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February 1984

The Journal of Sabermetrics

Issue #10

OLD BASEBALL PIE PEOPLE



THE RED FINGERED DAWN'S ARRIVAL FOUND THE MADCAP BATTERY-MATES BOILING, PEEUNG, PARING THE TATTERED SPHERES, IN URGENT PREPARATION FOR AN EARLY VISIT BY MONTE AND THE COMMISSIONER

OLD BASEBALL PIE (OBP)

INGRE'D'S

1. 10-12 OLD BASEBALLS
2. 1 CUP of 'OLD WATER'®
3. OLD DOUGH
4. 1/4 GALLON KENTUCKY MASH
5. 4 STRIPS of LINGUINI
6. 1 PINCH "COPENHAGEN" FOR EACH BALL
7. 1 PINCH POWDERED 'MOUND' RESIN (OPTIONAL)
8. A PINCH OF SALT

PREP'R'T'N

SALTING THE WATER LIGHTLY, BOIL BALLS IN DARKENED POT FOR 8 HOURS OR UNTIL LEAGUE PRESIDENT'S NAME TURNS BEIGE (CHARTREUSE ON A. ASSOC. BALLS) LET COOL FOR 3 HOURS EXTRACTING BALLS FROM WATER—PRESERVING ONE CUP TO SERVE THE RECIPE'S DEMAND FOR OLD WATER® (IF YOU CAN'T GET REAL 'OLD WATER')

PEEL & PARE THE NOW TENDER SPHERES WITH KNIFE OR SIMILAR SHARP-EDGED INSTRUMENT, AND PERMIT TO DRAIN FOR 8 HOURS

NOW MAKE A THREE INCH INCISION IN THE SIDE OF EACH BALL USING A SHARP POINTED INSTRUMENT SIMILAR TO ABOVE ** CAREFULLY REMOVE EACH CUSHIONED CORK CENTER.

WEARING A RAINCOAT, OR SOMETHING SIMILAR, SMACK EACH BALL FIRMLY WITH A FLAT WOODEN Mallet, BEING CAREFUL OF INTERIOR DECORATIONS BECAUSE OF SQUIRT'G. THE BALLS WILL NOW APPEAR TO THE NAKED EYE LIKE FLAT VERMICELLI LATKES—

NOW CUT EACH (ONCE PROUD) EX-BALL, IN TWO; SIDEWAYS, CREATING FROM ONE ITEM, TWO IDENTICAL ITEMS: WHEN TURNED FACE UP, WILL SHOW GROOVES WHERE THE CUSHIONED CORK CENTERS ONCE WERE.

FILL THESE GROOVES WITH THE "COPENHAGEN" AND THE KENTUCKY MASH.

NOW CUT THE CUSHIONED CORK CENTERS INTO DIAMOND-SHAPED PEASIZED MORTARS.

TAKE PREVIOUSLY PARED HIDE EXTERIOR, REMOVING RED STITCHING WITH TWEEZERS (DO NOT USE TEETH) AND CUT INTO BITE-SIZED PIECES

CO'K'N'G PROC'U'R'S

PREPARE PIE DISH WITH THE DOUGH AND INSERT THE FLATTENED FILLETED OF BASEBALL, THROWING EVERYTHING ELSE MIXED TOGETHER ON TOP AND COVER WITH REST OF DOUGH.

TAKE THE 4 COOKED PIECES OF LINGUINI AND TURN THEM INTO MÖBIUS BANDS WITH THE ENDS BEING JOINED TOGETHER BY A FLOUR PASTE. DECORATE THE TOP OF PIE WITH THESE DELICATE 'TOUCHES'.

COOK FOR ENTIRE BASEBALL SEASON ON A LOW HEAT

T'PS

BE SURE BALLS ARE OF A PROFESSIONAL STANDARD, AND MANY TIMES FLIED FOR BEST CONSISTANCY. SCRUFFIN IS GOOD. GRASS STAINS ADD TO TASTE

WARN'G:

CHEAPER BRANDS OF BASEBALL CONTAIN INFERIOR BINDING PASTES THAT WILL NOT TRANSFORM INTO CARAMEL, AS THE PROFESSIONAL ONES, AND COULD GIVE YOUR PIE THE TASTE OF FLYPAPER. TAKE EACH MOUTHFUL WITH A PINCH OF SALT

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ABOUT THE COVER: The cover this issue comes to us from Mike Ross of London, England. About the recipe to Old Baseball Pie he says, "....All I can tell you about it is that it was imparted to me in its ancient form, by an old South American sports writer from Buenaventura in Columbia--one Andujar Smith. The recipe originated apparently around the turn of the century, supposedly created by a lost team of itinerant ballplayers who were roaming the Andes in search of a game. The baseballs were the last link between them and starvation. Their pie was cooked on a very high flame; but I have taken the liberty of adapting it and the ingredients to suit Northern Hemisphere tastes--substituting "Copenhagen" for "Hombre Rioja" and the Kentucky Mash for Mescal. (The linguini is my own addition.)...."

Mike is an original Analyst subscriber and invites other readers to write him with hot stove league news or any current baseball information, being that the Times and Daily Mirror STILL don't have box scores. His address: Mike Ross/2 Maida Ave./Little Venice/London, England W2/ phone: 723-9848. Look for more of Mike's art work to grace future issues.

A CRITIQUE OF "THE BEST FIELDING SECOND-BASEMEN SINCE 1925"

Dick O'Brien

Dan Finkle's article in the December, 1983, issue of the Analyst, "The Best Fielding Second-Basemen since 1925", aroused both my interest and ire. He marshals his arguments effectively and with inexorable logic until he introduces the "double play index" factor in evaluating second-basemen skills. The unmistakable inference is that turning the double play is a significant measurement of a second-baseman's skill.

I say, "Pish tush, pooh bah." And as far as the "misplay index" is concerned, anyone familiar with the official scorers egregious bias for "home-town heroes" such as Larry Bowa in Philadelphia or Red Schoendienst in St. Louis, knows exactly what I mean.

Nevertheless, I couldn't agree more with Dan's conclusions, and less with his arguments. Why didn't he just use the range factor index and let it go with that?

But I digress. What I hope to do is put to rest once and for all time the idea that executing double plays by the tonfull is somehow related to defensive skill. Granted, the second-baseman must be able to turn the double play, but leading all others in this single category is not a measurement of his worth. It's more of an index of his team's ineffective pitching staff who allow more than the average number of baserunners and excel in bases on balls. See Table I.

