Noesis

The Journal of the Noetic Society

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Editorial

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Change of Address: Richard May announces that his new address is:

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The Mega Test: Ron Hoeflin's sixth norming of his Mega Test appears in this issue. Though statistics is not an area of mathematics in which I excel, this norming seems to me to be much more comprehensive than any of his first five. The ceiling, near which norming has been especially problematic, but whose location is of primary importance to the test's purposes, is now at a rarity of one-in-300,000,000. The one-in-a-million level occurs at a rounded raw score of 43.

In his explanatory text of the norming, Ron submits that a raw score of 43 be the admission cut-off for the Noetic Society--a proposal of which I am much in favor. We would then be the only active "one-in-a-million society," as far as I know. Any member who has an opinion to express concerning this proposal should contact me, so that I can see that the editor of the next issue of Noesis either mentions your opinion or, preferably, has your letter to publish. If no exception is taken in the near future by any member, a raw score of at least 43 on the Mega Test shall be a requirement for admission into the Noetic Society.

Errata in Issue the Last: 1) I misunderstood part of what Ron explained to me concerning the discussion of the society's name which took place some time ago. A fair amount of interest was indeed generated by the issue, but "Noetic Society" did seem to be a slight favorite. It was a questionnaire of another sort to which only four members responded.

2) William F. Buckley, Jr. once said he "can spot a solecism in the OED," however I assume he requires the services of the manuscript editor(s) whom he thanks in the forwards of his own books. For my part, I have no difficulty identifying grammatical asininities for which I am responsible once there is absolutely no chance for me rectify them. "The Society in Which Kevin Langdon Has No Part Whatsoever, a Consequence of Which Significantly Lessens the Probability...," should have read, "...No Part Whatsoever, a Consequence of Which Is a Significant Lessening...." Ego mē absolvo.

The Sixth Norming of THE Mega Test

by Ronald K. Hoeflin
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The chief impetus behind this new norming of the Mega Test was my acquisition of data from the Educational Testing Service showing combined verbal plus mathematical aptitude SAT scores (on a scale from 400 to 1600) for the years 1985, 1986, 1987, and 1988, supplementing the data I already had for 1984, upon which my fifth norming was entirely based. I had hoped that with data on over 5 million SAT test subjects I would be enabled to refine my norms for the upper end of the Mega Test scale, in particular permitting me to pinpoint the one-in-a-million level more accurately. Unfortunately, this goal could not be achieved by means of this extra data since the number of SAT scores reported to me by Mega Test participants, 222, remains inadequate. I did succeed, however, in finding a striking new approach to extrapolating the Mega Test scale to the one-in-a-million level and beyond.

I began by calculating that there were almost precisely one-third as many SAT participants from 1984 to 1988 as there were 18-year-olds, namely about 5 million vs. 15 million. I assumed that close to 100% of 18-year-olds in the top 10% in ability would attempt the SAT, and that whatever shortfall there was would be roughly balanced by the number of foreign SAT participants. I then found the percentile equivalents of standard deviations (sigmas) ranging from 1.25 to 4.25 above the mean at intervals of 0.25 sigmas, using standard statistical tables for the normal (Gaussian) distribution curve, since my aim was to map Mega Test raw scores into this curve. I then made a factor-of-3 shift in these percentiles to allow for the above-average ability of SAT participants. These adjusted percentiles were then converted into SAT scores for each year at each sigma level using the data supplied by the Educational Testing Service. After averaging these scores for all five years, I equated the resulting SAT averages with Mega Test raw scores at each sigma level by ranking all the reported SAT scores from 1 to 222 and by ranking all the Mega Test scores achieved by those reporting SAT scores likewise from 1 to 222 and equating scores of equal rank. These results are reported on page 2 of this report.

I then examined the data I had compiled in my fourth norming, in which I had used scores reported on five other tests: the AGCT (Army General Classification Test), CTMM (California Test of Mental Maturity), LAIT (Langdon Adult Intelligence Test), S-B (Stanford-Binet), and WAIS (Wechsler Adult Intelligence Scale). In the fourth norming I had found the equivalent Mega Test scores for each of these tests at each sigma level from 1.25 to 4.50 at intervals of 0.25, then averaged these figures. The resulting graph had a noticeable dip in it between 3.50 and 4.50 sigmas. This dip can be largely eliminated, however, by weighting the figures by the number of scores reported for each test. These weighted averages differ from the SAT-based results arrived at on page 2 by less than one Mega Test raw score point at each of the twelve sigma levels from 1.25 to 4.00, the SAT results averaging just one-sixth of a point higher than the weighted averages from the other five tests. But at 4.25 sigmas the results differ by 2.4 points, which suggests that the data from these tests is becoming too unreliable to trust at higher levels. I averaged the SAT and non-SAT results and report the outcome on page 3.

