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The "Other IQ": Historiometric Assessments of Intelligence and Related Constructs

Dean Keith Simonton
University of California, Davis

Running parallel to mainstream research on the psychometric assessment of intelligence is another tradition of research on the historiometric assessment of intelligence and closely affiliated variables. Historiometric assessment is based on four data sources: (a) personality sketches (e.g., Intellectual Brilliance), (b) developmental histories (e.g., IQ), (c) content analyses (e.g., integrative complexity), and (d) expert surveys (e.g., Openness to Experience). The first two represent major lines of intelligence research that involved key figures in the development of corresponding psychometric methods (e.g., Galton, Terman, and Thorndike), whereas the last two constitute independent research paradigms that later intersected with the first two. The literature on U.S. presidents then provides an integrated illustration of the four historiometric approaches and how they converge on the same broad conclusions. Significantly, historiometric investigations on the relation between broadly defined intelligence and adulthood achievement obtain about the same effect size as that found in psychometric research (i.e., *r*s or βs = .25 ± .10). Because historiometric and psychometric studies have rather distinctive methodological advantages and disadvantages, this consistent outcome provides corroborative support for both sets of empirical findings.

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IQ is probably one of the most widely known psychological concepts. A Google search for *IQ* alone yields more than 100 million entries. Having the world's highest IQ once even represented a recognized category of accomplishment in the *Guinness Book of World Records* (McFarlan, 1989). Moreover, it is difficult to locate an introductory textbook in psychology that does not include a major section, if not a whole chapter, to intelligence and its assessment. In addition, a recent PsycINFO database search for publications with the keywords of both *intelligence* and *test* yields over 23,000 records. The bulk of these publications consists of research that uses some established intelligence test, such as the Stanford–Binet or the Wechsler Adult Intelligence Scale. Thus, it would be very difficult to identify another individual-difference variable that is as well known to the general public and at the same time has proven so prominent in scientific research. Furthermore, few constructs in psychology have such a long history. Although most modern intelligence tests can be traced back to the 1905 instrument introduced by Alfred Binet and Theodore Simon, the first attempt to analyze individual variation in "natural ability" goes back to Francis Galton in 1865. Hence, the history of intelligence assessment can be said to be at least 140 years old. The number of articles, chapters, and books documenting various aspects of this history is also very large (e.g., Boake, 2002; R. M. Thorndike, 1997).

Yet the above developments concentrate on the *psychometric* measurement of intelligence. That is, they focus on mental tests or instruments that are applied to contemporary populations, such as students, army recruits, or job applicants. Even so, a separate research tradition is just as old, if not older—namely, the *historiometric* measurement of intelligence. In this tradition, the research participants are eminent individuals who have made a name for themselves in some particular domain of human achievement, whether creativity, leadership, entertainment, or sports (Simonton, 2007). Whereas all of the research participants in psychometric research must be alive to provide the investigator with data, most if not all of the "participants" in historiometric research may be deceased, whether for decades or even centuries (Simonton, 1999). Nevertheless, not only do the historiometric studies lead to some of the same substantive conclusions as do the psychometric studies, but also the investigators in one research tradition sometimes overlap those in the other tradition. These are not two isolated lines of empirical inquiry but rather two investigative pathways that both converge and diverge over the course of psychology's history.

My purpose in this article is twofold. First, I wish to narrate the development of historiometric approaches to the study of human intelligence and kindred variables. Second, I offer a specific illustration of how these alternative methods, however divergent in technique, appear to converge on a single inference about the relation between intelligence and achievement. Before I can begin, I must first provide a brief account of how historiometrics emerged as an alternative method in the behavioral sciences. Strange though it may seem, historiometric research is actually older than are most mainstream methods, including both psychometrics and laboratory experiments (Simonton, 2003).

Historiometric Assessment

Historiometry has been formally defined as "a scientific discipline in which nomothetic hypotheses about human behavior are tested by applying quantitative analyses to data concerning

Dean Keith Simonton, Department of Psychology, University of California, Davis.