Consider these facts. Since the introduction of divisional play, there have been 30 teams leading both leagues in double plays. In 13 of these 30 cases (43%) the leaders have been either 1-2 or 3 in number of walks permitted. In 21 of 30 times (70%) the leaders' pitching staffs have been in the upper 50% of teams giving up the most walks.

Table I shows the team in each league giving up the most runs each year since 1969. It also shows the number of double plays made and its DP standing in the league. In 10 of these 30 instances, the team permitting the opposition the most runs has been 1-2 or 3 in the league in making double plays. In 17 of 30 times, the team has also been in the upper 50% of teams performing the double-kill ploy.

Dan's selection of Bill Mazerowski is certainly well argued and documented. Maz's glory years were from '57 -'68, and in those twelve brilliant years what makes his performance all the more remarkable is that the Pittsburgh pitching staff was among the league's stingiest in giving up bases on balls in nine of those twelve. This consideration alone would be enough to indicate the importance of those double plays in which he participated. Billy Herman's double play proficiency, on the other hand, needs closer examination. His best years were with the Cubs when their pitching staff was consistently among the league leaders in walks permitted. Our conclusion is inescapable. A high number of double plays executed is almost always a direct reflection of and proportionate to the number of bases on balls and/or base runners allowed.

TABLE I

Teams Allowing Most Opponent Runs

Year	League	Team	OR	DP	Standing
1969	AL	Seattle	799	149	9
1969	NL	Montreal	791	179	1
1970	AL	White Sox	822	187	1
1970	NL	San Francisco	826	153	5
1971	AL	Cleveland	747	159	3t
1971	NL	Montreal	729	164	3t
1972	AL	Texas	628	147	5
1972	NL	Atlanta	730	130	10
1973	AL	Kansas City	752	192	1
1973	NL	Atlanta	774	142	9
1974	AL	Detroit	768	155	10
1974	NL	San Diego	830	126	11
1975	AL	Milwaukee	792	162	4
1975	NL	Cubs	827	152	7
1976	AL	White Sox	745	155	6
1976	NL	Montreal	734	179	1
1977	AL	Minnesota	867	184	2
1977	NL	Atlanta	896	127	12
1978	AL	Seattle	834	142	10t
1978	NL	Atlanta	750	126	9
1979	AL	Toronto	862	187	2
1979	NL	Atlanta	763	139	9
1980	AL	Cleveland	807	143	13
1980	NL	Cubs	728	149	5t
1981	AL	Seattle	521	122	2
1981	NL	Cubs	483	103	3
1982	AL	Oak - Minn	819	140-162	12 - 7
1982	NL	Mets	723	134	7
1983	AL	Minnesota	822	170	4
1983	NL	Cubs	719	164	6

4572

Avg 152.4

To put double play totals in better perspective, let's compare the average number of them shown above with a similar average produced by World Series winners in the past fifteen years.

But before we do that, if you're wondering how the average number of double plays for those teams giving up the most runs compares with the average for those teams with the worst record in the league, it is shown below.

Most runs permitted	152.4
Worst record	153.9
World Series winners	151.53

If this argument doesn't put to rest for all time the myth of the importance of the double play, I don't know what would.

The Contenders During the Pressure Month - September

On the morning of September 1, 1983, ten baseball teams were still competing for three division championships. The two Eastern Divisions each had four teams in contention and the NL West had two contending teams with Atlanta 1.5 games behind Los Angeles. In the NL East, Pittsburgh was in front by one game over Philadelphia, one and a half ahead of Montreal, and St. Louis was two and a half games out in fourth place. Baltimore led the AL East by three and a half over second place Milwaukee; by four games over Detroit and by four and a half games over New York. Milwaukee had been gaining by playing the best ball in the East in July and August. Only the AL West had no race since Kansas City was ten and a half games behind Chicago.

This analysis was prepared to show how each of the contenders did from September 1 through October 2 compared to their play during the first five months of the season. How did each of these teams respond to the pressures of the championship races despite injuries and fatigue? An examination was made of the pitching and hitting statistics of each of the ten teams to attempt to find where and how each team succeeded or failed during the last month of the season.

Table 1 presents the won-lost percentages for the teams for April-August and then for September-October.

Table 1

	Phil	Pitt	Mont	St.L.	L.A.	Atl.	Balt.	Det.	N.Y.	Milw.
Apr-Aug	.511	.519	.508	.500	.583	.571	.597	.565	.562	.568
WON - LOST										
Sept-Oct	.742	.516	.500	.438	.467	.414	.636	.581	.563	.400

Philadelphia had by far the biggest improvement for the last month that was 45% better than demonstrated during the Apr-Aug period. Pittsburgh and Montreal played slightly under their earlier season records but did not change greatly. St. Louis worsened appreciably. Both Los Angeles and Atlanta played

poorer ball in September than they had in the first five months as they staggered to the wire. Atlanta's decline was the greater. Baltimore was the best September team in the AL East but Detroit played better ball in September than it had earlier; New York was practically identical (no collapse but no rush, either) and Milwaukee had September's worst record in the AL East, including the non-contenders.

Table 2 shows the number of starters and relievers used by each team during the last month. Most of the teams used a few pitchers as starters and relievers in September. Since this analysis compared the Apr-Aug records with the Sept-Oct records, it was necessary to classify these two-use pitchers as either starters or relievers for the Apr-Aug period. The third line of Table 2 shows the number of pitchers that had to be classified. For example, Palmer and Dennis Martinez were classified as starters, and Swaggerty as a reliever for the Orioles. Burris and Smith were listed as starters with Sanderson a reliever for the Expos. Each of these pitchers performed both functions during the last month.

Table 2

	Phil	Pitt	Mont	St.L.	L.A.	Atl.	Balt.	Det.	N.Y.	Milw.
Starting Pitchers	6	6	6	6	6	6	8	5	8	8
Relief Pitchers	7	8	10	10	9	10	7	9	7	9
Both	0	0	3	3	1	2	3	1	1	2

Note that Philadelphia and Pittsburgh had total separation of starters and relievers; each of the National League teams used six starters while three of the four American League teams used eight starters, and that Baltimore and New York used more people in the starting role than in relief. All of these teams except Baltimore used a few relief pitchers who had not pitched for the team prior to September while Philadelphia and Pittsburgh each used one starting pitcher who

had not previously pitched for the team in 1983.

Both starting pitchers and relief pitchers were examined to determine which category of pitcher had the greater change and therefore the greater influence on the team's outcome.