(continued on page 8)

SAT Scores Equivalent to the SAT Mile: 1984-88

Sigma	Mile	SAT Mile	1984	1985	1986	1987	1988	Average
1.25	89.44	68.32	993.3	1002.8	1003.2	1003.6	1000.9	1000.8
1.50	93.32	79.96	1075.9	1084.6	1087.8	1089.4	1084.2	1084.4
1.75	95.99	87.97	1151.4	1159.4	1163.9	1166.2	1159.1	1160.0
2.00	97.72	93.16	1220.9	1228.6	1233.0	1236.4	1228.6	1229.5
2.25	98.78	96.34	1284.6	1293.4	1295.7	1300.7	1292.3	1293.3
2.50	99.38	98.14	1340.0	1349.3	1350.4	1356.4	1347.3	1348 7
2.75	99.70	99.10	1390.3	1396.9	1397.6	1403.0	1395.8	1396.7
3.00	99.8650	99.5950	1434.4	1437.9	1437.6	1442.9	1436.2	1437.8
3.25	99.9402	99.8206	1471.0	1471.7	1471.6	1475.6	1468.6	1471.7
3.50	99.9767	99.9301	1504.6	1504.3	1503.7	1506.3	1498.7	1503.5
3.75	99.9912	99.9736	1530.7	1530.4	1527.4	1531.3	1524.6	1528.9
4.00	99.9968	99.9904	1549.7	1552.3	1551.2	1554.9	1544.1	1550.4
4.25	99.9989	99.9967	1570.0	1570.3	1571.3	1575.4	1560.6	1569.5

Sigma	Of 222 SAT scores reported by Mega Test participants, number falling below each SAT average given in the last column above	Equivalent Mega Test raw scores; of the 222 SAT-score-reporting participants, the same number had Mega Test scores below these as had SAT scores below those given in the last column above
1.25	3	4.0
1.50	4	4.5
1.75	12	6.5
2.00	25.5	9.0
2.25	49.5	12.7
2.50	86	16.2
2.75	118	19.9
3.00	144.5	22.3
3.25	165.5	25.4
3.50	189	30.0
3.75	203	32.8
4.00	212	35.75
4.25	217.5	40.0

Equivalent Mega Test Scores for Five Other Tests

Sigma	%ile	AGCT (N=28)	CTMM (N=75)	LAIT (N=76)	S-B (N=46)	WAIS (N=34)	Average
1.25	89.44	--	5	3	—	5.5	4.5
1.50	93.32	9	5	5	3	6	5.6
1.75	95.99	11	5	7	7.5	6.5	7.4
2.00	97 72	13	7	7	8.5	8	8.7
2.25	98.78	17	12	13	11	10	12.6
2.50	99.38	21	16.5	15	15	12	15.9
2.75	99.70	28	20	16	17	20	20.2
3.00	99.8650	28.5	25	17	20.5	23	22.8
3.25	99 9402	29	31	21	26	25	26.4
3.50	99.9767	--	37	24	26.5	30	29.4
3.75	99.9912	--	38	29	28.5	31	31.6
4.00	99.9968	--	40	34	29.5	32.5	34.0
4.25	99.9989	--	41	38	34	34	36.8

