NO SEASON BETTER

The Phenomenal 1920 Season of George Sisler

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The benchmark for a good season, batting-average wise, is 300. A great hitter hits 400. Most people know the statistic: Ted Williams was the last 400 hitter - 406 in 1941. Each year, excitement is rampant as a player or two toys with the magic 400 level, before usually collapsing in late-season.

But how would one gauge "the best season"? Sure, one could rank annual batting champions, and search for the highest average. That'd be easy - maybe even right.

This analysis, based on data from Retrosheet, suggests the 1920 season of George Sisler stands above all others.

Clearly, by the table, Nap Lajoie's 426 average makes this the best hitting season, followed by the great Rogers Hornsby at 424, and George Sisler and Ty Cobb, each with 420 seasons. *But is this right?*

Has a 400 hitter with 400 at-bats, for example, had a better season than a player hitting 380 with 600 at-bats? As note above, several players have flirted with the magical "400", only to fall off as the season progresses. Is our 400 hitter above any different? These are only two variables - average and # of at-bats. Surely, there are others: on-base %, slugging %, home-runs, etc.

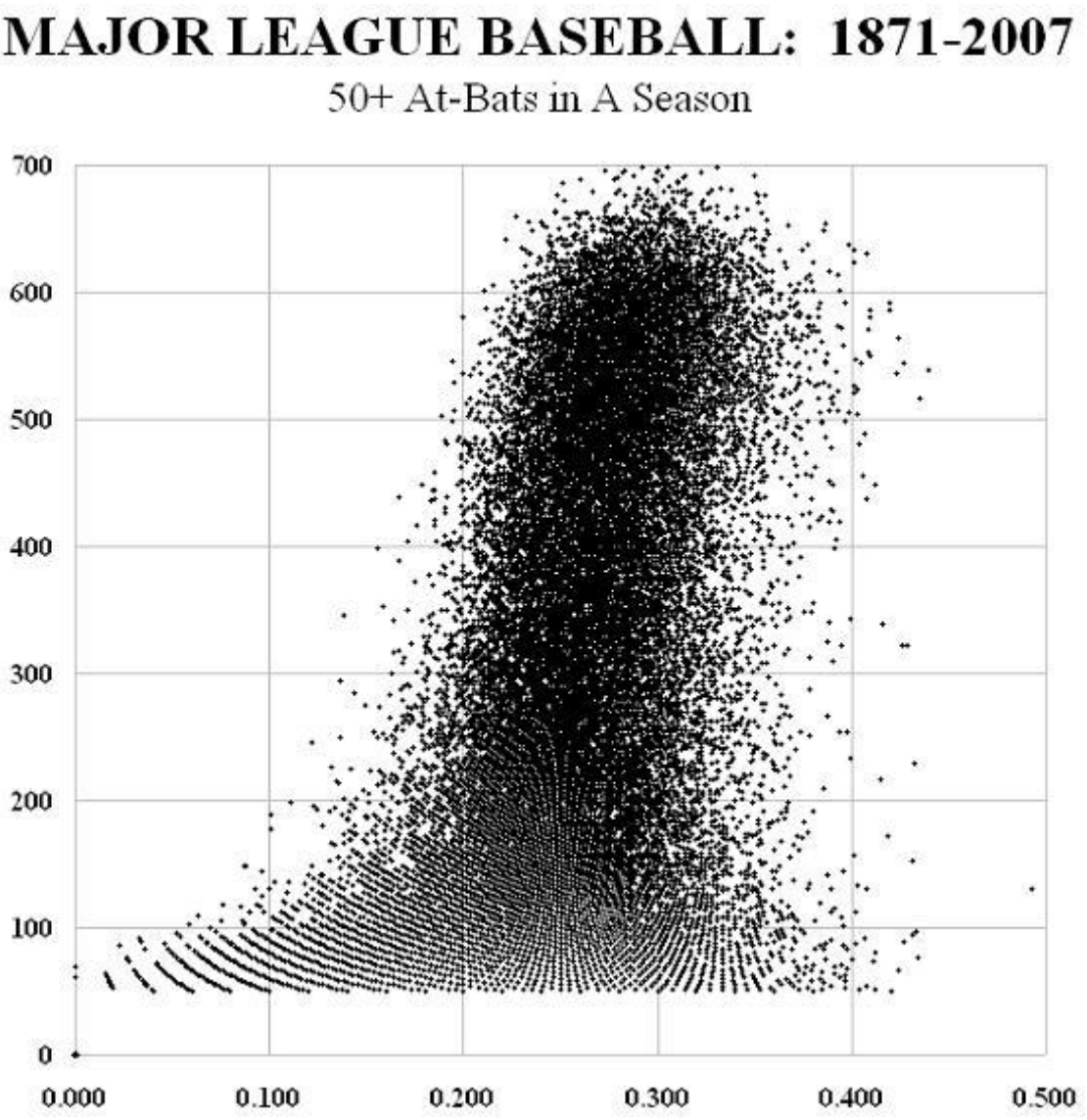
Let's assume, for this sake of this argument, I'm interested only in batting average. Wouldn't it be neat, before answering the question above of who's best, to look at the performance of all batters over the years? That is, plot all players' statistics.