Two pitcher statistics were examined for both starting pitchers and relief pitchers. These parameters were ERA and hits per inning. The pitchers considered were only those used during Sept-Oct and not all of those who had been used during the Apr-Aug period in order to show how these pitchers did during the critical division race period in relation to their earlier performances. These data are shown in Table 3.

Table 3

		Phil	Pitt	Mont	St.L.	L.A.	Atl.	Balt.	Det.	N.Y.	Milw.
Starting Pitchers ERA	Apr-Aug	3.23	3.29	3.96	3.87	3.23	3.74	3.71	3.60	4.00	3.85
	Sept-Oct	3.11	3.08	3.28	4.45	3.75	2.86	3.99	3.67	3.65	4.52
Relief Pitchers ERA	Apr-Aug	3.16	4.12	3.38	3.31	2.12	3.42	3.68	3.58	3.72	4.13
	Sept-Oct	2.79	2.92	2.99	6.49	3.22	5.59	3.14	5.43	3.57	3.61
Starting Pitchers Hits Per Inning	Apr-Aug	.993	.947	.924	1.00	.945	1.028	.983	.888	1.003	1.022
	Sept-Oct	.956	.856	1.04	1.055	.916	.784	1.098	.987	.975	1.164
Relief Pitchers Hits Per Inning	Apr-Aug	.893	.986	.996	.956	.822	.953	.968	.968	1.032	1.051
	Sept-Oct	.807	.766	.790	.956	.842	1.172	.881	1.167	.747	.909

In a similar manner, some pertinent batting data were examined to show how the contending teams performed offensively. This was done to try to determine if pitching or batting was responsible for the success or failure of the contenders in September. The batting statistics are shown in Table 4.

Table 4

	Phil	Pitt	Mont	St.L.	L.A.	Atl.	Balt.	Det.	N.Y.	Milw.
Batting Average										
Apr-Aug	.246	.263	.266	.272	.251	.275	.267	.272	.274	.277
Sept-Oct	.264	.269	.255	.261	.243	.257	.281	.282	.265	.277
Runs/Game										
Apr-Aug	4.13	3.96	4.18	4.35	4.05	4.76	4.94	4.89	4.88	4.77
Sept-Oct	4.87	4.52	4.03	3.53	3.87	3.90	4.91	4.77	4.22	4.47
Hits/Game										
Apr-Aug	8.21	8.93	9.29	9.35	8.35	9.32	9.10	9.39	9.55	9.57
Sept-Oct	8.66	9.35	8.30	8.78	8.26	8.62	9.73	9.68	9.16	9.77
Home Runs/Game										
Apr-Aug	.727	.794	.641	.508	.932	.804	1.04	1.00	1.00	.833
Sept-Oct	.935	.548	.562	.531	.467	.793	1.03	.806	.719	.733

These values show why the Phillies had such a good September when they were 23-8. They improved in every category evaluated and they were the only team of the ten contenders that did that. Notable values include the ERA of the relief staff (best of the ten); runs per games (best in NL); home runs per game (best in NL); biggest increase in batting average of the ten teams. The Phillies' September surge was a total team effort with pitchers and hitters combining for a great month.

The figures for the Pirates do not explain why the Pirates were only 16-15 and three percentage points below their Apr-Aug performance. Improvement was obtained in every category evaluated except home runs per game. Runs per game for Sept-Oct was second highest of the NL contenders even though their Apr-Aug value was the lowest. Their hits per game were the highest of these NL teams. The starting pitcher ERA was the second best of these ten teams and that of the relief pitchers was also second best and the improvement in this category was by far the best of the ten. Could the drastic reduction of home runs had such a great effect or could it be that the Pirates were 2-4 with the Phils during this period as a part of the 16-15 Sept-Oct record?

Montreal's pitching improved in all categories but starters' hits/inning; however, the hitting deteriorated and was worse in every category. At 16-16 for Sept-Oct, just slightly worse than the rest of the season, Montreal's pitchers held up in the stretch drive but the hitters did not. Lack of hitting hurt the Expos rather than lack of pitching.

Not much good can be said about the Cardinals Sept-Oct performance. It was worse in every category but two, and one of these was unchanged. Only home runs per game improved. St. Louis had the highest relief pitcher ERA and second highest starting pitcher ERA of the ten teams. Relief ERA was a horrible 6.49 while the other three NL East relief ERA's were under 3.0. The hitters have to share the blame with the lowest runs per game of the NL teams and half a run per game less than the next lowest NL East team. With the highest ERA and the lowest runs per game, it's no wonder the Cards were 14-18 for Sept-Oct.

The two NL West contenders each lost more games than they won in Sept-Oct. The Dodgers can blame their hitting and their pitching. The relief pitcher ERA was up 1.1 and that of their starters was up .52. Los Angeles' hitting declined in every category. The batting average for Sept-Oct was the lowest of the ten teams and runs per game was the second lowest. The Dodgers did not distinguish themselves with their 14-16 record in the last month.

If Los Angeles was poor, then Atlanta was terrible with their 12-17 record as the worst of all of the NL West teams. The comparisons made here show why, although a case can be made for mismanaged pitchers. The Braves' starters had the best ERA of these ten teams and the relievers provided the second worse ERA and the Braves were one of only two teams whose relief pitchers' hits per inning was greater than that of the starters. Could it be that Mr. Torre trusted his bullpen too much and his starters too little? The numbers would indicate that this was so. The Atlanta hitting declined noticeably as well. Fewer runs per game (.86) and less of everything offensively show what the loss of Horner did to the Braves' offense. The Dodgers did not win the NL West; the Braves lost it.

Like the Phillies in the NL East, Baltimore in the AL East had an outstanding month (21-12). Although their starting pitching slipped a bit

relief pitching improved to produce a net improvement of .16 ERA while hits per game increased .031. The Oriole batting average improved greatly to the second highest of the ten teams (only .001 less than the leader). Team runs per game were slightly less (.03) than the Apr-Aug period.

Even though they had a winning record of 18-13 for Sept-Oct, Detroit's pitching and run production worsened in Sept-Oct. The relief pitching in particular was bad at 5.43 where the next worst of the contending AL reliever ERAs was 3.61. Runs per game was slightly worse (.12). It appears that poor Sept-Oct relief pitching was the Tiger downfall.

The New York winning percentage was only .001 different for the two periods. The pitching improved and the Yankee starter's ERA was the best of these AL East teams. The offense worsened in every category. The better pitching seemed to be counter-balanced by reduced hitting so that the Yankee record of 18-14 for Sept-Oct was representative of their performance for the entire 1983 season.