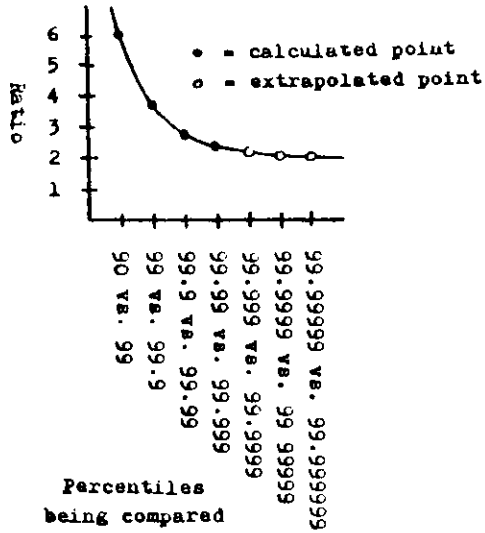
Sigma	Weighted average for the five tests listed above (N=259)	SAT results from the previous page (N=222)	Weighted average for the SAT and the five other tests
1.25	4.3	4.0	4.1
1.50	5.2	4.5	4.9
1.75	6.5	6.5	6.5
2.00	8.05	8.0	8.5
2.25	12.4	12.7	12.5
2.50	15.7	16.2	15.9
2.75	19.2	19.9	19.5
3.00	22.0	22.3	22.1
3.25	26.2	25.4	25.8
3.50	29.6	30.0	29.8
3.75	32.1	32.8	32.5
4.00	34.8	35.75	35.3
4.25	37.6	40.0	38.7

Extrapolations to higher percentiles based on changes in the ratios of observed to expected participants scoring above five selected percentiles

Percentile	Sigma	Mega Test score	Observed Participants	Expected Participants	Ratio
90	1.282	4.2	3,740.7		
99	2.326	13.5	2,249.0	374.07	6.0:1
99.9	3.090	23.4	826.6	224.90	3.8:1
99.99	3.719	32.2	229.0	82.66	2.8:1
99.999	4.265	38.9	54.8	22.90	2.4:1
99.9999	4.753	(42.6)	(12.06)	5.48	(2.2:1)
99.99999	5.199	(45.2)	(2.54)	1.21	(2.1:1)
99.999999	5.612	(47.0)	(0.50)	0.25	(2.0:1)

(figures in parentheses are extrapolations)

Graph depicting the foregoing calculations and extrapolations



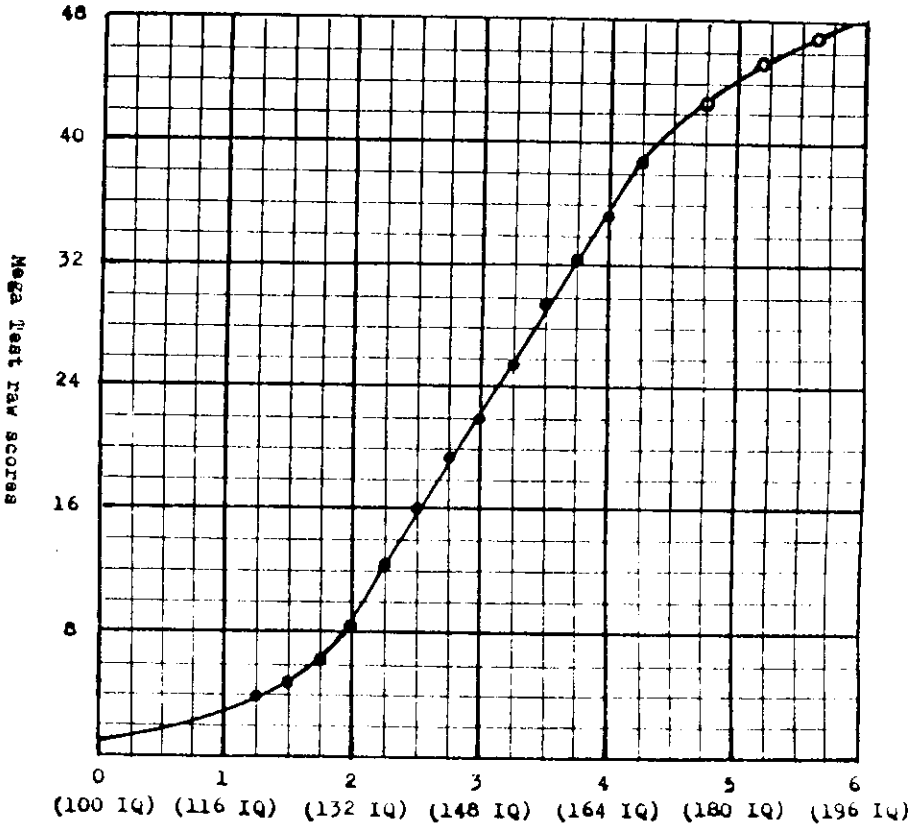
Discussion: Six times as many participants scored above the 99th percentile as would have been expected to on the basis of the number who scored above the 90th percentile divided by 10; 3.8 times as many scored above the 99.9th percentile as would have been expected to on the basis of the number who scored above the 99th percentile divided by 10; and so forth. The graph at left suggests that the last three ratios for the table above should be approximately 2.2, 2.1, and 2.0. Multiplying these numbers by the expected number of participants yields the number that ought to be observed above these levels, from which the Mega Test score can be determined (see next page)