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Correspondence concerning this article should be addressed to Dean Keith Simonton, Department of Psychology, One Shields Avenue, University of California, Davis, CA 95616-8686. E-mail: dksimonton@ucdavis.edu

historical individuals" (Simonton, 1990, p. 3). Given this definition, then, historiometry clearly began with Adophe Quételet, the 19th-century Belgian mathematician and physicist who is now most famous for his application of statistical methods to human data. His "social statistics" introduced the concept of the "average person" (l'homme moyen) as well as applied the "normal curve" to describe the distribution of individual differences in physical characteristics. Embedded among his statistical analyses of cross-sectional distributions is the attempt to address a nomothetic question by applying quantitative methods to historical data (Quételet, 1835/1968). Admittedly, the substantive issue had nothing to do with intelligence. Instead, Quételet was interested in how creative productivity changes across the life span. Because he subjected information concerning the careers of historically important English and French playwrights to detailed statistical analyses, this investigation can be considered the very first historiometric study (Simonton, 2003).

Three decades had to elapse before the next historiometric investigation appeared—and this time it was a study that has also played a prominent role in the history of intelligence research. This was an 1865 journal article published by Francis Galton, the English scientist, inventor, and explorer. Four years later, this article was expanded into the classic book *Hereditary Genius: An Inquiry Into Its Laws and Consequences* (Galton, 1869). Galton argued that individual differences in what he called *natural ability* had three features. First, it was distributed according to the normal or "bell-shaped" curve, thereby extending Quételet's results from physical to psychological traits. Second, it was inherited genetically by some unspecified (pre-Mendelian) process. Environmental influences played a minimal role, if any. Third, it was strongly correlated with achieved eminence. In fact, renowned geniuses would be invariably located at the upper end of the normal distribution. Those "who achieve eminence, and those who are naturally capable, are, to large extent, identical," claimed Galton (1869, p. 38). The last two arguments together led to the prediction that historic geniuses would appear disproportionately in family lineages. This prediction was supposedly confirmed by collecting extensive biographical data on eminent achievers in various fields, from the arts and sciences to politics, religion, and war. This empirical demonstration constituted not just the second major application of historiometric methods but also the first major use of the pedigree method in what would eventually become behavior genetics.

In 1869 Galton could not directly measure natural ability. The closest he came to doing so was to use student scholastic performance to demonstrate that ability was distributed according to the normal curve. However, later he devised a more direct approach in the guise of anthropometric instruments (Galton, 1883). These instruments gauged a host of sensory and physical capacities, including visual and auditory acuity, color perception, reaction times, breathing power, manual strength, height, weight, and arm span. Although Galton never validated these assessments as meaningful psychometric indicators of natural ability, the validation problem was taken up by his follower James McKeen Cattell. Already in 1890, Cattell had introduced the concept of "mental tests," and shortly after he began to administer Galton's measures to students at Columbia University (J. M. Cattell & Farrand, 1896). But early in the 20th century it had become apparent that these instruments did not exhibit impressive correlations with objective criteria of intelligence (see, e.g., Wissler, 1901).

Even so, J. M. Cattell was much more successful in developing another of Galton's (1869) measurement ideas, namely, the assessment of individual differences in eminence. In a 1903 study he ranked the 1000 most eminent persons in Western civilization by counting the amount of space devoted to them in several standard reference works (J. M. Cattell, 1903a; see also Whipple, 2004). Because individual differences in eminence were presumed to indicate a person's level of natural ability, this historiometric assessment could be considered an indirect measure of genius as Galton (1869) conceived the term. Subsequent research has shown that alternative eminence measures can all be considered as indicators of a single latent factor (Simonton, 1991a; see also C. Murray, 2003; Simonton, 2008). Moreover, individual differences in eminence, and especially in posthumous reputation, are highly stable over historical time, even over periods spanning entire centuries (Farnsworth, 1969; Ginsburgh & Weyers, 2006; Over, 1982; Rosengren, 1985; Simonton, 1991a; see also Simonton, 1998).

At the same time, this temporal stability does not arise from autoregressive relations among consecutive assessments, because the autocorrelations between consecutive and nonconsecutive measures do not exhibit the required simplex or quasi-simplex pattern (Simonton, 1991a). Instead, the stability emerges from a single latent variable that changes very little across time. So prominent and robust is the latent variable that one historiometric researcher has styled it "Galton's *G*" (Simonton, 1991a). This term represents an obvious allusion to the corresponding "Spearman's *g*" in the psychometric research on intelligence (Spearman, 1927). Just as one factor appears to underlie diverse measures of cognitive ability, so does a single factor account for the diversity of eminence assessments, no matter how they might vary according to method, time, or place. As is seen later, some indicator of Galton's *G* appears often as a criterion variable in the historiometric literature.