Milwaukee had the biggest position change of the ten teams, going from second to fifth in Sept-Oct. The starting pitching went bad, resulting in the highest starter ERA of the teams examined while the relief pitching improved. The hitting did not change very much with slightly fewer runs per game (.3); slightly more hits per game (.2) and .1 fewer homers per game. Milwaukee's record of 12-18 for Sept-Oct was the worst of the ten teams examined and it can be attributed to poor starting pitching.

In summary, the analysis performed here generally shows why each team performed the way that they did during the last month of the 1983 season. The biggest question is why didn't Pittsburgh do better? They improved in all but one category and had a worse winning percentage than the earlier portion of their season.

Minors 1983: Pitcher's or Hitter's Leagues

By Larry Smith

In scouting the baseball greats of the future, we often check a player's minor league credentials. Except for normally dismissing the high batting averages of the Pacific Coast League, we don't usually weigh each past season against the type of league the stats were accumulated in.

For the 1983 season, I totalled up the league's batting average, team runs per game, hits per game, homers per game and walks received per team per game, in order to try and categorize each minor league according to the style of play that is predominant therein. The table shown below has the results of those tallies. My judgement on a league is based on comparison of the league's average versus the total minor league average.

Here are some notes in general and some brief comments on certain individual leagues:

*Notice the trend in the means in batting average, runs/game and homers/game all going down as you drop from AAA means down to single A. But walks per game go the other way. This is consistent with the notion that as young pitchers develop toward the big leagues, their control improves. Also, since we expect to find older (therefore bigger and stronger) players at the higher levels, the homerun trend seems logical.

*The American Association is noteworthy as having the lowest walks/game average in minor league baseball.

*The International League trailed only the PCL in homers per game.

*As expected, the PCL is easily the dominant hitter's league, topping almost every offensive category.

*I was mildly surprised to see that the Eastern League appears to favor the pitcher somewhat. My job is only two miles from Heritage Park in Albany, which is a new stadium opened in mid 1983. Before that, the A's played in a bandbox called Bleecker Stadium that made Wrigley Field look like the Astrodome. I figured surely its presence would drive up that league's numbers.

*The Southern League came up lowest in runs per game at the AA and AAA levels.

*The Texas League sported the second highest batting average in minor league baseball. Aside from the competence of their scouting system, it is no wonder the Dodger farmhands look so good on paper; first San Antonio, then up to Albuquerque.

*It looks like the Florida State League is a rather difficult loop to score runs in. Homer totals are quite low there, too.

*Runs per game and hits per game are both low in the Midwest League.

*The New York-Penn circuit is the only A level league to have a home run/game ratio of greater than .8.

*The Pioneer League is the only A league with greater than 9 hits per game.

*The Gulf Coast League would appear to be a pitcher's paradise. Here my beloved Mets' representatives compiled the impressive total of two home runs in 59 games! They must be grooming the next Hubie Brooks down there.....

LEAGUE	B.A.	RUNS/G	HITS/G	HR/G	BB/G	TYPE
<u>AAA</u>						
American Association	.275	5.00	9.12	.87	3.56	H
International League	.270	5.17	8.84	.88	4.39	A
Pacific Coast League	.286	5.74	9.57	.96	4.01	H!
<u>AA</u>						
Eastern League	.257	4.68	8.10	.78	4.22	P
Southern League	.265	4.66	8.58	.67	3.95	A
Texas League	.281	5.49	9.27	.83	4.11	H
<u>A</u>						
California League	.262	4.63	8.56	.47	3.79	P
Carolina League	.258	4.98	8.54	.77	4.25	A
Florida State League	.257	4.41	8.27	.36	3.84	P
Midwest League	.254	4.47	8.08	.66	3.59	P
South Atlantic League	.262	5.15	8.54	.63	4.18	A
<u>Short Season A</u>						
New York-Penn League	.261	5.39	8.80	.82	3.98	H
Northwest League	.252	5.16	8.46	.51	4.40	P
<u>Rookie Leagues</u>						
Pioneer League	.270	5.85	9.03	.67	4.57	H
Gulf Coast League	.243	4.76	7.95	.20	4.45	P!
Appalachian League	.263	5.62	8.17	.74	4.66	A
Mean AAA	.277	5.30	9.18	.90	3.99	
Mean AA	.268	4.94	8.65	.76	4.10	
Mean A	.258	5.04	8.44	.58	4.17	
Mean Total	.264	5.07	8.62	.68	4.12	

Notes and explanations: Figures shown are per team per game....H means I rate it a hitter's league, P a pitcher's league and A is for average. The exclamation points are for well-deserved emphasis. "Mean A" includes A, Short Season A and Rookie Leagues.

A Comparison of Baltimore's September Pennant Drive With Their Performance During the Rest of the Season

Barry L Mednick

From September first to September twenty fifth, when the Orioles clinched the Eastern Division championship, Baltimore won 19 games while losing only 7. Their .731 winning percentage was much better than the .581 won-lost percentage for the other 136 games. Several Oriole players demonstrated their abilities in the clutch by exceeding performance levels set during the rest of the season.

Of course, games in April count as much as games in September, but in the latter part of the season division races are well defined, and greater pressure is placed on contending teams. As in the playoffs and World Series, some players outdo themselves while others choke.

The team

The reasons for the high winning percentage are quite plain. The Orioles hit better (.285 batting average versus .266 for the rest of the season) and pitched better (3.34 ERA versus 3.68). Although extra base hits were down by .26 per game, total hits increased by .85 to 9.92 per game. This increased runs per game from 4.86 to 5.31. The home run and stolen base rates were up 10%. Team slugging percentage increased .012 to .431.

Although the 26 games represent only 16% of the season, Oriole pitchers got 24% of their saves in this period. The number of hits given up per game rose slightly, but walks decreased by .5 per game to 2.38.

Hitting

Top batters during this period were:

	Average	Slugging Pct	Home runs	RBI
Ripken	.393	.573	4	15
Murray	.330	.649	8	20
Landrum	.321	.464	1	2
Nolan	.311	.533	3	9
Dauer	.311	.426	1	4
Lowenstein	.271	.542	4	14

Notable achievements include Murray's 5 game winning RBI (29% of his season's total), Singleton's 16 RBI, Ripken's 9 doubles (19% of the season), Murray's 7 doubles (23%) and Dempsey's 10 RBI (31%). Ripken scored 24 runs and Murray 22 in this period.