But to make sure the data is not skewed by a player getting 10 hits in 20 at-bats. let's limit the number of at-bats: choose a random number: 50.

BASEBALL BATTING CHAMPIONS

	AMERICAN		NATIONAL	
Year	Player	Avg	Player	Avg
1901	Lajoie	0.426	Burkett	0.376
1902	Delahanty	0.376	Beaumont	0.357
1903	Lajoie	0.344	Wagner	0.355
1904	Lajoie	0.376	Wagner	0.349
1905	Flick	0.308	Seymour	0.377
1906	Stone	0.358	Wagner	0.339
1907	Cobb	0.350	Wagner	0.350
1908	Cobb	0.324	Wagner	0.354
1909	Cobb	0.377	Wagner	0.339
1910	Cobb	0.385	Magee	0.331
1911	Cobb	0.420	Wagner	0.334
1912	Cobb	0.409	Zimmerman	0.372
1913	Cobb	0.390	Daubert	0.350
1914	Cobb	0.368	Daubert	0.329
1915	Cobb	0.369	Doyle	0.320
1916	Speaker	0.386	Chase	0.339
1917	Cobb	0.383	Roush	0.341
1918	Cobb	0.382	Wheat	0.335
1919	Cobb	0.384	Roush	0.321
1920	Sisler	0.407	Hornsby	0.370
1921	Heilmann	0.394	Hornsby	0.397
1922	Sisler	0.420	Hornsby	0.401
1923	Heilmann	0.403	Hornsby	0.384
1924	Ruth	0.378	Hornsby	0.424
1925	Heilmann	0.393	Hornsby	0.403
1926	Manush	0.378	Hargrave	0.353
1927	Heilmann	0.398	Waner	0.380
1928	Goslin	0.379	Hornsby	0.387
1929	Fonseca	0.369	O'Doul	0.398
1930	Simmons	0.381	Terry	0.401
1931	Simmons	0.390	Hafey	0.349
1932	Alexander	0.367	O'Doul	0.368
1933	Foxx	0.356	Klein	0.368
1934	Gehrig	0.363	Waner	0.362
1935	Myer	0.349	Vaughan	0.385
1936	Appling	0.388	Waner	0.373
1937	Gehringer	0.371	Medwick	0.374
1938	Foxx	0.349	Lombardi	0.342
1939	DiMaggio	0.381	Mize	0.349
1940	DiMaggio	0.352	Garms	0.352
1941	Williams	0.406	Reiser	0.343
1942	Williams	0.356	Lombardi	0.330
1943	Appling	0.328	Musial	0.357
1944	Boudreau	0.327	Walker	0.357
1945	Stirnweiss	0.309	Cavarretta	0.355
1946	Vernon	0.353	Musial	0.365
1947	Williams	0.343	Walker	0.363
1948	Williams	0.369	Musial	0.376
1949	Kell	0.343	Robinson	0.342
1950	Goodman	0.354	Musial	0.346