Although Quételet, Galton, and J. M. Cattell represent early pioneers in the history of historiometric methods, none of them referred to their work by that name. They were merely applying quantitative techniques to historical and biographical data in order to study psychological phenomena. In fact, the term was not formally defined until 1909. In that year, Frederick Woods, a geneticist and embryologist at the Massachusetts Institute of Technology, published an article on "A New Name for a New Science." According to Woods (1909), this method is involved when "the facts of history of a personal nature have been subjected to statistical analysis by some more or less objective method" (p. 703). He added that "historiometry bears the same relation to history that biometry does to biology" (Woods, 1909, p. 703). Two years later Woods (1911) published another article on "Historiometry as an Exact Science" in which he devoted considerable attention to the problem of assessing individual differences in eminence. Again, Woods, as J. M. Cattell and Galton before him, viewed eminence as an indirect indicator of exceptional intelligence. Indeed, Woods (1911) also suggested that historiometrics was especially useful in research on "the psychology of genius" (p. 568). Significantly, Woods' two articles were published in *Science*, the official publication of the American Association for the Advancement of Science (since 1900) and then under the editorship of J. M. Cattell

himself (from 1894 to 1944). Woods also wrote two books applying historiometric methods: the 1906 *Mental and Moral Heredity in Royalty: A Statistical Study in History and Psychology* and the 1913 *The Influence of Monarchs: Steps in a New Science of History*. The first investigation looked at intelligence and morality in royal families, whereas the second examined the correlation between a monarch's leadership and the welfare of the nation over which he or she reigns.

Of Woods' two monographs, it is the 1906 investigation that is the most central from the standpoint of this review. The significance comes from the fact that it constitutes the first direct historiometric assessment of individual differences in intelligence. Over the next several decades, numerous other researchers have assessed intelligence or closely related constructs by using historiometric methods. These assessments have derived from four distinct data sources: (a) personality profiles, (b) developmental histories, (c) content analyses, and (d) expert surveys. The first two of these represent major research traditions aimed at the direct assessment of intellectual differences in historical populations. These two approaches will be discussed first. The last two represent minor traditions in terms of frequency and relevance and thus will be discussed last. Nevertheless, later I integrate all four traditions by examining the literature on a very well-studied historical population, namely, presidents of the United States.

Personality Sketches

Woods (1906) assessed members of European royal families on two traits, *intellect* and *morality*. In each case the assessment was based on the character sketches that were provided in six biographical dictionaries. This qualitative information was scored on a 10-point scale. He then calculated the Pearson product–moment correlation between the two measures, obtaining $r = .40$. Hence, intelligence is positively associated with morality. Unfortunately, not only were the two sets of scores created by a single rater, but also that rater was Woods himself, thereby introducing an undetermined amount of subjectivity into the two evaluations and their correlation. Nonetheless, 20 years later, Woods' findings were confirmed in a somewhat surprising manner.

Edward L. Thorndike is one of the major figures in the early history of American psychology. After his classic research on "animal intelligence," he moved into educational psychology, and in the latter capacity made significant contributions to the psychometric assessment of intelligence (E. L. Thorndike, 1927). Yet hidden among his approximately 500 publications in the areas of learning and measurement are two historiometric assessments of intelligence. The first historiometric study was entitled *The Relation between Intellect and Morality in Rulers* (E. L. Thorndike, 1936). Focusing on 305 male members of European royal families, he derived his own measures of intelligence and morality from reading personality sketches found in biographical sources. Unlike Woods (1906), Thorndike used multiple, independent raters (including Abraham Maslow, much later a key figure in humanistic psychology).[1] The separate judges showed a high degree of agreement, alternative ratings of intelligence usually correlating in the .80s. Thorndike obtained a correlation of .60 between intellect and morality after correcting for various contaminating factors. He concluded that "the removal of errors of general inaccuracy and inadequacy would raise this, but the removal of 'halo' errors would lower it" (E. L. Thorndike, 1936, p. 321).