Players whose batting averages compared most favorably with the rest of the season performance were:

Ripken	+.091
Dauer	+.087
Sakata	+.047
Nolan	+.045

On the other hand, those whose averages decreased the most were:

Dwyer -.108
 Dempsey -.056
 Cruz -.033

Pitching

Mike Boddicker was outstanding in this period with three complete games in four starts and a 0.79 ERA. His 29 strikeouts represent 24% of his season's total. He gave up only 23 hits in 34 innings. Morogiello had a 0.71 ERA in the 12 2/3 innings he pitched. Tippy Martinez got a victory and six saves in 14 appearances with a 1.37 ERA. Mike Flanagan was 4-0 with a 2.43 ERA.

Dennis Martinez (1-2) and Jim Palmer (1-1) were the only pitchers without winning records. Martinez's 11.42 ERA was the worst on the club, followed by Palmer's 6.75. Tim Stoddard had a 6.43 ERA in 7 appearances, but managed to achieve a win and a save.

Top ERA comparisons to the rest of the season for pitchers with more than 50 innings were:

Boddicker -2.44
 Flanagan -1.25
 T Martinez -1.21

Worst performers in this category were:

D Martinez +6.24
 Palmer +4.16
 Davis + .94

The charts below show performances for the period. Each value is followed by the percentage of total season performance which it represents. For batting average, slugging percentage and earned run average, the difference is given between the September clutch performance and the player's average for the rest of the season.

	Games	IP	Hits	Walks	Strikeouts	ERA
Boddicker	(3-1)4(15)	34 (19)	23(16)	9(17)	29(24)	0.79(-2.44)
Davis	(2-1)4(12)	22.1(11)	24(13)	8(13)	9(7)	4.43(+.94)
Flanagan	(4-0)5(25)	37 (30)	40(30)	10(32)	15(30)	2.43(-1.25)
D Martinez	(1-2)3(9)	8.2(6)	17(8)	3(7)	2(3)	11.42(+6.24)
T Martinez	(1-0)14(22)	19.2(19)	15(20)	5(14)	15(19)	1.37(-1.21)
McGregor	(2-1)5(14)	36 (14)	37(14)	7(16)	17(20)	3.00(-.21)
Morogiello	4(18)	12.2(34)	12(31)	1(10)	4(27)	0.71(-2.53)
Palmer	(1-1)5(36)	24 (31)	37(43)	7(37)	15(44)	6.75(+4.16)
Ramirez	1(9)	1.1(2)	0	0	0	0.00
Stewart	(3-1)8(14)	17.1(12)	15(11)	6(9)	12(13)	3.63(+.02)
Stoddard	(1-0)7(15)	7 (12)	6(9)	4(14)	2(4)	6.43(+.39)
Swagerty	(1-0)4(57)	11.2(54)	15(65)	2(33)	3(43)	3.86(+2.06)
Totals	19-7 26(16)	231.2(16)	241(17)	62(14)	123(16)	3.34(-.34)

THE DIFFERENCE BETWEEN NIGHT AND DAY

by Paul Schwarzenbart

Forty-two years have now passed since Ted Williams became the last player to top the .400 mark for a full season. Since that time, numerous reasons have been suggested for the continuing failure to reach the .400 mark, among them: the advent of the relief specialist; the slider; bigger gloves; better athletes having more range afield; and night baseball. No single one of these factors, of course, accounts for the failure to produce a .400 hitter. As a Chicago Cubs fan, the effect, if any, of night baseball on depressing batting averages is especially intriguing, as year after year the endless debate continues as to whether it is good for the Cubs (in terms of winning) to continue to play exclusively day ball at home.

This article, therefore, has two objectives, to explore: (1) whether there is any evidence that night ball does in fact depress batting averages, and, if so, by how much; and (2) whether playing an unbalanced day/night schedule adversely affects performance under the more unusual conditions. Put bluntly, does playing all that day ball at home affect the Cubs' ability to hit at night?

First, the basics: This project uses all day/night statistics for the years 1973, 1976, 1979 and 1980. The first, and probably least accurate, measure of the effect of night baseball is to compare all the pertinent statistics from all night games versus all day games. In addition to batting average I use slugging percentage, R/9 IP, K/W ratio and W/9 IP to get a full perspective of possible effects on hitting caused by night baseball. (K/W and W/9 IP are listed as hitters performed.)

	<u>R/9 IP</u>	<u>BA</u>	<u>SA</u>	<u>K/W</u>	<u>W/9 IP</u>	<u>G</u>
Visitor-Day	4.22	.261	.380	1.60	3.10	2726
Visitor-Night	3.99	.255	.371	1.62	3.10	5359
Home-Day	4.54	.265	.391	1.42	3.44	2726
Home-Night	4.41	.264	.388	1.43	3.36	5359
Total-Day	4.38	.263	.385	1.50	3.27	8079
Total-Night	4.19	.260	.379	1.52	3.23	8079

The differences are rather smaller than I would have expected. The most significant difference is the .2 R/g (referring to 9 IP as a "game"). The other differences are consistently in favor of better offensive performance by day, but the effect appears to be very slight.

The next step was an attempt to filter out and separate the pure ballpark effect from the day/night effect. There is, of course, a great variation in the number of night games played in any particular park. Aside from the Cubs, other teams with especially high percentages of day games included the New York Mets (45%), San Francisco Giants (56%), Minnesota Twins (44%), and Boston, Cleveland and Oakland (42%). On the low end were Texas (6%), Seattle (12%), Houston (15%), Atlanta (16%) and Philadelphia (20%). Obviously, the fact that a large

percentage of total day games played were played in a limited number of ballparks could tend to distort the total picture.

Wrong. Apparently the good day ballparks (Boston and Chicago) are offset by the bad ones (Shea, Oakland). The attempt to filter out "ballparks effects" produced no substantial difference in the overall picture regarding day/night effects. Figuring the average difference in batting average between day and night games, by obtaining the difference for each individual park and averaging them arithmetically, produced a difference of about .027. Eliminating those ballparks in which less than 100 total day games were played over the four years did not change the result. Eliminating those parks in which less than 15 day games per year were played did not change the result. The slugging percentage difference averaged out to .052, R/g a difference of .183.

In substance, the effect of night baseball of batting averages and offensive production in general does not seem significant enough to constitute a major reason that no one has hit .400 for the past forty-two years. That the little differences noted add up to a difference of .2 r/g is the most significant finding.

