because Player B is a good situational hitter in other situations. He retains more of his overall BB% leading off an inning than the other two and leads in increasing his P% with a man on first only. If the pitchers could manipulate him, they would not let that happen. If they could they would switch his P% in MOF with his P% in RSP.

The latter theory that Player B is simply not a clutch-hitter is more plausible and one I still entertain to a certain extent but has two major reservations. One, while LIP and RSP do share rising walk levels they are not brother situations in relation to hitting for power and average. Why do the levels stay the same? If he were truly not a clutch hitter I would expect he would hit for a lower average and higher power in RSP situations than in LIP situations. But the chief reservation for me is why should a Player B type be less of a "clutch-hitter" by this dual definition than type A or C? What is the logic to account for it? Why is it that Player C struggles as much in LIP as Player B but not in RSP situations? At present I feel far more comfortable with Player B's inability to cope with rising walk situations as the best explanation.

Player A is a distinctly different type hitter. He walks considerably more than other players and more than pitchers would like. This is a very different type skill. Scouts can look at young players and say he has the quick bat, a power swing, plus speed, a strong arm, good glove, but they never say, "He looks like he'll walk a lot". To a certain extent the skill may be tied to emotional character as it would seem to require patience and confidence. Tied in there somewhere would be the ability to learn, at least as a hitter. It would seem they had to learn the strike zone. To be willing or to want to draw walks would also generally require a more thoughtful appreciation of the game. From there it would only be a short step to recognizing that pitchers do make subtle changes in how they approach each situation, that situations change offensive values, and that the former could be manipulated to improve the latter.

That is what Player A seems to do. His performance tends to be adapted to the situation. Of the three composite players, Player A was clearly the best situational hitter. There is no reason for that to change for LIP which is really just another type of situation.

Player A does not "rise to the moment" in LIP situations as much as he adapts to it. He knows how to hit when the pitchers are trying to tease the batters and avoid the big blow. Like Player B, Player A hits in LIP much as he does in RSP (.285 versus .281) but hits more homers in LIP. Why? Because the long-ball is worth more in LIP situations than RSP.

Player C differs greatly from both A and B. I think it is appropriate to portray this hitter as both abnormally aggressive and emotional. There seem to be both positive and negative effects here. While the strong emotional reaction does appear to heighten the all-around performance at specifically valuable times, in no situation is that performance focused to the maximum value for that situation.

While each situation has its plus performances, hitting well with men on base is more valuable than hitting with the bases empty. There is no doubt that as a situational hitter Player C reacts very strongly to the immediacy to runner(s) on base.

Player C	BA	P%
Bases Empty	.265	.134
Men on Base	.284	.157

Interestingly, one of the categories to rise slightly with men on base is Player C's non-intentional BB%. For players A and B their BB% holds steady at .097 for both situations. Player C goes from .051 to .054. This is small enough to be normal chance distribution even in this sample size but it may also be a sign of improved concentration.

Lacking in each of the four situations is a shaping of the performance to the situation. Player C's OBA drops significantly when needed except in MOF. Player C tends to hit for more power with runners in scoring position compared with a man on first only. That is what the pitchers want and the opposite of what Players A and B do.

Player C's performance is not a reaction to the situational values like Player A; it is not a reaction to the situational walk levels like Player B. Player C tends to react emotionally to what he probably perceives as the "key" moments. The sight of a runner on base wakes up his heart if not his head.

LIP situations do not mean runners are on base as much as they are dictated by the inning and score. Without the "carrot-on-the-stick" base-runners, LIP is just another normal set of plate appearances - which is what Player C's LIP performance resembles.

Player C	BA	P%	HRC%
Overall	.273	.144	.157
LIP	.277	.125	.154

Why the drop in power? That's the pitchers' idea for LIP situations, and they get the unthinking Player C to cooperate.

* * * * * * *

I spent far more time on situational hitting and clutch-hitting (Theories 5 and 6) than they are worth. The reader must guard against giving it more weight than it deserves. Remember, the dominant error in the six false theories was to take a small truth and try to make too much of it. For example, right now some readers may be inclined to value Player C over Player B because C appears to be a more valuable situational hitter than B. The extent to which that is true in a hitter's sense does not come close to outweighing the benefits of the extra walks drawn by Player B.

Using Palmer's Potential Run Table by Situation, let's pretend both Player B and C hit .276 with a .145 P% and an .0665 walk percentage, give them 543 PA spread

SITUATIONAL STATISTICS FOR 1983 AMERICAN LEAGUE PLAYERS (102)
WITH 400+ PLATE APPEARANCES SEPARATED BY NON-INTENTIONAL WALK AVERAGE
INTO THREE EQUAL GROUPS (34)

	Total PA	AB	H	2B	3B	HR	Non-Int. Walks	Int. Walks	Total Walks
BE-LOI *	5,780	5,073	1,304	236	36	158	707		
	5,917	5,418	1,560	260	41	150	499		
	6,019	5,687	1,482	257	32	149	332		
LOI	4,244	3,815	1,030	200	22	127	429		
	4,563	4,207	1,117	229	29	117	356		
	4,403	4,206	1,141	220	27	96	197		
MOF	3,420	3,094	855	149	28	99	326		
	3,276	3,073	863	159	28	88	203		
	3,629	3,466	989	138	31	110	163		
RSP	4,551	3,806	1,069	187	24	114	574	171 **	
	4,620	4,078	1,137	231	28	82	412	130	
	4,945	4,514	1,276	238	45	131	293	138	
Norm	17,995	15,788	4,258	772	110	498	2,036	171	
	18,376	16,776	4,677	879	126	437	1,470	130	
	18,996	17,873	4,888	853	135	486	985	138	
LIP	2,690	2,334	665	116	13	87			356
	2,746	2,497	682	119	18	58			249
	2,792	2,614	725	127	21	53			178

* Line 1 = Player A
Line 2 = Player B
Line 3 = Player C

** I theorize that Player A draws more of the intentional walks that occur after the pitcher has already gotten significantly behind in the count.

normally over the four situations, but distribute the walks, hits, outs, and power according to the actual proportions of B and C's performance. It takes about an hour to figure but what Player C gained by being a slightly better situational hitter was +.82 par runs. Try putting that in an arbitration case.