	AMERICAN		NATIONAL	
Year	Player	Avg	Player	Avg
1951	Fain	0.344	Musial	0.355
1952	Fain	0.327	Musial	0.336
1953	Vernon	0.337	Furillo	0.344
1954	Avila	0.341	Mays	0.345
1955	Kaline	0.340	Ashburn	0.338
1956	Mantle	0.353	Aaron	0.328
1957	Williams	0.388	Musial	0.351
1958	Williams	0.328	Ashburn	0.350
1959	Kuenn	0.353	Aaron	0.355
1960	Runnels	0.320	Groat	0.325
1961	Cash	0.361	Clemente	0.351
1962	Runnels	0.326	Davis	0.346
1963	Yastrzemski	0.321	Davis	0.326
1964	Oliva	0.323	Clemente	0.339
1965	Oliva	0.323	Clemente	0.329
1966	Robinson	0.316	Alou	0.342
1967	Yastrzemski	0.326	Clemente	0.357
1968	Yastrzemski	0.301	Rose	0.335
1969	Carew	0.332	Rose	0.348
1970	Johnson	0.329	Carty	0.366
1971	Oliva	0.337	Torre	0.363
1972	Carew	0.318	Williams	0.333
1973	Carew	0.350	Rose	0.338
1974	Carew	0.364	Garr	0.353
1975	Carew	0.359	Madlock	0.354
1976	Brett	0.333	Madlock	0.339
1977	Carew	0.388	Parker	0.338
1978	Carew	0.333	Parker	0.334
1979	Lynn	0.333	Hernandez	0.344
1980	Brett	0.390	Buckner	0.324
1981	Lansford	0.336	Madlock	0.340
1982	Wilson	0.332	Oliver	0.331
1983	Boggs	0.361	Madlock	0.323
1984	Mattingly	0.343	Gwynn	0.351
1985	Boggs	0.368	McGee	0.353
1986	Boggs	0.357	Raines	0.334
1987	Boggs	0.363	Gwynn	0.370
1988	Boggs	0.366	Gwynn	0.313
1989	Puckett	0.339	Gwynn	0.336
1990	Brett	0.329	McGee	0.335
1991	Franco	0.341	Pendleton	0.319
1992	Martínez	0.343	Sheffield	0.330
1993	Olerud	0.363	Galarraga	0.370
1994	O'Neill	0.359	Gwynn	0.394
1995	Martínez	0.356	Gwynn	0.368
1996	Rodriguez	0.358	Gwynn	0.353
1997	Thomas	0.347	Gwynn	0.372
1998	Williams	0.339	Walker	0.363
1999	Garciaparra	0.357	Walker	0.379
2000	Garciaparra	0.372	Helton	0.372
2001	Suzuki	0.350	Walker	0.350
2002	Ramírez	0.349	Bonds	0.370
2003	Mueller	0.326	Pujols	0.359
2004	Suzuki	0.372	Bonds	0.362
2005	Young	0.331	Lee	0.335
2006	Mauer	0.347	Sanchez	0.344
2007	Ordóñez	0.363	Holliday	0.340



With average on the x-axis and at-bats along the y-axis, some interesting things show up: few players last long if they're not hitting well. If you're only hitting 100, you're not likely to get many at-bats. One can easily see how hard it is to hit 400!

To my question, the points in the upper-right become individually distinctive - and they show # of hits as the product of at-bats and average.

The Great George Sisler

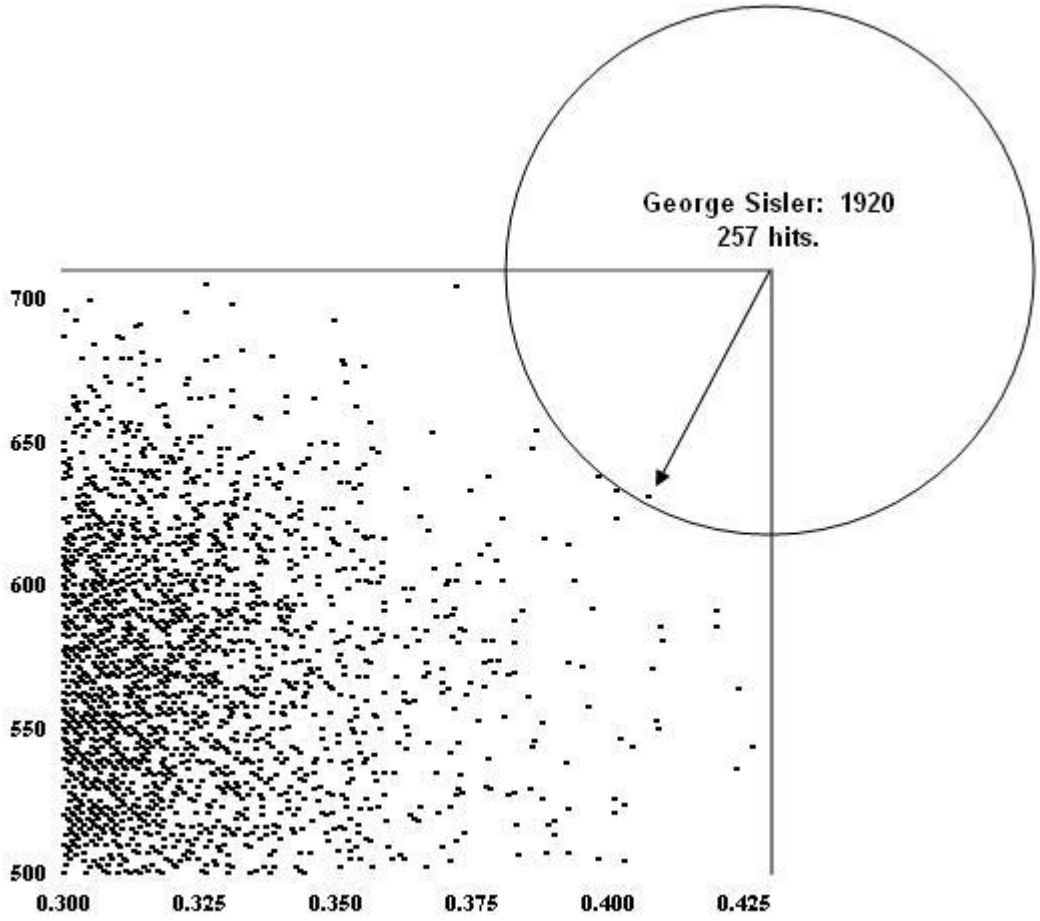
Two of these individual points are the great George Sisler, in 1920 and 1922. In 1920, he had 257 hits in only 154 games! Both points, being individually distinguishable and upper-most towards the right, tell me these are among the two greatest batting-average seasons ever.