The conclusion that night baseball has a small but insignificant effect on batting averages is made with one caveat, that is, we are looking at the effect of night baseball on today's players. To the modern ballplayer-night baseball is the norm by the time he arrives in the major leagues. Should not a player be expected to perform better playing under conditions he is used to. Therefore, although daylight conditions may actually be preferable for hitting, the fact that the average ballplayer plays most often under the lights may tend to depress day batting averages from what could or should be a higher figure.

This leads to the second subject of this study, what effect, if any, does an unbalanced schedule have? But first, a short aside. While doing this study I compiled George Brett's day/night averages for his near miss of .390 in 1980. Brett's day/night performance was as follows:

Day: $34/94 = .362$ Night: $141/355 = .397$ Overall: $175/449 = .390$
Games: Day-25 Night-93 Total-118.

As an aside, not only does Kansas City play on phony turf but they definitely emphasize the night-life, having played 66/324 or 20.3% of their games at home over the four year study during the daylight hours. As a matter of fact, KC's total of day games, at home and on the road came to 163 out of a possible 648, or 25.2%, significantly less than the 31.7% American League average over those years. It is fair to say that Brett would be less accustomed to playing during the day than most players, though not as much as a player with the Rangers over that period (21.9% day games). It is questionable, indeed doubtful, that more day games would have helped Brett. (More righthanded pitching would have helped; he hit .437 against righties.)

As for the familiarity theory, it goes something like this: If you play a lot of games at home either at night or by day, the most extreme examples being the Cubs and the Rangers, you should perform better under those conditions while on the road. In theory, the Cubs should play better on the road during day games; Texas should play better on the road at night.

This theory doesn't stand up very well under scrutiny either. The Cubs did hit better on the road during day games than night games, .244 to .236, but that difference is only .002 more than the average differential for teams playing on the road, as noted in the full table in this study. San Francisco, the second-most "day" team averaged .011 higher, the Mets, the third biggest day team averaged .015 higher. This looks like the beginning of a trend, but it isn't. Among other teams which played more than 40% of their home games during the day, Boston hit 5 points higher at night on the road, Cleveland 1 point higher by day, Toronto 4 points higher by day, Minnesota 8 higher by day, Oakland-no difference.

The full figures: (Road batting averages by day and night)

Team	%H(d)	D(ave)	N(ave)	Team	%H(d)	D(ave)	N(ave)
CH	100.0	.244	.236	BA	21.7	.253	.268
MN	38.5	.246	.245	BS	42.4	.258	.263
NY	44.6	.261	.246	CL	42.5	.259	.258
PH	19.8	.264	.251	DT	34.1	.263	.263
PT	35.5	.269	.260	ML	36.0	.272	.256
SL	25.2	.260	.260	NY	37.8	.255	.262
AT	16.2	.246	.236	TO	43.8	.246	.242
CN	34.9	.274	.269	CA	19.8	.265	.261
HO	14.8	.265	.256	CH	37.7	.277	.256
LA	21.8	.258	.255	KC	20.4	.272	.260
SD	22.9	.241	.249	MN	44.3	.268	.260
SF	56.5	.259	.248	OK	41.7	.261	.261
				SE	12.3	.263	.250
				TX	5.9	.269	.253

This table would tend to prove it is unusual for a road team to hit better during night games, the exceptions being the Yankees, Boston, Baltimore and San Diego. This is consistent with the 6 point difference between a road team's performance during day as opposed to night games. Aside from that it proves little. Texas and Seattle appear to thrive playing by day on the road, despite the fact that they rarely play home day games. The Cubs are just plain bad on the road, day or night. Apparently, the Cubs cannot use the fact that they are used to playing during the day while at home as an excuse for their consistently poor road play.

In conclusion, it appears more likely that improved fielding and improved pitching are the more likely culprits accounting for the failure of the present-day ballplayer to reach the .400 mark in spite of astroturf and expansion. While day ball does appear to have some small effect on batting averages, this effect falls far short of the commonly attributed effect of 10-15 points in batting average.

A good article, thank you Paul. There is an article on night baseball in the 1984 Abstract, as well. A couple of points:

1) Note the huge difference in K/W ratios between the 'home' teams and the 'visiting' teams. This is something we have got to start looking at seriously. I've noticed it before. The 'home field advantage' is larger in the 'walks' category than it is in any other performance area, for the obvious reason that the umpires are influenced by the home team fans. But which umpires are influenced, and how much? We've got to start taking a good look at this issue.

2) Paul doesn't deal with an essential fact of the day/night differential. He suggests that the modern player's 'familiarity' with night baseball is important. I would suggest that a much more important factor for modern players is that lighting is a lot better.

I think that night baseball was one of the two major factors that drove down batting averages from 1938 to 1968. The other was stadium design, ballpark architecture. When you move from Ebbets Field to Chavez Ravine, that takes a lot of hits out of the league. When you move from Sportsman's Park to Memorial Stadium in Baltimore, that takes a lot of hits out of the league.

And the early lights, the lights of the forties and fifties and sixties, they took a lot of hits out of the league too. The rise of the power pitcher from 1938 to 1966 coincides with the coming of more and more night baseball--the rise of the power pitches.

After 1966, that factor had, pardon me, maxed out. After that, there weren't more night games. The improvement in lighting conditions continued; the increase in the number of night games stopped. And batting averages turned around and went up, and the power pitchers all but disappeared.