E. L. Thorndike's (1950) second historiometric measurement was his last empirical investigation. Indeed, it was published posthumously through the efforts of his son, Robert L. Thorndike, the educational psychologist who also made substantial contributions to the psychometric assessment of intelligence, including his own posthumous article on the *g* factor (R. L. Thorndike, 1994). The father's swan song involved the assessment of 91 eminent creators and leaders on 48 personality traits (plus a few background variables). Each subject was rated on a -3 to $+3$ scale, with half points added or subtracted when deemed necessary. The numerical ratings were assigned after reading biographies containing relevant information on personality traits. Unlike what took place in his 1936 study, E. L. Thorndike did the ratings solo, considering it a labor of love. However, the article included the raw scores for subjects as well as the correlation matrix and some preliminary analyses (e.g., about cross-domain differences in personality traits). Furthermore, some of the traits are clearly relevant to the assessment of intellect, including "intelligence," "curiosity," "liking for art, music, beauty," and "liking for reading" (cf. Terman, 1925).

A dozen years later these raw scores became subject to additional statistical analyses. In particular, Knapp (1962) subjected the measures to a centroid factor analysis, obtaining four factors: (a) Sanguiness versus Melancholic Introversion, (b) Ordered Industriousness versus Emotionality, (c) Aggressiveness, and (d) Intellectual Sensitivity. The latter factor clearly captures individual differences in intelligence broadly conceived. Almost 30 years later, Knapp's study was replicated and extended by Simonton (1991b). A principal axes factor analysis again yielded a four-factor solution, including an inclusive Intelligence factor defined by the following traits (loadings in parentheses): sensitiveness (.72), intelligence (.67), liking for words (.57), liking for art, music, beauty (.51), liking for reading (.50), and liking for things (.43). Simonton summed these items to produce an Intelligence composite score that had an internal-consistency reliability (coefficient alpha) of .70. He then showed that the Intelligence factor correlated .35 with an eight-item measure of eminence (alpha reliability of .86). Hence, in line with what was argued by Galton (1869) and his successors, intellect does correlate with distinction. Furthermore, when the composite eminence measure was regressed on all four factors derived from E. L. Thorndike's (1950) scores, only two emerged as significant predictors: intelligence ($\beta = .27$) and aggressiveness ($\beta = .19$). Thus, eminence and intelligence were positively correlated even in this elite sample.

This was not the first time Simonton had engaged in the historiometric study of intelligence. Prior to his 1991 replication and extension of E. L. Thorndike's (1950) posthumous study, he had published investigations on both European absolute monarchs and presidents of the United States. It is to these two studies that we now turn.

European monarchs. Simonton (1983) conducted a historiometric investigation of 342 European monarchs that combined Woods' (1909) study of royalty with Woods' (1913) study of

[1] Maslow had just recently become Thorndike's protégé after scoring 195 on an IQ test that Thorndike had administered to him.

monarchs. Because almost all of the monarchs were members of royal families, a considerable overlap existed between the two samples. As a result, the intelligence and morality measures of his 1909 study could be combined with the leadership measures of his 1913 study. However, because the samples did not completely overlap, some variables also had missing values for certain cases. These missing values were reconstructed by using descriptor adjectives found in the personality sketches that were compiled for each monarch from biographical dictionaries. In the particular case of the intelligence assessment, for example, the observed scores were found to be a positive function of the following descriptors: able, intelligent, shrewd, and educated. Besides reconstructing the missing values for intelligence, morality, and leadership, three additional variables were quantified for all 342 monarchs, namely, life span, reign span, and a 13-item composite measure of eminence (coefficient $\alpha = .90$). Intelligence was then found to correlate .23 with morality, .67 with leadership, .22 with life span, .26 with reign span, and .32 with eminence. The corresponding correlations for the data with missing values deleted were .37, .80, .20, .21, and .26, respectively. Hence, monarchs who scored higher in intelligence tend to score higher in morality and leadership, to live longer, to have longer terms in office, and to go down in history as more eminent. A later study constructed a causal model including these and additional variables (Simonton, 1984). Intelligence had a more significant causal role than did any other individual-difference variable (see also Simonton, 2001a). Hence, in line with what was found by Simonton (1991b), eminence correlates with intelligence.