But are they the *best*?

One way to find out is "which point is in the 'upper-right-*most*" sector of the grid. One way to determine this is to establish a new grid, and see which is 'closest' to the intersection of these two axis.

Let's establish an "optimal" year as having a 430 batting average with 710 at-bats. No one has ever done both simultaneously, but both levels themselves have been approached separately. Perhaps a reasonably good "optimal" starting point.

Now, how can I establish which points are "closest"? I could calculate the distance by way of the Pythagorean Theorem - that would be pretty easy. Time-consuming as well. What if I simply draw a circle from the intersection of the two axis, and see which point I hit first - that would show me which point is closer to the optimal point than any other.



Indeed, the 1920 season of Sisler, coupling at-bats with average (producing 257 hits), *was* the greatest batting season of all time! What are some of the others?

THE TEN GREATEST HITTING SEASONS

MAJOR LEAGUE BASEBALL: 1871 - 2007

rank	year	Name	G	AB	R	H	2B	3B	HR	RBI	SB	CS	BB	SO	AVG	OBP	SLG
1	1920	Sisler	154	631	137	257	49	18	19	122	42	17	46	19	.407	.449	.632
2	1929	O'Doul	154	638	152	254	35	6	32	122	2		76	19	.398	.465	.622
3	1930	Terry	154	633	139	254	39	15	23	129	8		57	33	.401	.452	.619
4	1925	Simmons	153	654	122	253	43	12	24	129	7	14	35	41	.387	.419	.599
5	1930	Klein	156	648	158	250	59	8	40	170	4		54	50	.386	.436	.687
6	1922	Hornsby	154	623	141	250	46	14	42	152	17	12	65	50	.401	.459	.722
7	2004	Suzuki	161	704	101	262	24	5	8	60	36	11	49	63	.372	.414	.455
8	1928	Manush	154	638	104	241	47	20	13	108	17	5	39	14	.378	.414	.575
9	1930	Herman	153	614	143	241	48	11	35	130	18		66	56	.393	.455	.678
10	1977	Carew	155	616	128	239	38	16	14	100	23	13	69	55	.388	.449	.570