MEDNICK, continued from page 14

	G	AB	R	H	Dbl	HR	RBI		GW	BA	SLG	AV						
Bumbry	17(14)	59(16)	11(18)	17(16)	3(21)		8(26)			.288	+.015	.339	-.022					
Cruz	25(17)	47(11)	2(5)	8(9)	2(15)		3(6)	Bumbry	1(14)	.170	-.033	.213	-.110					
Dauer	22(16)	61(13)	10(20)	19(18)	4(21)	1(20)	4(10)	Cruz	1(20)	.311	+.087	.426	+.135					
Dempsey	20(16)	44(13)	6(18)	8(10)	2(13)	1(25)	10(31)	Dauer	1(100)	.182	-.056	.295	-.032					
Dwyer	19(19)	40(20)	6(16)	8(14)	2(12)	1(13)	8(21)	Dempsey	2(33)	.200	-.108	.325	-.220					
Ford	16(16)	55(14)	7(11)	15(13)	2(7)	1(11)	6(11)	Dwyer		.273	-.014	.400	-.040					
Gulliver	19(83)	42(89)	5	9	2		2	Ford		.214		.262						
Landrum	19(73)	28(67)	6	9	1	1	2	Gulliver	1	.321		.464						
Lowenstein	22(18)	48(16)	9(17)	13(15)	1(8)	4(27)	14(23)	Landrum	2(22)	.271	-.011	.542	+.073					
Murray	26(17)	97(17)	22(19)	32(18)	7(23)	8(24)	20(18)	Lowenstein	5(29)	.330	+.029	.649	+.13					
Nolan	19(26)	45(25)	7(28)	14(28)	1(9)	3(60)	9(38)	Murray	1(50)	.311	+.045	.533	+.13					
Ripken	26(16)	117(18)	24(20)	46(22)	9(19)	4(15)	15(15)	Nolan	2(12)	.393	+.091	.573	+.068					
Roenicke	18(16)	46(14)	5(11)	11(13)		3(16)	11(17)	Ripken	1(17)	.239	-.025	.435	-.049					
Sakata	14(21)	24(18)	4(17)	7(21)	2(29)		1(8)	Roenicke		.292	+.047	.375	+.000					
Shelby	23(18)	54(17)	4(8)	15(18)	1(7)		2(7)	Sakata		.278	+.023	.333	-.03					
Singleton	24(16)	84(17)	7(14)	24(17)		2(11)	16(19)	Shelby	1(50)	.286	+.012	.381	-.06					
Young	7	7	1					Singleton										
-----										.285			+.019		.431		+.012	

A NATIONAL LEAGUE RATING SYSTEM

by Joe Levy

When a particular baseball season has concluded the regular campaign, with all of the teams having played approximately 162 games, there exists a greater tendency for baseball analysts to draw specific conclusions about performance, due to the fact that there are no longer any fluctuating, but rather fixed and complete statistics.

Given the 162-game yardstick of prior seasons, the performance levels of current players and teams can be more comprehensively interpreted, after all the numbers have become final stats. Baseball statistics then become fixtures for research and analysis during the off-season, when teams are mapping out their strategy for the next year.

With this bit of research-oriented rambling behind us, we shall plunge directly into a simple but comprehensive approach to rating baseball players in one of the two major leagues, the National League. This rating system, comprised of 126 active NL players, is based strictly upon team performance and can be effected only after all 972 National League games are played.

After all of the numbers are in, including the final won/loss records, it becomes very much like putting together a National League jigsaw puzzle for a particular year, using numbers instead of beveled pieces. The analogy of a puzzle is an approximation of the definitive purpose and function of this National League rating system.

Though it may appear that this ranking system is some kind of rating evaluation, the actual ratings by position (catcher, first base, etc.) are meaningless when taken out of context with the whole system. In other words, this can only make sense when approached from perspective of fitting together a group of interrelated components (players) into the parameters of a collective whole (team wins).

To put it more plainly, this rating system subjectively ranks National League players by position based upon an objectively prescribed number of total team victories, with regard to every other team's final won/loss record.

Not plain enough? Well, let's try this. With this system, I rate players at each position using your best judgement from available data, and then move players up or down in ranking order to make the things match up with respective team win totals. Explanations aside, it's time to proceed to the nuts and bolts of the system.

As mentioned before, there are 972 total wins each year which correspond to 972 rating points. Each player listed has a team and a point value, and this number taken together with teammates' numbers should add up to the teams' final wins.

But there is one small catch here in the aggregate points. Instead of 972 points, there are only 732 points in the system, a difference of 240 points. Two-hundred forty divided by twelve (each team) equals twenty. Every team then, gets exactly 20 team points that are not accounted for in the ratings, so that each team's point values are exactly 20 wins shy of the actual number of wins. An example of this: If team A wins 88 games, then their point total would be 68

The infield positions have the following set of point values: (10, 9, 8, 7, 6, 5, 4, 3, 2). 45 players

While the outfield positions have this set of point values: (11, 10, 9, 8, 7, 6, 5, 4, 3). 27 players

Pitching is divided into two categories, starting and relief, of course. They have the same set which follows: (9, 8, 9, 8, 8, 8, 7, 7, 7; 6, 6, 6; 5, 5, 5; 4, 4, 4, 3) X 2. 38 players. Note: One extra point is given to the best pitcher in either category, but not both.

And finally, the last part of the rating system does not use any form of ranking. There are sixteen bench players appearing that receive two points each.

That's really all there is to it. The assigned point values are quite easy to follow and calculate. An addition calculator and plenty of paper would help, meaning that it is ideally suited for computing on a word processor.

Unfortunately, the rest is all uphill. Even though the actual listing of players subjectively is simple enough, it becomes increasingly more difficult to make this National League rating system match up precisely. This makes for a rather large, yet non-infinite number of final choices, and therefore a less than subjective element is ultimately attained.

The whole purpose behind this is making a rating system with the challenge of having the player puzzle match exactly. Each player's point value is directly related to all other players' point value within the framework of the system.

There are of course some obvious drawbacks:

- 1) Who Cares?
- 2) Beyond that, what happens when there are two or three games not played, and hence 969 or 970 total games played? Adjustments must then be made to the pitching rankings, and more specifically by eliminating the last pitcher from either list, and thereby reducing the base figure to 969.
- 3) What about player trades and change of fielding position during the season? Since a player can only be assigned to one team and one position, there must be a decision according to the number of games appeared with each team or at each position. Comparative value should be considered, but usually the majority of games played—rules, as far as split seasons are concerned.
- 4) At the five infield positions, a player ranked first does not in reality have five times the value of a player who is ranked ninth, as in the system. Disparity such as this should be overlooked but not completely ignored, for the sake of aesthetics and simplicity.
- 5) In the 1983 National League rankings, due to the over-abundance of good seasons by first basemen, Chris Chambliss of the Atlanta Braves was left off the list. Also because of the fact that there were no exceptionally good seasons by right fielders, none realistically deserve a rating of 10 or 11. The way that the system is

structured causes some distortion throughout. Usually, lesser teams have players ranked higher than they should be, or perceived to be.

Aside from all these drawbacks, there are a couple of advantages. One reason is the fact that it's easy to set up, so that the average fan can compute his/her own rating puzzle using these guidelines correctly. The only thing required is to plug in the players and then match up the totals.

The other advantage of this system is the challenge of a completely new puzzle after each year, and a numerically logic order when the thing is solved. Besides, it's also a good way to kill some time in late October when the World Series has concluded.

There are still two minor rules that have not as yet been mentioned. Every team must have a player listed in each pitching category (two pitchers). Also, every team must have at least one, but not more than two bench players listed in the system.