Performance on Problem 36, The 3-interpenetrating-Cubes Problem

Total problems solved	Participants who scored this high	Participants who solved problem 36	% who solved problem 36 per 6-point range
48	0	0	
47	1	1	
46	1	1	
45	2	2	61.5
44	3	2	
43	6	2	
42	12	4	
41	15	5	
40	7	2	
39	13	4	31.2
38	15	6	
37	18	4	
36	27	7	
35	25	2	
34	28	2	
33	41	1	10.5
32	50	10	
31	49	1	
30	40	6	
29	62	3	
28	76	4	
27	61	1	4.9
26	88	2	
25	80	4	
24	96	0	
23	106	2	
22	118	2	
21	133	0	0.7
20	130	0	
19	164	1	
18	130	1	
17	160	1	
16	165	2	
15	176	0	0.6
14	151	1	
13	171	1	
12	172	0	
11	193	0	
10	165	0	
9	185	0	0.0
8	145	0	
7	163	0	
6	153	0	
5	118	0	
4	89	0	
3	53	0	0.0
2	34	0	
1	24	0	
0	6	0	
	Total: 3920	Total: 87	Total: 2.2

Equivalences between Mega Test raw scores and standard deviations above the mean (with IQs)

● = calculated point
○ = extrapolated point



Raw score	Sigma	I.Q.	Percentile	Rarity (1/x)	High-IQ society minimum cut-off
1	0.0	100	50	2	
2	0.675	111	75	4	
3	1.0	116	84	6	
4	1.25	120	89	9	
5	1.5	124	93	14	
6	1.7	127	95	20	
7	1.8	129	96	25	
8	1.9	130	97	33	
9	1.975	132	97.6	40	
10	2.05	133	98.0	50	Mensa
11	2.125	134	98.3	60	
12	2.2	135	98.6	70	
13	2.275	136	98.8	85	
14	2.35	138	99.0	100	Intertel
15	2.425	139	99.2	130	
16	2.5	140	99.4	160	
17	2.575	141	99.5	200	
18	2.65	142	99.6	250	
19	2.725	144	99.7	300	
20	2.8	145	99.75	400	
21	2.875	146	99.80	500	
22	2.95	147	99.84	600	
23	3.025	148	99.87	800	
24	3.1	150	99.90	1,000	ISPE, TNS, Minerva
25	3.175	151	99.92	1,300	
26	3.25	152	99.94	1,700	
27	3.325	153	99.95	2,000	
28	3.4	154	99.97	3,000	
29	3.475	156	99.975	4,000	
30	3.55	157	99.980	5,000	
31	3.625	158	99.986	7.000	
32	3.7	159	99.989	9,000	
33	3.775	160	99.992	12,000	
34	3.85	162	99.994	17,000	
35	3.925	163	99.996	23,000	
36	4.0	164	99.997	30,000	Prometheus, 4 Sigma
37	4.075	165	99.998	40,000	
38	4.15	166	99.9983	60,000	
39	4.265	168	99.9990	100,000	
40	4.375	169	99.9994	165,000	
41	4.5	172	99.9997	300,000	
42	4.625	174	99.9998	500,000	
43	4.8	177	99.9999	1,000,000	Mega, Noetic
44	5.0	180	99.99997	3,000,000	
45	5.2	183	99.99999	10,000,000	
46	5.4	186	99.999997	30,000,000	
47	5.6	190	99.999999	100,000,000	
48	5.8	193	99.9999997	300,000,000	