United States presidents. Simonton's (1986) study of 36 presidents introduced a more sophisticated approach to historiometric assessment. He began by abstracting personality sketches from biographical sources, taking special care to remove any material that might clue judges to the president's identity. To render identification all the more difficult, he then placed the personality sketches in random order. A team of independent judges then rated each subject on the 300 adjectives making up the Adjective Check List (Gough & Heilbrun, 1965). Because many of the items displayed either floor or ceiling effects (e.g., "zany" and "ambitious"), sufficiently reliable ratings were only available for a subset of 110 adjectives. These were then subjected to a factor analysis that yielded 14 dimensions. Among the more important of these factors was one identified as Intellectual Brilliance. This factor was defined by the following adjectives (factor loadings in parentheses): interests wide (.85), artistic (.84), inventive (.76), curious (.74), intelligent (.64), sophisticated (.62), complicated (.61), insightful (.54), wise (.46), idealistic (.43), but not dull (−.71) or commonplace (−.41). A linear composite of these items had a coefficient alpha of .90. Although reliable composite measures were created for the remaining 13 personality factors, only the Intellectual Brilliance factor exhibited a consistently high association with presidential leadership performance. Specifically, Intellectual Brilliance correlated .59 with assessed presidential greatness according to a recent survey of 846 experts (R. K. Murray & Blessing, 1983). In addition, its standardized partial regression coefficient was .26 in a six-variable equation that also contained five situational predictors ($R^2 = .82$). The greatest presidents of the United States tend to score high in Intellectual Brilliance. A follow-up investigation found that Intellectual Brilliance was positively correlated with the scores presidents received on both creativity ($r = .47$) and charisma ($r = .34$), two variables that were assessed by applying leadership style Q-sort items to the same personality profiles (Simonton, 1988). Besides reinforcing what was found for the 342 monarchs (Simonton, 1983, 1984), these historiometric results are compatible with psychometric research showing that intelligence is the single most important predictor of leadership in a diversity of situations (Simonton, 1995).

Later, I have more to say about the relation between Intellectual Brilliance and presidential greatness. But right now we need to turn to the second major approach to the historiometric assessment of intelligence.

Developmental Histories

Clearly, personality sketches can provide a useful source of information for historiometric measures of intelligence. The resulting measures can display both high reliability and reasonable predictive validity. Nonetheless, these measures also suffer from a major liability: The scores have no meaning outside the samples from which they are generated. For instance, the Intellectual Brilliance scores calculated for U.S. presidents were defined as standardized scores ($M = 0.0$ and $SD = 1.0$; Simonton, 1986). Although these scores permit us to say that Thomas Jefferson is the most intellectually brilliant president ($z = 3.1$), Howard Taft almost exactly average ($z = 0.0$), and Warren Harding the least ($z = -2.0$), the scores do not allow us to conclude that the Jefferson had a genius-level intellect or that Harding was below average in intellectual power. The baseline is fellow U.S. chief executives in the sample, not Quételet's l'homme moyen. A similar problem applies to the scales used by Woods (1909) and E. L. Thorndike (1936, 1950). There exists no point of reference with respect to the population average.

One route around this difficulty is to adapt a standard psychometric instrument for use with the personality sketches. If norms are sufficiently well established, then it may be possible to devise a measure of intelligence that has a reasonably fixed baseline. The only historiometric investigation that comes close to approximating this approach was published by R. B. Cattell (1963) using his 16 Personality Factor Questionnaire. Among the 16 factors is a general intelligence assessment (B− = concrete thinking, low mental capacity, and slow learning vs. B+ = abstract thinking, high mental capacity, and fast learning). According to Cattell's reading of the biographical profiles, highly eminent scientists score well above average on this dimension, a result certainly compatible with parallel psychometric findings (R. B. Cattell & Drevdahl, 1955). Yet given Cattell's unique position with respect to this measure—and the highly qualitative and subjective nature of his assessments—it is unlikely that this strategy can solve the problem. Hence, it may prove more worthwhile to pursue a different approach, one ultimately founded on the first successful intelligence tests.

These tests began with the Binet and Simon (1905) measures that attempted to determine a child's mental age based on actual intellectual development. A child who was more intelligent than normal would be older in mental age (MA) than in chronological age (CA). Later Stern (1914) introduced the intelligence quotient or "IQ." This was a literal quotient, namely, the ratio of mental to chronological age, but multiplied by 100 (i.e., IQ =

100 × MA/CA). This definition was then incorporated by Lewis Terman (1916) in his Stanford–Binet Intelligence Scale, an English-language adaptation of the Binet and Simon instrument. Just 1 year after devising this psychometric instrument, Terman (1917) made the first step toward creating the historiometric counterpart. A great admirer of Francis Galton, and having just read a biographical account of his early years (viz., Pearson, 1914), Terman decided to estimate Galton's IQ on the basis of the latter's precocious intellectual development. The kind of evidence that was available is illustrated by the letter Galton wrote to his older sister just before his 5th birthday:

> My Dear Adèle,
>
> I am 4 years old and I can read any English book. I can say all the Latin Substantives and Adjectives and active verbs besides 52 lines of Latin poetry. I can cast up any sum in addition and can multiply by 2, 3, 4, 5, 6, 7, 8, [9], 10, [11]. I can also say the pence table. I read French a little and I know the clock.
>
> Francis Galton, Febuary [sic] 15, 1827 (Cox, 1926, p. 42)

After comparing the chronological age in which these achievements appeared with the mental age that they represented, Terman decided that Galton's IQ must have been close to 200. As a youth, Galton's intellectual attainments tended to match those of normal children twice his age. This 1917 study represents the first calculation of historiometric intelligence based on developmental histories rather than personality sketches.

However, Terman's center of gravity remained on the assessment of psychometric intelligence. In fact, a few years later he initiated the longitudinal study that stands as a landmark in the area of intellectual development. Having gathered a sample of over 1500 children who scored at genius levels on the Stanford–Binet, Terman began the series of investigations that make up the volumes of the classic *Genetic Studies of Genius* (Terman, 1925–1959). Because the children were only around 11 years of age at the time of the first volume (Terman, 1925), Terman had a very long wait before he could assess whether intellectual giftedness converted into adulthood achievement. Indeed, the final volume addressing this question appeared 3 years after Terman's death (Terman & Oden, 1959). Not surprisingly, therefore, Terman decided to supplement the longitudinal study with a historiometric investigation. While he was waiting for gifted children to become genius adults, he wanted to determine whether genius adults had been gifted children. This would involve estimating the IQs of geniuses by using the same method he had used for Francis Galton.

The resulting investigation would comprise the second volume of *Genetic Studies of Genius* and would be published just 1 year after the first volume. But unlike any of the other volumes in this series, this was the only one that did not include Terman as an author or coauthor. Instead, the historiometric investigation was attributed solely to Catharine Cox (1926), who executed the study as her doctoral dissertation under Terman's supervision. Although published over 80 years ago, Cox's study remains the single most significant attempt to estimate intelligence with historiometric methods.

Cox (1926) began by gathering a sample of highly eminent creators and leaders. Her starting point was J. M. Cattell's (1903a) list of the top 1000 in Western history. After imposing certain restrictions with respect to eminence, birth year, and other criteria, she obtained a sample of 301 geniuses, 282 forming the main sample, and the remaining 19 making up a subsample on which she piloted her historiometric techniques (see also Simonton & Song, 2009). She then gathered extensive chronologies of their intellectual distinction in both childhood and adolescence. For instance, John Stewart Mill's developmental history included the following items: At age 3 he began to learn Greek; he was reading Plato at age 7, and studied the Greek classics until 9; at 5 he discussed the comparative merits of Marlborough and Wellington with Lady Spencer; at 6½ he wrote a history of Rome; at 8 he began Latin, reading Latin writers before 9; also at 8 he began geometry and algebra, and a year later began conic sections, spherics, and Newton's arithmetic; at 11 he began fluxions (calculus) and composed a synoptic table of Aristotle's *Rhetoric*; at 12 he studied philosophy and logic, and at 13 took on political economy; he began reading French writers at age 14 and started to study law at age 16.

Independent raters, including Cox and Terman (as well as Florence Goodenough, later creator of the Draw-a-Man Test), used these chronologies to provide IQ estimates as Terman (1917) did for Galton. Unlike Terman, however, Cox ended up generating four distinct IQ scores for each of the 301 geniuses. First, one score was calculated for the developmental history through age 16, and another from age 17 to age 26. Second, each of these raw scores were corrected for data reliability (see Cox, 1926, p. 82, Footnote 1, for the formula). For example, Mill's uncorrected IQ estimates were 190 and 170, which increased to 200 and 180 after the reliability correction. Mill's mental age was close to twice his chronological age—about the same as Galton's. Cox (1926) then calculated the correlation between the uncorrected early IQ estimate and the ranked eminence score from J. M. Cattell (1903a). The zero-order coefficient was .25, a statistically significant correlation. Cox concluded that IQ scores estimated from developmental histories corresponded with the magnitude of genius, as gauged by the degree of achieved eminence.