Now let's repeat that but give them their actual BB% and its distribution. Now the difference is +2.30 par runs in Player B's favor, or about three times the situational edge of Player C. Take the player with the extra walks every time.

Before going on to study walks in the context of players' careers, we should review the observations and conclusions of this research.

1. Drawing non-intentional walks is a specific offensive skill widely differentiated among batters with minimal correlation with superior performance as a hitter.

2. While walks can be seen to originate with the pitcher who exercises a certain amount of control over their distribution by situation, most walks occur out of an interaction between pitcher and batter matching the overall control of the pitcher with the overall ability of the batter to draw the walk.

3. While walks obviously lack the offensive value of the average single, their occurrence is spread among the various situations in such a manner that they make a significant offensive cortribution.

4. The non-intentional walks drawn by heavy walkers have identical offensive value as the walks drawn by other hitters when the situational distributions are similar.

5. Batters who walk a lot tend to be slightly better situational hitters.

6. Batters who walk a lot tend to be slightly better clutch-hitters.

NEXT ISSUE, PART TWO OF CRAIG'S BASE-ON-BALLS ABSTRACT

UNFORGETTABLE DIZZINESS

by Mike Kopf

How many times has this happened to you? Having read the author's recent book (and happily awarded him the MVP Award for literature), you unexpectedly encounter his latest opus in a bookstore, eagerly snap it up, only to discover, too late for your beleagured wallet, that while he can still make all the plays, he's no longer a candidate for MVP. It's happened to me innumerable times, most recently with G. H. Fleming's The Dizziest Season (William Morrow, $15.95), a chronicle of the 1934 St. Louis Cardinals' tumultuous uphill battle for the National League pennant.

It happened to me this time because Mr. Fleming's previous book, The Unforgettable Season, the story of the crazed, demented (all insanity-related modifiers apply) 1908 NL pennant race, is superb. If I was to be relegated to a desert island, and could take only twenty books, The Unforgettable Season would be a contender. It's that good.

The Dizziest Season simply is not. What went wrong? In both books Mr. Fleming's method is the same. To quote from his introduction to the latter: "In the present volume I have retained the modus operandi of my earlier book. I have read all of the relevant newspapers, those published in 1934 in National League cities... and I have selected and edited those materials which in my opinion provide the best first-hand, eye-witness account of another unforgettable season." Fair enough; this method worked brilliantly last time, and if it ain't broke, why fix it? Alas, this time complications arise. Since the Gashouse Gang is the main focus of this book, inevitably the majority of Mr. Fleming's material is taken from the St. Louis sporting pages. And therein lies the rub, because with the best will in the world I cannot describe the work of the St. Louis baseball writers reprinted in "Dizziest" as anything better than pedestrian. Their prose just does not come to life. All the memorable events (most especially the Dean Brothers' famous called strike, as in work stoppage) are accurately described, but one longs for a touch of the poet. Maybe this would pass unnoticed if not for the direct contrast with the best of the New York sporting press, i.e. Paul Gallico, Jimmy Powers, and Joe Williams. Unfortunately, not enough of their work is present in "Dizziest"; unavoidable surely but regrettable nonetheless. And it makes me wonder this: does New York really get most of the first-rate sportswriters? Is that the reason The Unforgettable Season, with its focus on McGraw's Giants (and hence New York sportswriting) seems so much more exciting? As a card-carrying outlander I would hate to think so, but The Dizziest Season is certainly not evidence to the contrary.

But there are other problems with "Dizziest" that transcend the mediocrity of St. Louis scribes. Foremost among these is that Mr. Fleming cannot convince me that, as pennant races go, the 1934 National League battle was any great shakes. For one thing, what race? As late as September 16, Dizzy Dean is saying "The Giants are in," and so they were, until they went unaccountably belly-up. Does unilaterally snatching defeat from the jaws of victory constitute a great pennant race? If so, then the story of the 1964 NL pennant "race" should make the best book of all, although possibly not in the minds of Philadelphians. If you want the real taste of pennant race turn to "Unforgettable" and watch three absolutely first-rate teams battle it out, neck and neck, wire to wire; Man o'War, Citation, and Secretariat miraculously on the same track, one race for Valhalla. (All right, I'm getting carried away, but it was pretty good). By comparison 1934 is just another horse race.

But even taking into account that 1934 was not as interesting a baseball year as 1908, there's still another major problem, and it has nothing to do with the quality of baseball played. It has to do with the fact that many of Mr. Fleming's editorial clarifications (parenthetical insertions intended to explain seeming obscurities and/or anachronisms) are just plain a pain in the ass. Is our sense of history so deficient that we have to be reminded who Dillinger was? Why should trees be chopped down so that Leo Durocher's offensive production can be contrasted favorably to Oscar Gamble's? And who in Alexander Cartwright's name is going to read a book about baseball happenings fifty years gone by and not know what "pepper" is? In fairness, I doubt that Mr. Fleming is responsible for this. (There's little if any such balderdash to be found in "Unforgettable"). I discern the fine hand of some editorial biggie at Morrow: "Great book, G. H., really boffo, but remember what happened to your last book. Rave reviews, but it wound up remaindered. Too listant, too obscure. You gotta explain everything--twice. We want The Dizziest Season to go over with people who think the Merkle Boner was a hard-on." And unfortunately, the Morrow biggie is probably right. I'll wager that The Dizziest Season has a greater commercial success than its predecessor. Proving once again and forever more that there ain't no justice.

But hold. Have I been hyper-critical? Comparisons, they say, are invidious, and I've been ranting as though Faulkner had just followed up The Sound and the Fury with Intruder in the Dust, which is decidedly not the case. In spite of my carping let it be noted that, standing on its own, The Dizziest Season has its merits. For one thing, who else is going to do a book about the '34 season at all? For another, even the most advanced sabre-tooth tiger is likely to learn something. Ever heard of donkey baseball? No, it is not a half brother to donkey kong. Need some fuel for the never-ending debate over who should pick the All-Star teams?