A similar type of rating puzzle could be developed for the American League, with an extra category for the designated hitter. There would of course be a completely different set of variables to contend with.

To succeed in making this work takes a lot of patience and a little bit of baseball ingenuity, plus an affinity for lists... Happy rating.

LEFT FIELD		RIGHT FIELD	
Jose Cruz, Hou	11	Dave Parker, Fgh	11
Jeff Leonard, SF	10	Darryl Strawberry, NY	10
Tim Lincecum, Mon	9	Jack Clark, SF	9
Dusty Baker, LA	8	David Green, StL	8
Gary Redus, Cin	7	Mike Marshall, LA	7
George Foster, NY	6	Claudell Washington, Atl	6
Lonnie Smith, StL	5	Terry Puhl, Hou	5
Keith Moreland, Chi	4	Joe Lefebvre, Pha	4
Gary Mathews, Pha	3	Sixto Lezcano, SD	3

STARTERS		RELIEVERS	
John Denny, Pha	10	Jesse Orosco, NY	9
Steve Rogers, Mon	9	Al Holland, Pha	9
Maric Soto, Cin	9	Gary Lavelle, SF	9
Larry McWilliams, Fgh	8	Lee Smith, Chi	8
Craig McMurray, Atl	8	Kent Tekulve, Fgh	8
Nolan Ryan, Hou	8	Frank DiPino, Hou	8
Dave Dravecky, StL	7	Bruce Sutter, StL	7
Charlie Lea, Mon	7	Steve Bedrosian, Atl	7
Bob Welch, LA	7	Greg Minton, SF	7
Fasquel Perez, Atl	6	Jeff Reardon, Mon	6
John Candelaria, Fgh	6	Steve Howe, LA	6
Fernando Valenzuela, LA	6	Tom Niedenfuer, LA	6
Atlee Hammaker, SF	5	Bill Dawley, Hou	5
Steve Carlton, Pha	5	Luis DeLeon, StL	5
Eric Show, SD	5	Gary Lucas, SD	5
Joe Price, Cin	4	Ron Reed, Pha	4
John Stuper, StL	4	Bill Scherrer, Cin	4
Ed Lynch, NY	4	Terry Forster, Atl	4
Dick Ruthven, Chi	3	Doug Sisk, NY	3

CATCHER	
Terry Kennedy, SD	10
Tony Pena, Fgh	9
Jody Davis, Chi	8
Gary Carter, Mon	7
Bo Diaz, Pha	6
Bruce Benedict, Atl	5
Darrell Porter, StL	4
Dan Bilardello, Cin	3
Steve Yeager, LA	2

SECOND BASE	
Ron Oester, Cin	10
Ryne Sandberg, Chi	9
Steve Sax, LA	8
Johnny Ray, Fgh	7
Bill Doran, Hou	6
Glenn Hubbard, Atl	5
Juan Bonilla, SD	4
Joe Morgan, Pha	3
Tommy Herr, StL	2

THIRD BASE	
Mike Schmidt, Pha	10
Pedro Guerrero, LA	9
Bill Madlock, Fgh	8
Bob Horner, Atl	7
Ron Cey, Chi	6
Phil Garner, Hou	5
Tim Wallach, Mon	4
Luis Salazar, SD	3
Nick Esasky, Cin	2

BENCH PLAYERS	
Bob Watson, Atl	2
Jay Johnstone, Chi	2
Johnny Bench, Cin	2
Duane Walker, Cin	2
Dennis Walling, Hou	2
Jack Fimple, LA	2
Terry Francona, Mon	2
Rusty Staub, NY	2

FIRST BASE	
Darrell Evans, SF	10
George Hendrick, StL	9
Al Oliver, Mon	8
Keith Hernandez, NY	7
Bill Buckner, Chi	6
Ray Knight, Hou	5
Dan Driessen, Cin	4
Steve Garvey, SD	3
Jason Thompson, Fgh	2

SHORTSTOP	
Dickie Thon, Hou	10
Ozzie Smith, StL	9
Ivan DeJesus, Pha	8
Rafeal Ramirez, Atl	7
Garry Templeton, SD	6
Johnny LeMaster, SF	5
Dave Concepcion, Cin	4
Dale Berra, Fgh	3
Bill Russell, LA	2

CENTER FIELD	
Dale Murphy, Atl	11
Andre Dawson, Mon	1
Willie McGee, StL	8
Ken Landreaux, LA	8
Nookie Wilson, NY	5
Alan Wiggins, SD	5
Mel Hall, Chi	5
Gary Maddox, Pha	5
Eddie Milner, Cin	5

BENCH PLAYERS	
Greg Gross, Pha	2
Tony Perez, Pha	2
Jim Morrison, Fgh	2
Andy Van Slyke, StL	2
Gene Richards, SD	2
Kurt Bevacqua, SD	2
Duane Kuiper, SF	2
Dave Bergman, SF	2

NATIONAL LEAGUE FINAL STANDINGS	
WEST DIVISION	
LOS ANGELES	91
ATLANTA	88
HOUSTON	85
SAN DIEGO	81
SAN FRANCISCO	79
CINCINNATI	74

EAST DIVISION	
PHILADELPHIA	85
PITTSBURGH	82
MONTREAL	79
ST. LOUIS	77
CHICAGO	76
NEW YORK	74

TEAM POINTS BREAKDOWN		TOTAL
Los Angeles	2; 8; 2; 9; 8; 8; 7; 7; 6; 6; 2;	7
Atlanta	5; 5; 7; 7; 11; 6; 8; 6; 7; 4; 2;	6
Houston	5; 6; 10; 5; 11; 5; 8; 8; 5; 2;	6
San Diego	10; 3; 4; 6; 3; 6; 3; 7; 5; 5; 4;	61
San Francisco	10; 5; 10; 9; 5; 9; 7; 4;	52
Cincinnati	3; 4; 10; 4; 2; 3; 7; 9; 4; 4; 4;	5
Philadelphia	6; 3; 8; 10; 4; 3; 4; 10; 5; 9; 4; 4;	5
Pittsburgh	9; 2; 7; 3; 8; 11; 8; 6; 8; 2;	5
Montreal	7; 8; 4; 10; 9; 9; 7; 6; 2;	5
St. Louis	4; 9; 2; 9; 9; 5; 8; 4; 7; 2;	5
Chicago	8; 6; 9; 6; 5; 4; 3; 8; 2;	5
New York	7; 7; 6; 10; 4; 9; 3; 2;	5