Several subsequent investigations have replicated, modified, or extended Cox's (1926) original results. Simonton (1976) reanalyzed her data by using scores for the entire 301 geniuses instead of just the 282. He found that the zero-order correlations between IQ and ranked eminence shrank slightly to .18 for uncorrected IQ from 0 to 16 years and to .23 for uncorrected IQ from 17 to 26 years. In contrast, Walberg, Rasher, and Hase (1978) showed that Cox's original IQ scores correlated more highly with eminence once the latter variable was assessed on a quantitative scale rather than on an ordinal scale (viz., $r = .33$). Three decades later, Simonton (2008) used developmental histories to estimate the correlation between childhood giftedness and adulthood genius in a sample of 291 eminent African Americans (βs between .14 and .25). Besides using quantitative rather than ordinal eminence criteria, developmental precocity was assessed by independent raters who did know the identity of those being assessed—similar to what Simonton (1986) had done with respect to personality sketches. Finally, Simonton and Song (2009) integrated Cox's (1926) IQ estimates and combined them with subsequent estimates of early mental and physical health that Cox published under her married name Miles (Miles & Wolfe, 1936). Although Simonton and Song showed that eminence was still significantly associated with the IQ measure ($\beta = .24$), they also found that IQ was positively associated with mental health ($\beta = .19$) but negatively associated with physical health ($\beta = -.21$). The negative relation is of considerable interest because (a) both Terman and Cox

believed that IQ should positively correlate with both physical and mental health (Miles & Wolfe, 1936; Terman, 1925) and (b) empirical research on contemporary populations supports this good-goes-with-good hypothesis (e.g., L. G. Gottfredson, 2004; Lubinski & Humphreys, 1992; see Simonton & Song, 2009, for possible explanations).

It is worth pointing out that Cox's (1926) IQ scores appear to correspond well with what E. L. Thorndike (1950) obtained using his rather contrasting methods. In particular, for the 26 creators and leaders who are common to both samples, her uncorrected IQ estimate for 0–16 years of age correlates .67 with the Intelligence factor extracted from Thorndike's ratings (Simonton, 1991b). Historiometric intelligence calculated using personality sketches appears to agree with that assessed using developmental histories. This point will undergo additional documentation later. But first I need to discuss the two minor measurement traditions: content analyses and expert surveys.

Content Analyses

Content analysis is a broad set of methods for inferring psychological variables from documents and other artifacts (Smith, 1992). When applied to historical materials content analysis provides a specific form of historiometric technique (Simonton, 2003). Often established psychometric instruments have provided the basis for content analytical coding schemes that lend themselves to historiometric studies. For instance, the classic Thematic Apperception Test (H. A. Murray, 1938) has been used to assess political speeches and other communications on power, achievement, and affiliation motives (Winter, 2003). Similarly, a psychometric measure of conceptual complexity (Schroder, Driver, & Streufert, 1967) provided the basis for the historiometric assessment of integrative complexity (Suedfeld, Tetlock, & Streufert, 1992). According to the coding scheme, integrative complexity is scored on a 7-point scale. At the lower end of the scale the variable assesses the degree of *differentiation*, that is, the capacity to distinguish alternative perspectives with respect to a particular issue. In fact, the lowest score of 1 is assigned to the complete inability to conceive alternative points of view. The upper ends of the scale, by comparison, gauge the extent to which the person displays *integration*, that is, the ability to appreciate the interconnections between alternative viewpoints. An individual who receives the highest score of 7 can comprehend not only the diversity of perspectives but also subordinate them to a higher-order conception. The coding scheme for this content analytical variable can be applied to almost any written text, including speeches, correspondence, debates, and transcripts of interviews. Furthermore, the scheme exhibits a high degree of reliability for sufficiently trained raters (Suedfeld et al., 1992).

Historiometric research using this measure has examined a wide range of substantive questions, but the most interesting from our perspective is the work on leader performance (Suedfeld, Guttieri, & Tetlock, 2003). Leadership is most often enhanced when someone has the capacity to discern multiple perspectives and integrate those into a unified point of view. Such leaders are more likely to be effective decision makers because they can more fully understand their opponents' strengths and weaknesses. For instance, one empirical investigation found a correlation of .59 between a president's integrative complexity and his rated performance (Tetlock, 1980). This correlation is the same magnitude as that between Intellectual Brilliance and the same criterion variable (Simonton, 1986). Therefore, it is possible that content analytical measures of integrative complexity are gauging individual differences in general intellectual ability.