(continued on page 17)

BATTERS' OFFENSIVE WINS AND LOSSES

By Neil Munro

I would like to propose a modification of the method used by Bill James for the calculation of offensive wins and losses by batters. I will start with the three formulas for runs created (RC) and the method of calculating a batters' Offensive Won-Lost Percentage (OWL%) as outlined in the <u>1984 BASEBALL ABSTRACT</u>, with one very small change to begin the analysis. That change involves adding the number of times that a player has been awarded first base for interference or obstruction (DI) into the third formula. I assume readers are familiar with these formulas and all other abbreviations used. They are as follows:

$$(1) \qquad RC = \frac{(H + BB) \times TB}{AB + BB}$$

$$(2) \qquad RC = \frac{(H + BB - CS) \times (TB + .55 \times SB)}{AB + BB}$$

$$(3) \qquad RC = (A \times B)/C$$

where $A = H + BB + HBP + DI - CS - GIDP$

$B = TB + .26 \times (BB - IBB + HBP + DI) + .52 \times (SB + SH + SF)$

and $C = AB + BB + SH + SF + HBP + DI$

In the tables of statistics that follow, formula (3) is used for all 1983 calculations, and (2) for all other seasons in which caught stealing data is available (ie. 1920 to 1925 and 1951 to 1982 in the N.L., and 1920 to 1926 and 1928 to 1982 in the A.L.). CS is also known for some players for years between 1912 and 1918. In all other cases, (1) is used.

Runs created can be somewhat misleading when players' totals are compared from different time periods of play. For example, compare Eddie Murray's 1983 total of 127 RC with these 1936 figures for selected A.L. players: Lou Gehrig (189), Earl Averill (167), Jimmy Foxx (163), Hal Trosky (152) and Charlie Gehringer (153). I don't believe for a minute that these 1936 batters were so much better than Murray, the fact is that the average run scoring in 1936 was 27% higher than it was in 1983 in the A.L.

Better comparisons between players from different eras are obtained if the Offensive Won-Lost Percentage is used. Again I have used James' OWL% method with the following points to be noted. To find each player's runs created per game, the 27 out-game is used in conjunction with RC formula (3). Outs are determined by AB - H + CS + GIDP + SH + SF. The 26-out game is used with formula (2), where outs are AB - H + CS. Since it was not clear to me from the <u>ABSTRACT</u> what number of outs to use with formula (1) I made the following arbitrary choices. For years before 1920, the 25-out game (AB - H only) was used and for years between 1926 and 1950 in the N.L. and 1927 in the A.L., a 25.5 out game was employed. I believe this closely approximates the number of outs that resulted other than those occurring on the base paths, during the periods when CS was not recorded.

Still the OWL% has one weakness in that players who play only part of a season are not distinguished from full-time players. The OWL%'s of Fred Lynn and Bob Horner do not show that they seem to be unable to play a full schedule of games. In 1983, the best OWL% in major league baseball was achieved by Sid Fernandez, a pitcher no less, with an even 1.000 mark. Of course Fernandez singled in his one and only trip to the plate. In my view, the one statistic that provides for the best overall analysis of a players' offensive value is the offensive won-lost record. This statistic requires a high OWL% over a large number of appearances at bat to generate the best totals. Offensive wins are the product of the OWL% and the number of "games" played, where games must be equivalent to those played by a full team. The 27-out (or 26 or 25.5) game accomplishes this for a player.

Yet comparisons between players still cause difficulties that make the results hard to accept. A player with a very high On Base Average makes relatively few outs and thus gets few offensive games played. Players with extremely high OBA. tend to be hurt the most in comparisons. Instead of using the 27-out game for the calculation of offensive wins (OW) and offensive losses (OL), I suggest that a player's offensive games be based on plate appearances for better results. If you like to look up a lot of data, determine a players offensive games by dividing his total plate appearances (formula C from the previous page) by 38. A team will average about 38 plate appearances per game over the course of a season. A very good alternative that requires less work, is to divide a player's AB + BB total by 37. Table I below illustrates the difference that this method of calculating OW and OL can make. The column under DIFF (difference) is simply OW minus OL (or offensive wins above .500).

TABLE I - 1920 A.L. LEADERS IN OFFENSIVE WINS

			BASED ON 26-OUT GAME				BASED ON 37 AB+BB GAME			
PLAYER	RC	OWL%	OW	-	OL	DIFF	OW	-	OL	DIFF
SISLER	178	.862	13.0	-	2.1	10.9	15.8	-	2.5	13.3
JACKSON	143	.821	11.5	-	2.5	9.0	13.9	-	3.0	10.9
COLLINS	129	.768	11.4	-	3.5	7.9	13.9	-	4.2	9.7
SPEAKER	145	.836	11.3	-	2.2	9.1	14.7	-	2.9	11.8
JACOBSON	121	.733	11.3	-	4.1	7.2	13.0	-	4.7	8.3
RUTH	200	.930	10.7	-	0.8	9.9	15.2	-	1.1	14.1
FELSCH	109	.709	10.4	-	4.3	6.1	11.4	-	4.7	6.7
RICE	100	.604	10.3	-	6.7	3.6	10.8	-	7.1	3.7

Ruth's 1920 season was chosen because his .530 OBA. generates so few games when the 26-out method is used. Even if his OWL% was 1.000 he would only have 11.5 wins above .500. While some might be persuaded that George Sisler produced more offensive wins than Ruth did in the 1920 season, it is a little too much to say that Baby Doll Jacobson did! The second set of figures for wins and OW - OL difference gives a much better picture of the offensive production of the leading hitters of 1920, in my opinion. If you make similar calculations for Brett (1980), Morgan (1975) or Williams (1941 or 1957), the results are shown equally well.

If you add up the number of offensive games for the entire league, th 37 AB + BB method gives almost the same result as the 26-out method does (and as the actual number of games played by the league). However, I think there are three good reasons for using the method based on appearances.