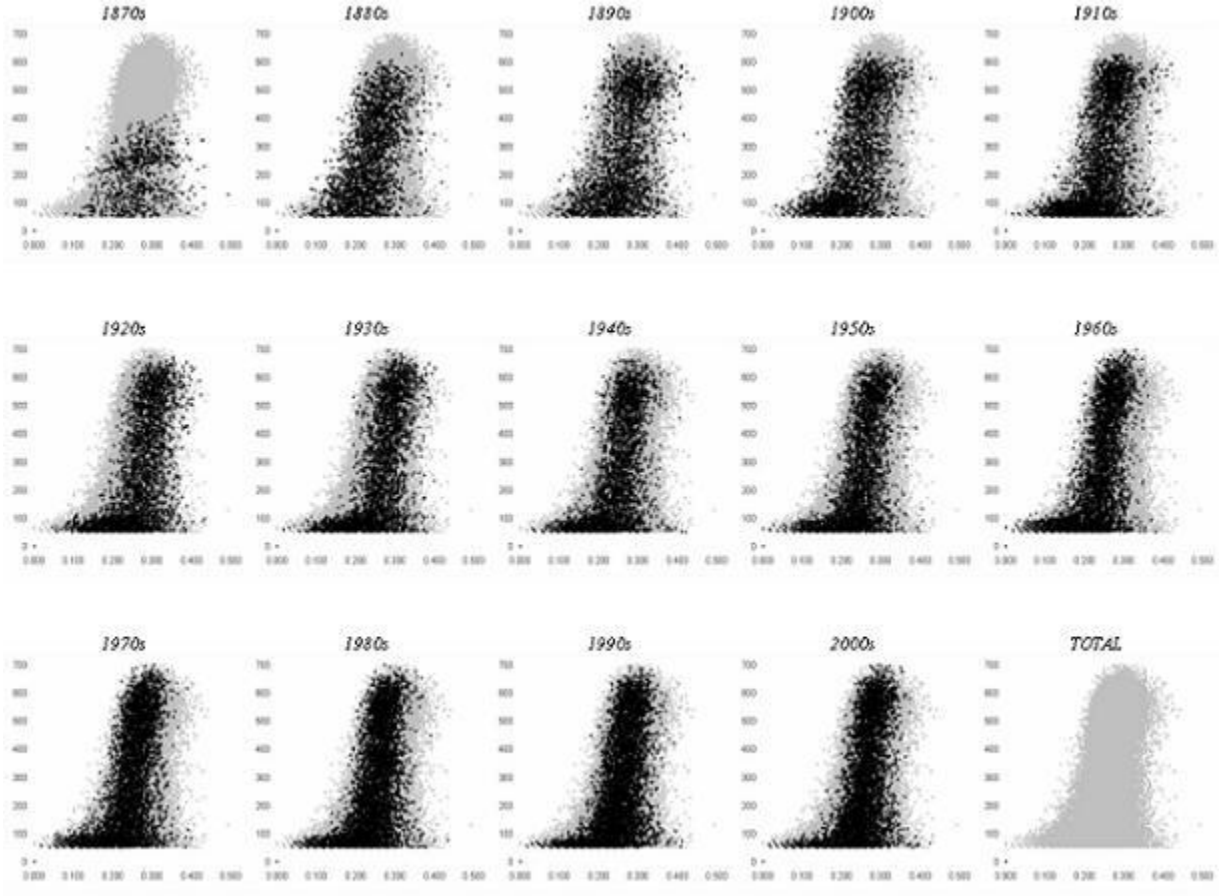
Sadly, Sisler missed the entire 1923 season with poisonous sinusitis. More sadly, despite a career average of 340 and 2,812 hits, he initially received only 34% of the votes for entry to the Hall-of-Fame (75% is required to be inducted), and it wasn't until the fourth try before he finally gained entrance to the Hall.

Surprisingly, those listed above as potential candidates for "greatest season" are nowhere on our table. Why? Those great seasons were the result of fewer at-bats than those seasons of the players in our table.

But does this mean "greatest season" is just a measure of "hits"? Partly - and why not? "Number of hits" is a good barometer of both hitting ability and season-longevity. The table above, however, is a blend of the two, as evidenced by the seventh-place ranking of Ichiro Suzuki and his phenomenal year of 2004, where he had 262 hits while batting 372!

By Decade

I've got all this data well-organized - what else can I do with it? Above, I looked at the history of baseball, lumping everything together. How do the individual *decades* compare? To make sure there is an available comparison, let's superimpose each decade with the totals above.