In order to extrapolate to the 99.9999 percentile and beyond, I determined the equivalent sigma scores for the 90, 99, 99.9, 99.99, and 99.999 percentiles from standard statistical tables for the normal distribution curve. I then equated these percentiles with raw scores on the Mega Test by interpolating between (or, in the case of the 99.999 percentile, extrapolating slightly beyond) the results given on page 3. Using the data on page 5, I then determined how many Mega Test participants had scored above each of these raw scores and, hence, their corresponding percentiles. I obtained fractional results by assuming, for example, that the 96 people who scored 24 right were spread evenly over the interval from 23.5 to 24.5. By comparing one-tenth the number who exceeded each percentile with the number who actually exceeded the next higher percentile, I found that 6.0 times as many people exceeded the 99th percentile as would have been expected to by merely dividing the number who exceeded the 90th percentile by 10, and the corresponding figures for the 99.9, 99.99, and 99.999 percentiles were 3.8, 2.8, and 2.4, respectively. Graphing these factors, one finds that they are leveling off fairly rapidly and that the next three factors should probably be about 2.2, 2.1, and 2.0. Since 54.8 people exceeded the 99.999 percentile, one would thus estimate that 2.2 times (54.8/10) = 12.06 people would exceed the 99.9999 percentile, that 2.1 times (12.06/10) = 2.54 people would exceed the 99.99999 percentile, and that 2.0 times (2.54/10) = 0.50 people would exceed the 99.999999 percentile. By examining the distribution of scores shown on page 5, one finds that 12.06 people exceeded a raw score of 42.6, that 2.54 people exceeded a raw score of 45.2, and that 0.5 people exceeded a raw score of 47.0. Thus the ceiling of the test, 48 right, would appear to correspond to about the 99.9999997 percentile or one-in-300,000,000,level. The results described in this paragraph are reported on page 4.

Page 6 presents a graph of the results arrived at on pages 3 and 4, the page 3 results appearing as thirteen filled-in black dots representing the Mega Test raw scores that are equivalent to 1.25, 1.50, 1.75, 2.00, 2.25, 2.50, 2.75, 3.00, 3.25, 3.50, 3.75, 4.00, and 4.25 standard deviations above the mean on a normal curve, and the three small circles representing the Mega scores equivalent to the 99.9999, 99.99999, and 99.999999 percentiles, respectively. A best-fitting line was drawn by eye through all sixteen data points, using a straightedge for the middle portion and a french curve for the curved sections at the upper and lower ends.

The table on page 7 was compiled using the line constructed on page 6 as a guide. A uniform scaling of 0.075 sigmas per raw score point was used for the straight-line section from a raw score of 8 to 38. Since I use 16 I.Q. points per standard deviation, this means 1.2 I.Q. points per raw score point for this middle section. The percentiles were, of course, determined using standard statistical tables for a normal curve. The righthand column lists nine high-IQ societies at their minimum qualifying levels. Currently, only three of these nine groups do not accept the Mega Test for admission purposes: Mensa, Intertel, and Four Sigma. The Noetic Society, formerly known as the Hoeflin Research Group and before that as the Titan Society, can claim a one-in-a-million admissions requirement by returning its cut-off on the Mega Test to a raw score of 43, where it was for most of the group's existence. Memberships of current members would not be affected.

From SPY (Jan.-Feb., 1989)

THE THINKING

Welcome to the incredibly unenlightened world of the thinking man—a world of football heroes, political failures, useless hardware-store items, satanic birds and turgid cultural phenomena. A world where thinking men have to be told which football heroes, political failures, useless hardware-store items, satanic birds and turgid cultural phenomena they should be thinking about.

THE SURPRISINGLY WELL-POPULATED ATHLETIC WORLD OF THE THINKING MAN

Pat Haden, ex-Rhodes scholar and Los Angeles Ram	"The thinking man's quarterback"	*The Christian Science Monitor* (1981)
Jeff Herrod, Indianapolis Colt	"The thinking man's linebacker"	*The Sporting News* (1987)
Alan Page, former Minnesota Viking, Chicago Bear and NFL Most Valuable Player	"The thinking man's tackle"	*Newsweek* (1980)
Gene Mayer	"The thinking man's tennis pro"	*Tennis* (1983)
Bob Ferry, Washington Bullets general manager	"The thinking man's general manager"	*Washingtonian* (1982)
The Delta 70 Power Yacht	"The thinking man's yacht"	*Motor Boating & Sailing* (1986)
The Mansfield TDX portable toilet	"The thinking man's head"	*Boating Magazine* (1984)

THE WIDE-RANGING CULTURAL WORLD OF THE THINKING MAN

Sir David Low, British caricaturist	"The thinking man's cartoonist"	*The Christian Science Monitor* (1985)
C-SPAN cable network	"The thinking man's channel"	*Los Angeles Times* (1984)
Descartes	"The thinking man's philosopher"	*Hobbies* (1977)
Joseph Mankiewicz, director of *All About Eve*	"The thinking man's director"	*American Film* (1978)
Kenneth King, dance and Nietzsche aficionado	"A thinking man's choreographer"	*The New York Times* (1981)