The first was illustrated in Table I above. A player with a high OBA. doesn't have his number of offensive wins reduced so that they turn out to be less than those of players who clearly had poorer years at bat. Thus the offensive win total and more importantly, the wins above .500, become significant for measuring and comparing offensive productivity.

Secondly, if you combine OW and OL with defensive wins and losses to get overall player records, you don't undervalue the offensive portion of the total for players with a high OBA. For example, in 1920, both Jack Tobin and Babe Ruth played right field and had almost the same number of plate appearances (Tobin had 26 more). Yet using the 26-out game method, Tobin has 35% more offensive games than Babe Ruth. It doesn't matter which player was the better fielder, Ruth's offensive contribution should not be counted for 35% less than Tobin's when added to his defensive totals.

Finally, basing games on outs rather than appearances tends to slightly reduce a player's career OWL%. This occurs because his best seasons (the seasons with his best OBA.) count for a little less than the ones where he made more outs. In Babe Ruth's case, he has more offensive games played in both 1932 and 1933 than he does in 1920 if you base "games" on 26 outs. In fact Ruth had more plate appearances in 1920 than in either 1932 or 1933, and this excellent season should account for more OW than his merely good years of 1932 and 1933. Using the 26-out game method, Ruth has a career - OL record of 185.0 - 33.3 for an OWL% of .847 while his OWL% career mark based on plate appearances is .853 with a 241.0 OW and 41.6 OL record.

A ranking of the top offensive players of 1983 and of all-time, based on wins above .500 using the plate appearance game method, follows. The calculations for 1983 are much more complicated, and are park adjusted, so I will illustrate the method used with Dale Murphy as an example.

Dale Murphy had 130.622 RC in 1983 by formula (3). The park adjustment factor for Atlanta was 1.0506, so the N.L. average of 4.103 runs per game was multiplied by 1.0506 before his OWL% was determined. Murphy made 436 outs in 1983 (based on 589 AB, 178 hits, 4 CS, 15 GIDP, 0 SH and 6 SF) and has 16.148 27-out games (436 divided by 27). Thus he created 8.089 runs per game and using Bill James' Pythagorean Method, his OWL% mark is .7788.

To find the best estimate of appearances per game to use for Murphy, I considered the Atlanta team record. The 1983 Braves played 162 games and had 6198 plate appearances (5472 AB, 582 BB, 17 HBP, 78 SH, 46 SF and 3 DI). Thus the average Atlanta player had 38.259 plate appearances per game. Again Murphy had 687 appearances or 17.957 offensive games. Consequently he has .7788 x 17.957 or 13.985 offensive wins. (Just subtract this figure from 17.957 to get OL). Murphy's OW minus his OL gives 10.014 wins above .500 for the year which happens to be the best mark of 1983. It is important to note that this represents just offensive games, and if you add these to pitching and defensive games, you get a total of 324 rather than 162. Really Murphy's offensive contribution in 1983 lifted the Braves 5.007 games above .500 (or 10.014 divided by 2).

For interest, you can compare this figure and others in the tables that follow with the batting wins listed in the book The Hidden Game of Baseball by SABR members John Thorn and Pete Palmer. Note however, that these offensive wins combine both batting and base stealing, and cannot be compared precisely with batting wins only.

TABLE II - 1983 NATIONAL LEAGUE LEADERS IN OFFENSIVE WINS ABOVE .500

PLAYER	TEAM	OWL%	OW - OL	DIFFERENCE
Dale Murphy	Atla	.779	13.99 - 3.97	10.01
Pedro Guerrero	L.A.	.774	13.66 - 4.00	9.66
Mike Schmidt	Phil	.768	13.47 - 4.07	9.40
Jose Cruz	Hous	.767	13.36 - 4.06	9.30
Tim Raines	Mont	.736	13.73 - 4.92	8.81
Darrell Evans	S.F.	.763	12.32 - 3.83	8.48
Keith Hernandez	SL-NY	.727	12.22 - 4.59	7.63
Andre Dawson	Mont	.691	12.49 - 5.59	6.90
George Hendrick	S.L.	.719	11.09 - 4.33	6.77
Dickie Thon	Hous	.667	12.01 - 6.00	6.01

TABLE III - 1983 AMERICAN LEAGUE LEADERS IN OFFENSIVE WINS ABOVE .500

PLAYER	TEAM	OWL%	OW - OL	DIFFERENCE
Wade Boggs	Bost	.778	13.82 - 3.94	9.88
Eddie Murray	Balt	.764	13.41 - 4.15	9.26
Robin Yount	Milw	.744	12.78 - 4.40	8.38
Rickey Henderson	Oakl	.754	12.27 - 4.01	8.26
George Brett	K.C.	.762	10.72 - 3.35	7.38
Cal Ripken	Balt	.692	12.97 - 5.78	7.18
Lou Whitaker	Detr	.686	12.82 - 5.86	6.96
Willie Upshaw	Toro	.693	11.83 - 5.25	6.58
Cecil Cooper	Milw	.672	12.38 - 6.05	6.34
Alan Trammell	Detr	.700	10.55 - 4.52	6.03

These twenty players also happen to be the only ones in 1983 who had more than 6 offensive wins above .500. All numbers were actually calculated to 5 decimal places before they were rounded off for printing in the tables, which accounts for the fact that some differences appear to be .01 off. For Keith Hernandez, the ball park factor and the team plate appearances for New York and St. Louis are weighted by the number of plate appearances that Keith had with each club. I believe that these tables represent the best offensive ranking of players for the 1983 season.

As mentioned earlier, formula (2) was used for was used for Table IV and V whenever possible, to determine RC and (1) only when CS was unknown. No ball park adjustments were made. For interest, I have included for each player in Table IV, the average number of runs scored per game by the teams in his league over the course of the player's career. These figures are weighted on a plate appearance basis rather than simple averaging.

The last two tables list the offensive wins and won-lost differentials of the top fifteen players of all time, on a career and season basis. The rank in runs created, career OWL% and offensive wins is given in brackets, provided that the figure is in the top twenty of all-time. CALRG is my abbreviation for the average runs scored per game in that player's league over the course of his career.