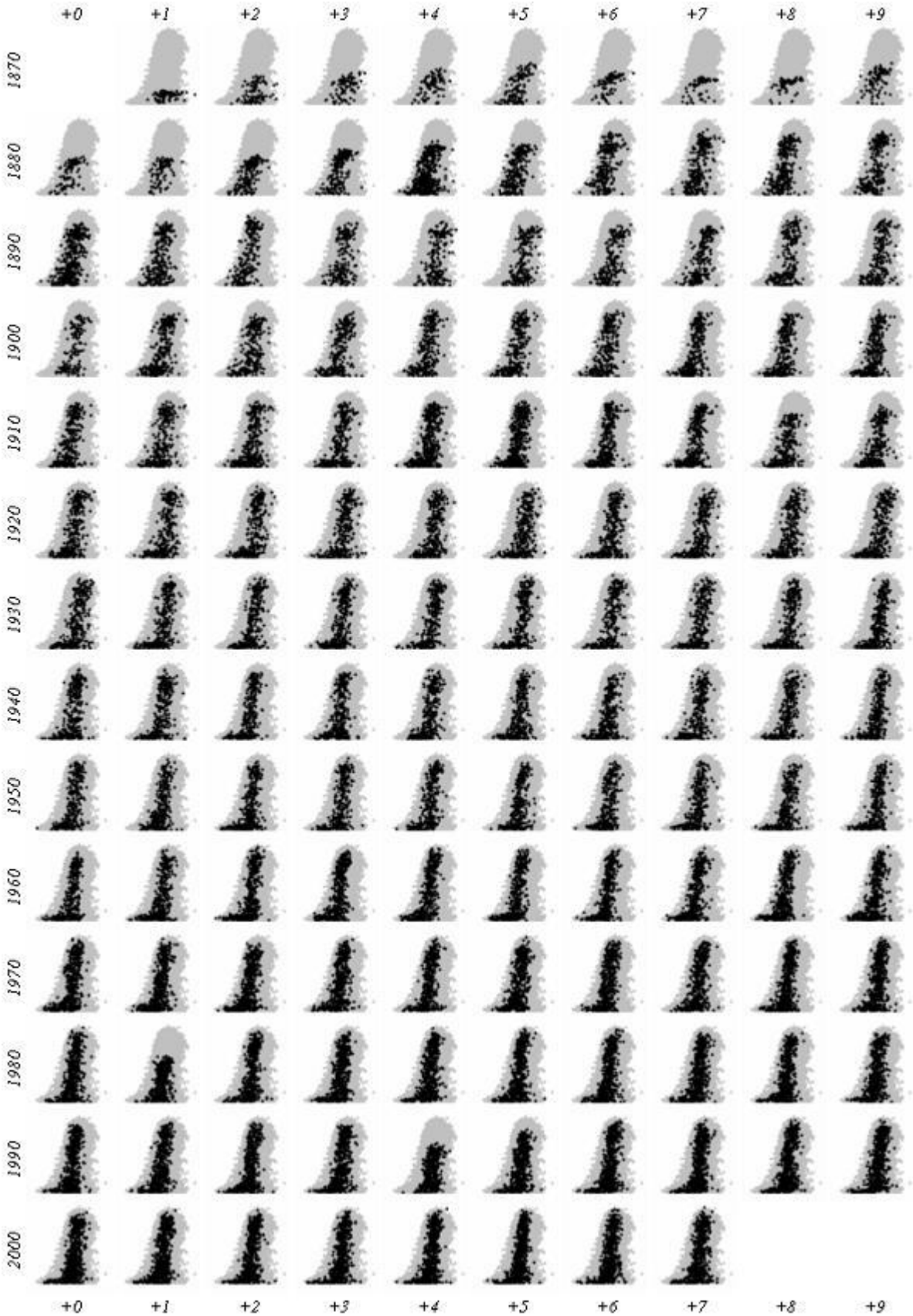


Notice the 60s: this was the "pitcher's decade", where Yastrzemski won the triple crown in 1968 with a meager 301 average. The 1920s, on the other hand, was a hitter's decade: compare the 20s with the 60s and you can easily see the number of "great hitters". You can also start to see the introduction of the 162-game schedule in the 60s.

Finally, the similarity of the decades, despite flickers of change, are remarkably similar.

Let's continue!

By Year


+0
+1
+2
+3
+4
+5
+6
+7
+8
+9
1870
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000

The strike-shortened seasons of 1981 and 1994 are obvious, as is the continuation of the self-similar nature of performance over more than a century!

Looking further at the "top-10" list, three of the ten are from 1930! What a spectacular hitting year that was - as is demonstrated in the graphic above. Compare 1930 with 1968, the year of the pitcher, to see remarkable differences.

Of course, there's many ways to describe "best hitting" season - on base %, slugging percentage, batting average, etc. In future editions of "Sports Forensics", I'll present an interesting graph of all three, which have Baby Ruth and Barry Bonds head-and-shoulders above the crowd.