MAN'S WORLD

Books on tape	"The thinking man's CB"	*Time* (1982)
Bob Dylan	"A thinking man's rock star"	*The New Republic* (1988)
Frank Zappa	"The thinking man's mother of invention"	*Time* (1988)
2001: A Space Odyssey	"A thinking man's *Star Wars*"	*People* (1985)
M. Butterfly	"The thinking person's *Fatal Attraction*"	David Hwang in *New York Press* (1988)
William Hurt	"The thinking man's asshole"	*Esquire* (1986)

THE ROMANTIC WORLD OF THE THINKING MAN

Meryl Streep	"A thinking man's crumpet"	*People* (1986)
Blair Brown	"The thinking man's bombshell"	*Esquire* (1988)
Gloria Steinem	"Thinking man's Shrimpton"	*Time* (1969)

THE HIGHLY CIRCUMSCRIBED POLITICAL WORLD OF THE THINKING MAN

John Anderson	"Thinking man's candidate"	*The Wall Street Journal* (1980)
Ernest "Fritz" Hollings	"The thinking man's dark horse"	campaign pamphlet (1983)

THE OUTDOOR WORLD OF THE THINKING MAN

The raven	"The thinking man's bird"	*Alaska Magazine* (1986)
Drip irrigation	"The thinking man's way of watering"	*Country Journal* (1987)
Lake Geneva	"The thinking man's lake"	*Horizon* (1965)
A regularly mowed, twice-fertilized, well-weeded, crabgrass-free lawn	"The thinking man's lawn"	*Horticulture* (1976)

— *Eddie Stern*

From: The Book of Lists
by David Wallechinsky, Irving Wallace, and Amy Wallace

ESTIMATED IQS OF 30 CELEBRATED PEOPLE

A normal intelligence quotient (IQ) ranges from 85 to 115. Only 1% of the people in the U.S. have an IQ of 140 or over. In 1926, psychologist Dr. Catherine Morris Cox—who had been assisted by Dr. Lewis M. Terman, Dr. Maud A. Merrill, Dr. Florence L. Goodenough, and Dr. Kate Gordon—published a study of 301 "of the most eminent men and women" who had lived between 1450 and 1850 to estimate what their IQs might have been. The resultant IQs were based largely on the degree of brightness and intelligence each subject showed before attaining the age of 17. Taken from this study, here are the projected IQs of 30 famous persons selected at random.

		IQ
1.	John Stuart Mill, English writer, economist	190
2.	Johann Wolfgang von Goethe, German poet	185
3.	Thomas Chatterton, English poet and writer	170
4.	Voltaire (François-Marie Arouet), French writer	170
5.	George Sand (Aurore Dupin), French novelist	150
6.	Wolfgang Amadeus Mozart, Austrian composer	150
7.	George Gordon, Lord Byron, English poet	150
8.	Thomas Jefferson, U.S. president	145
9.	Benjamin Franklin, U.S. diplomat, statesman, and scientist	145
10.	Charles Dickens, English novelist and humorist	145
11.	Galileo Galilei, Italian physicist and astronomer	145
12.	Napoleon, French emperor	140
13.	Richard Wagner, German operatic composer and poet	135
14.	Charles Darwin, English naturalist	135
15.	Ludwig van Beethoven, German composer	135
16.	Leonardo da Vinci, Italian painter, scientist, and engineer	135
17.	Honoré de Balzac, French novelist	130
18.	Sir Isaac Newton, English mathematician	130
19.	Baruch Spinoza, Dutch philosopher	130
20.	George Washington, U.S. president	125
21.	Abraham Lincoln, U.S. president	125
22.	Robert Blake, English admiral	125
23.	Johann Sebastian Bach, German composer	125
24.	Joseph Haydn, Austrian composer	120
25.	Hernando Cortes, Spanish conqueror of Mexico	115
26.	Emanuel Swedenborg, Swedish religious writer	115
27.	Martin Luther, German religious reformer	115
28.	Rembrandt van Rijn, Dutch painter and etcher	110
29.	Nicolaus Copernicus, Polish founder of modern astronomy	105
30.	Miguel de Cervantes, Spanish poet and novelist	105

SOURCE: Catherine Morris Cox, *Genetic Studies of Geniuses*, Vol. II (Stanford, Calif.: Stanford University Press, 1926).