TABLE IV - CAREER LEADERS IN OFFENSIVE WINS MINUS OFFENSIVE LOSSES

PLAYER	RC	OWL%	OW - OL	DIFFERENCE	CALRG
Ty Cobb	2527(4)	.796(7)	272.7(2) - 69.9	202.8	4.225
Stan Musial	2559(3)	.796(6)	270.6(3) - 69.2	201.4	4.361
Babe Ruth	2718(1)	.853(2)	241.0(7) - 41.6	199.4	4.850
Hank Aaron	2604(2)	.764(13)	284.2(1) - 87.8	196.4	4.178
Ted Williams	2355(6)	.865(1)	227.5(10)- 35.4	192.1	4.533
Willie Mays	2362(5)	.769(11)	256.6(4) - 77.0	179.6	4.213
Tris Speaker	2164(8)	.769(12)	240.9(8) - 72.3	168.6	4.308
Frank Robinson	2066(12)	.759(16)	234.5(9) - 74.3	160.2	4.126
Mickey Mantle	1939(16)	.795(8)	211.3(15)- 54.5	156.8	4.230
Lou Gehrig	2235(7)	.803(4)	206.4(16)- 50.6	155.8	5.140
Rogers Hornsby	2044(13)	.807(3)	201.0(17)- 47.9	153.1	4.451
Mel Ott	2085(11)	.752(18)	227.0(11)- 74.7	152.3	4.538
Jimmy Foxx	2128(9)	.772(10)	200.0(18)- 59.1	140.9	5.09[illegible]
Carl Yastrzemski	2108(10)	.684	255.8(5) - 118.0	137.8	4.1[illegible]
Eddie Collins	1801(19)	.713	220.6(12)- 88.9	131.7	4.269

To complete the top ranking players in each category, Pete Rose is 14th in runs created with 2026 (at the end of 1983) and 6th with 255.7 offensive wins, Joe Jackson is 5th in career OWL% with .798 and Hank Greenberg is 9th with a .776 mark. Mike Schmidt leads active players with a .736 career OWL%, good for 20th place all-time.

It might be noted that if caught stealing data was available for every season, that Ruth, Musial and Hornsby would probably have slightly lower OWL% if they had comparable CS totals to the ones that we presently know. Cobb would probably have a slightly higher OWL% and Foxx and Gehrig would not change very much. Nothing at all is known of Ott's caught stealing record and not enough is known of Speaker's and Collins' to make a guess. The SB and CS records of the rest of the players on the list are complete. As well note that a difference in league scoring of .5 runs per game is very significant.

The best seasonal performances are listed in Table V. The 1927 season records of Ruth and Gehrig, and Musial's 1948 record in that table do not consider SB and CS in the calculations. Since each of these three players was caught stealing more often than he was successful (based on the data available), their OWL% records may be slightly inflated for those years.

TABLE V - SEASON LEADERS IN OFFENSIVE WINS MINUS OFFENSIVE LOSSES

PLAYER	YEAR	RC	OWL%	OW - OL	DIFFERENCE
Babe Ruth	1923	209	.919	17.2 - 1.5	15.7
Babe Ruth	1921	228	.917	17.0 - 1.5	15.5
Ted Williams	1946	170	.912	16.5 - 1.6	14.9
Ted Williams	1947	166	.900	16.8 - 1.9	14.9
Ted Williams	1949	180	.878	17.3 - 2.4	14.9
Lou Gehrig	1927	211	.899	16.8 - 1.9	14.9
Stan Musial	1948	192	.894	16.7 - 2.0	14.7
Babe Ruth	1927	203	.901	16.5 - 1.8	14.7
Babe Ruth	1924	194	.898	16.3 - 1.8	14.5
Ted Williams	1942	168	.901	16.2 - 1.8	14.4
Rogers Hornsby	1922	202	.882	16.4 - 2.2	14.2
Jimmy Foxx	1932	202	.875	16.6 - 2.4	14.2
Babe Ruth	1920	200	.930	15.2 - 1.1	14.1
Babe Ruth	1926	185	.910	15.7 - 1.6	14.1
Ted Williams	1941	182	.930	15.1 - 1.1	14.0
Mickey Mantle	1957	165	.918	15.4 - 1.4	14.0

Ted Williams posted the top season OWL% with a mark of .936 in 1957 (with an OW - OL record of 13.6 - 0.9). Williams with .906 in 1954, and Hornsby with .914 in 1924 and .907 in 1925 are the only other players in history to better the .900 OWL% mark while getting at least 3.1 plate appearances per team game played. George Brett was close with a mark of .889 in 1980.

In addition to those in Table V, the following players obtained at least 16 offensive wins in a season: Lou Gehrig with 16.4 (1931), 16.1 (in both 1934 and 1936), Stan Musial with 16.4 (in both 1946 and 1949), Hank Aaron with 16.2 (1963), Lefty O'Doul with 16.2 (1929), Joe Torre with 16.1 (1971) and Yastrzemski with 16.0 (1970). Only the marks of Musial and O'Doul are not based on stolen bases and caught stealing. To achieve 16 wins, a player must combine a very high OWL% with a large number of plate appearances. I believe that this combination produces the best method by which a player's offensive work can be judged.

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MIKE KOPF....CONTINUED FROM PAGE 11

Mr. Fleming provides it. Can you stand to look upon Branch Rickey before he became the saintly Mahatma who broke the color line? Mr. Fleming has presented him in all his hypocrisy. And of course there's Ol' Diz, most quotable of ballplayers in the pre-Yogi era, and sabre-tooths will be particularly interested in his pre-season analysis of why 1934 was going to be a good year for fastball pitchers, but a downer for the curveball artists.

So--a pox on all previous bitching; this is really not an unworthy book. $15.95 is a lot of scratch, but that's what libraries are for. Of course, while you're there searching...well, you might just--by accident naturally--stumble across Mr. Fleming's previous book, the one I may have briefly mentioned in passing. If so, consider it fate, thrust aside all trivial employment and familial concerns, and immerse yourself in a time long ago, in a pennant race far away...

Distributions for Players' Offensive Performance Statistics[1]

Charles Hofacker

Researchers in sabermetrics enjoy comparing leagues, ballparks, and teams. Another comparison of long-standing interest involves players. For example, in the October 1982 issue of *The Baseball Analyst*, Ward Larkin compared batting average (BA) of players from many different eras. He pointed out one difficulty in making such a comparison: The distribution of BA across players in each league has changed over the years. To get around this problem, Ward Larkin used z scores for each player, defined as

$$\frac{BA - \mu_{BA}}{\sigma_{BA}}$$

Here, σ_{BA} is defined as the standard deviation across players in the league for that season and μ_{BA} is defined as the arithmetic mean for that league for the year. The standard deviation is a measure of average variation about the mean.

One way for z-score comparisons to be meaningful is for the distribution of BA to be normally distributed. One desirable property of the normal distribution is that it can be completely summarized by two numbers, the mean and standard deviation.

In the same issue of the *Analyst*, Bill James observed that while he thought z scores were a legitimate method of comparison, performance statistics in baseball are rarely normally distributed. Instead, players in the big leagues represent an extremely small percentage of the best players available. Consequently we would expect that observed distributions of player statistics would represent only the right hand portions of normal distributions. After all, players whose ability does not exceed some cutoff never make it to the majors. In general, one would then expect observed distributions of performance measures to have elongated right tails compared to normal distributions, even if there is some variation in the location of the cutoff. Statisticians would describe such a distribution as being skewed to the right. In the current article, I want to explore distributions across players on several offensive performance indicators. My main tools in this endeavor are graphical.

The data used for this article came from the Sporting News *Official Baseball Guide*. I used National League players only, and only included players with 50 or more official at bats (ABs). I decided to look first at home runs (HRs) and BA. Upon making some initial plots of the data, I observed that HRs seemed to follow the ability-cutoff hypothesis while BA did not. Such an unexpected result led me to reflect on why such a thing might occur.

One possibility that occured to me was that HRs may not be a good numeric measure of ability. There might be some transformation of home runs that is a good measure however, and this transformed variable might possess a normal distribution. Perhaps this transformation would have the property that differences between pairs of individuals with small numbers of home runs would be stretched relative to differences between individuals with large numbers of HRs. A justification for transforming HRs might reflect an argument like the following. There are really two types of players with a small number of HRs: Players with a large number of at bats and players with a small number of at bats. Such an argument suggests looking at some type of HR percentage, such as HR/AB.

Figure 1 shows the frequency polygon for HR/AB. As can be seen in the figure, the probability of a batter hitting .04 HRs per AB is around .07. The solid line represents the prediction for a normal distribution. The empirical distribution is right-tailed and seems to be consistent with the ability-cutoff hypothesis even after division by AB. Figure 2 shows HR data again, but instead of looking at the frequency of players with a certain percentage of home runs, it shows the probability that a player will hit a certain proportion of home runs or *less*. For example, the probability is .75 a player with 50 ABs or more in the NL in 1982 had .025 or less homers per AB. The line again represents the prediction based on the mean, standard deviation, and the equation for the normal distribution.

Figures 3 and 4 show BA plotted the same two ways. The BA distribution is not tremendously normal looking either, but it would appear to have an elongated left tail, rather than an elongated right tail. Figures 5 and 6 show the same data for the numbers of singles per AB. Here, the data are fairly normal looking, and do not seem to support the ability cutoff notion.

Why is HR/AB right tailed and singles/AB reasonably normal looking? My own opinion is that the difference lies in the difficulty of the performance indicator. I would like to point out that Bill James has made a similar comment about this result in a letter about project scoresheet.

Let me elaborate further about why I think the difficulty of the performance category changes the observed frequency plots. Hitting a home run is a difficult act, and consequently many players with 50 or more ABs hit none. If it was possible to hit a negative number of home runs, the distribution might look more like the singles plot. In other words, we might think of the HR variable as "limited" in the sense that nature does not allow it to become negative, even if that would be a reasonable summary of the HR ability of a particular hitter. All of those batters who by all rights deserve to hit 0 or less home runs tend to pile up in the distribution at 0.

[1]I would like to thank Kris Donaldson who assisted in computerizing the data used in this investigation. Also, the Office of Academic Computing at UCLA generously provided computer time for this investigation.

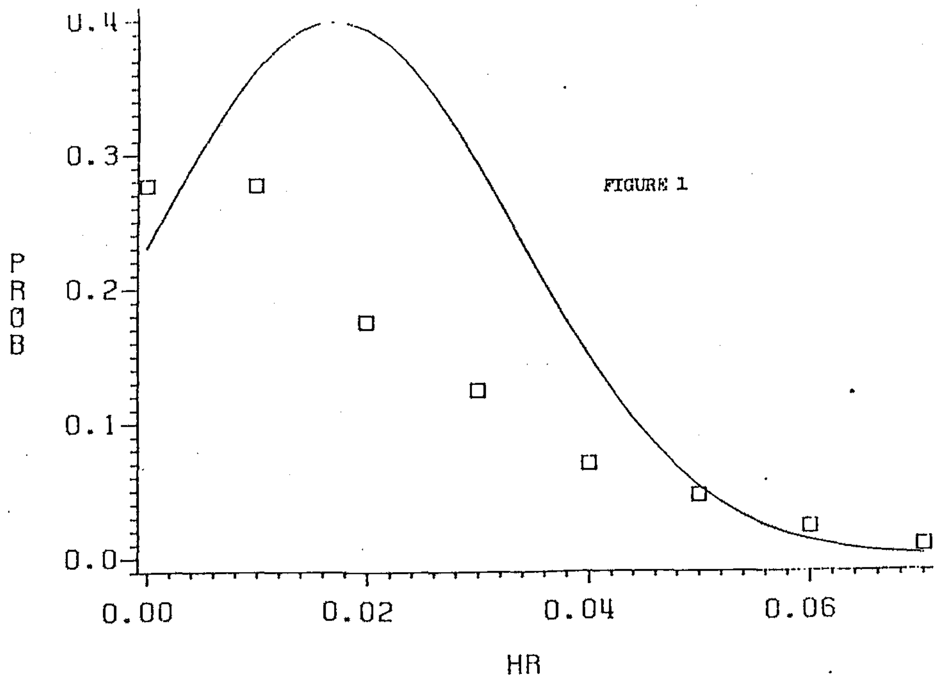


FIGURE 1
PROB
0.0
0.1
0.2
0.3
0.4
0.00
0.02
0.04
0.06
HR

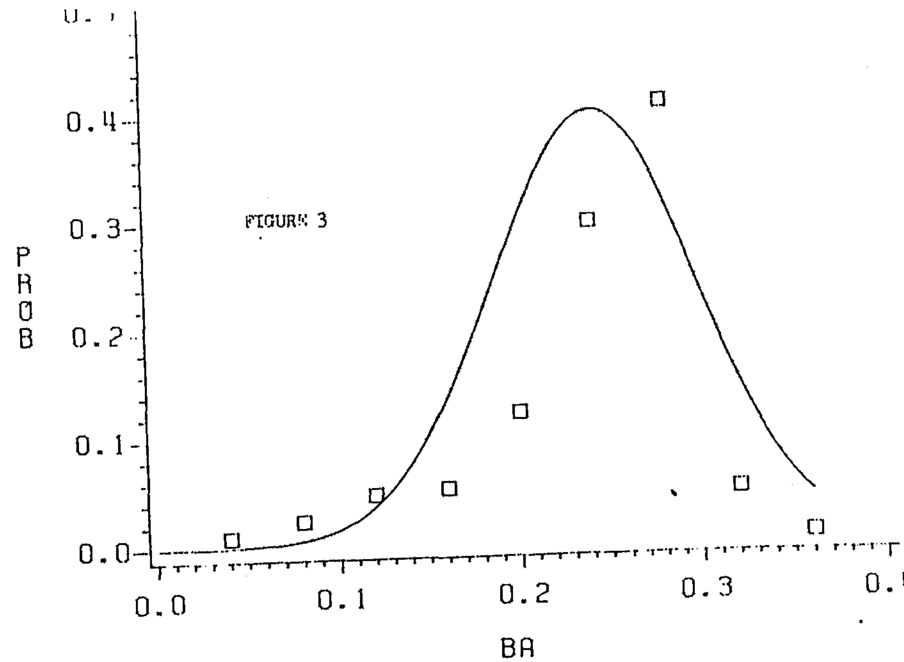


FIGURE 3
PROB
0.0
0.1
0.2
0.3
0.4
0.0
0.1
0.2
0.3
0.4
BA

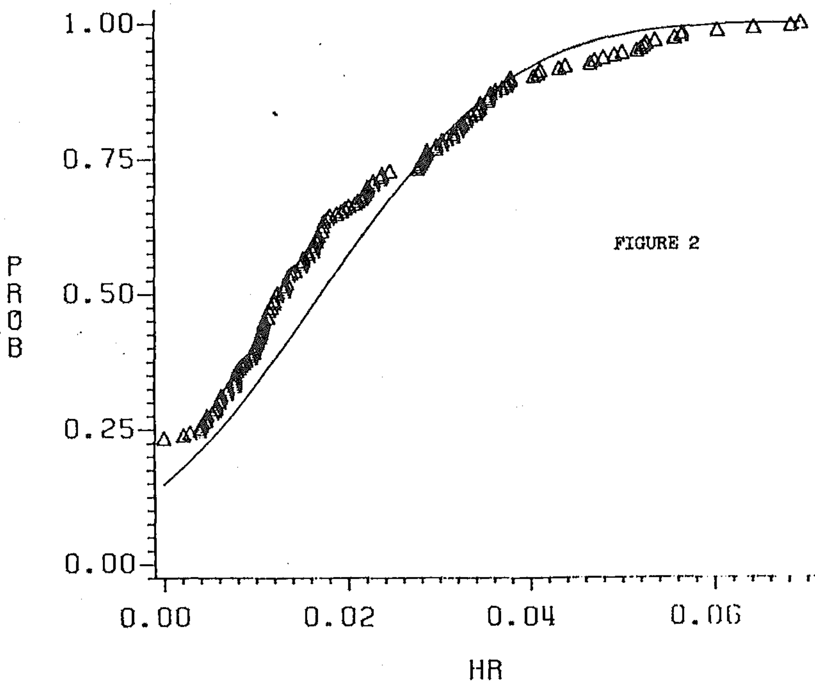


FIGURE 2
PROB
0.00
0.25
0.50
0.75
1.00
0.00
0.02
0.04
0.06
HR

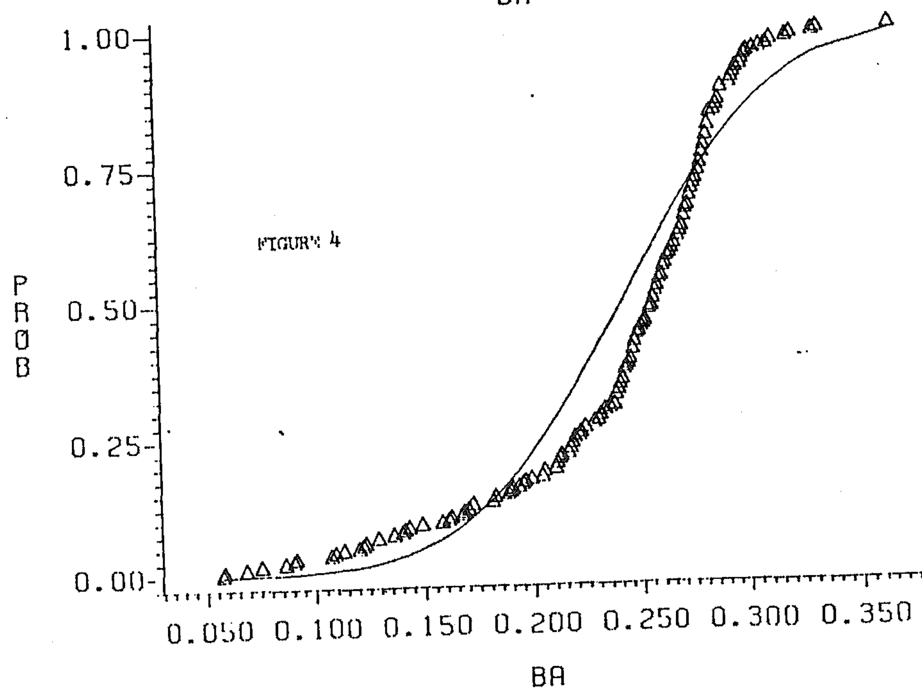
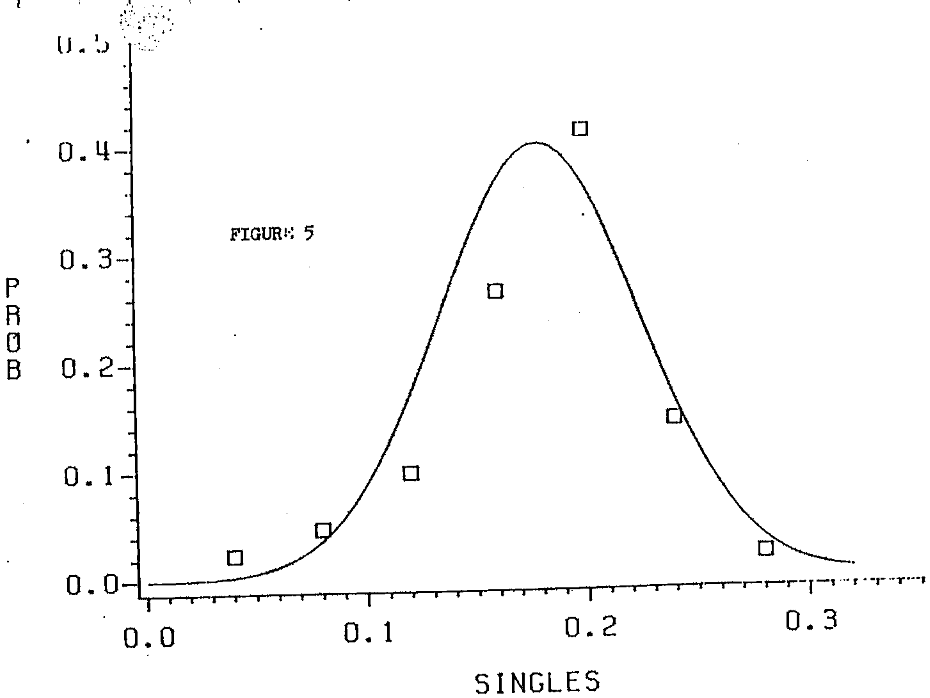
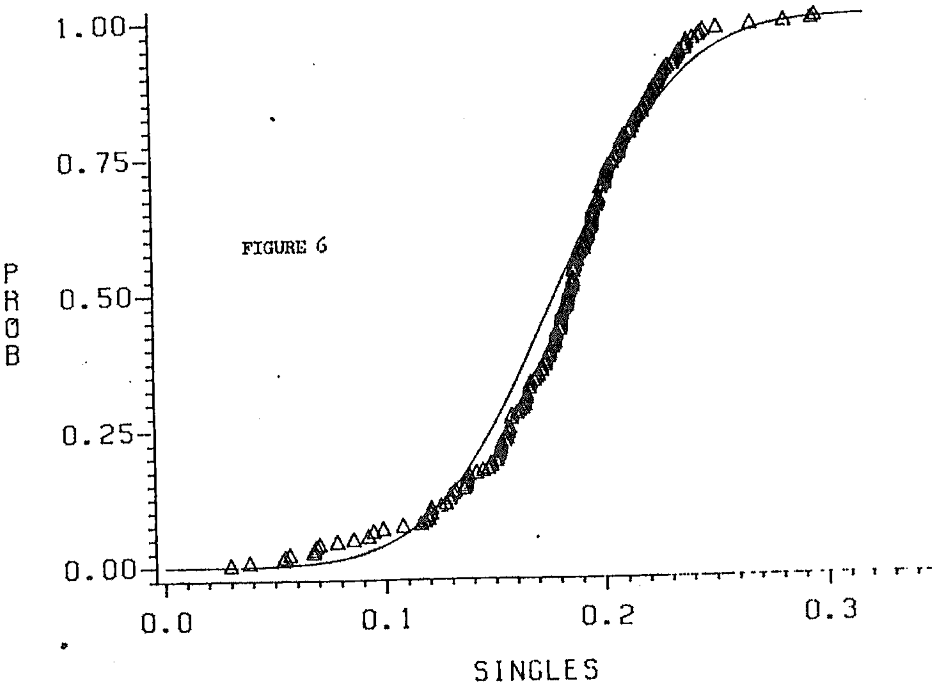


FIGURE 4
PROB
0.00
0.25
0.50
0.75
1.00
0.050
0.100
0.150
0.200
0.250
0.300
0.350
BA





In contrast to home runs, getting a single or two out out of 50 ABs is somewhat less demanding. The singles/AB indicator of ability is not limited in the sense that HR/AB is. In other words, the mean of singles/AB is far enough to the right of zero that there is no truncation on the left. The distribution of singles/BA might then give us a less obscured picture of the distribution of athletic ability in the NL; a picture that is approximated by a normal distribution.

Some readers might complain that I should have used a stricter cutoff than 50 ABs, or that I should have excluded pitchers from the study. If the cutoff was set strictly enough, no doubt even singles/AB could be made to support the ability-cutoff hypothesis. Instead, I think that assesing the offensive performance of major league players is fairest when we get as representative a sample as possible of individuals who face major league pitching and defense. It is then that we can see the extent of their ability relative to others.

In conclusion, I think that using z scores to compare players' BA is sensible. A z score would tend to give an approximation to the player's ability relative to the rest of the distribution.

It would also appear that there is evidence for right-tailed distributions, but this can be thought of as part of the nature of the particular variable, rather than the sample of players. Whether one sees this effect in actual performance data depends on the difficulty of the particular performance measure.