To be sure, in some respects integrative complexity operates as a state variable rather than as a trait variable. As a result, scores for any given person will not be stable from one situation to the next. For example, individuals tend to descend to lower levels of integrative complexity when subjected to considerable cognitive or affective stress (e.g., Porter & Suedfeld, 1981; Suedfeld, 1985; Suedfeld, Corteen, & McCormick, 1986; Suedfeld & Piedrahita, 1984; but see Suedfeld & Bluck, 1993). Even so, these situation-induced changes will fluctuate around a given baseline for each person. Someone who has a high trait level of integrative complexity will exhibit a higher baseline than will someone else who has a low trait level. When two persons are placed in the same situation, any contrasts in integrative complexity should reflect genuine individual differences. Hence, the assessment of trait rather than state complexity requires that different individuals be assessed using comparable documents (e.g., presidential inaugural addresses or debate transcripts).

Moreover, it is very likely that an individual cannot display a high degree of integrative complexity without exhibiting a high level of general intelligence. Stated differently, high intelligence is a necessary but sufficient condition for high integrative complexity. It requires a strong intellect to differentiate multiple perspectives and to integrate these diverse perspectives into a coherent point of view. Admittedly, a high general intelligence does not guarantee that a person will show a similarly high level of integrative complexity. Other individual-difference variables, such as extreme dogmatism or authoritarianism might interfere. Nevertheless, on average one would anticipate a positive correlation between the two variables. But the association would not be as strong as what one would expect if the content analytical measure was directly gauging intelligence. Psychometric research suggests that this is the case (e.g., Suedfeld & Coren, 1992). As shall be seen shortly, historiometric research indicates the same attenuated correspondence.[2]

Expert Surveys

Surveys are among the oldest measurement techniques, the first genuine survey having been conducted by Galton (1874) for his *English Men of Science*. Its most frequent application in historiometric research is to survey experts to assess historical figures on individual differences in eminence. One example was given earlier when I mentioned the greatness ratings of U.S. presidents, based on a survey of 846 experts (R. K. Murray & Blessing, 1983). Similar surveys have been conducted to evaluate other historical figures, such as classical composers (Farnsworth, 1969). In fact, J. M. Cattell was himself an early champion of this technique, finding it especially useful in the assessment of still-living lumi-

[2] Content analytical schemes have been applied to other aspects of intellectual performance in historiometric data. An example is the application of the Cognitive Impairment Scale to presidential debates (Gottschalk, Uliana, & Gilbert, 1988).

naries, especially distinguished scientists (e.g., J. M. Cattell, 1910). J. M. Cattell's (1903b) first application of this method was actually published the same year that J. M. Cattell (1903a) first used space measures to determine the 1000 most eminent figures in Western history. That concurrence merely reflects the fact that Cattell believed that the two methods were measuring the same latent construct.

More rarely, researchers have surveyed experts to provide assessments on individual-difference variables of more psychological interest. For instance, Coan (1968, 1979) recruited 232 experts to rate 54 eminent psychologists on 34 characteristics defining their methodological and theoretical orientation (see also Simonton, 2000). Expert surveys have also been used to evaluate presidents of the United States on the dimensions of inflexibility, idealism, character, and integrity (Maranell, 1970; Ridings & McIver, 1997). But from the standpoint of literature regarding the "other" IQ, the most relevant investigation of this kind is that conducted by Rubenzer, Faschingbauer, and Ones (2000) and by Rubenzer and Faschingbauer (2004). Their special interest was to assess U.S. presidents on the Big Five personality factors (Costa & McCrae, 1992). To accomplish this end, they converted the NEO Personality Inventory to a survey questionnaire suitable for rating someone else rather than the self (see also Cassandro & Simonton, in press). This questionnaire was then sent out to presidential experts—mainly scholars who had written biographies on one or more chief executives. In the case of 32 presidents the researchers eventually obtained at least three expert ratings (Rubenzer & Faschingbauer, 2004). Of the Big Five Factors, one assumed special importance, namely, Openness to Experience: Scores on this variable correlated .32 with assessed presidential success and .31 with ethics on the job (Ones, Rubenzer, & Faschingbauer, 2004). Great presidents are open presidents. Specifically, the most successful and ethical chief executives are open to fantasy, aesthetics, feelings, actions, ideas, and values—the six facets of the Openness to Experience scale.

The positive correlation between Openness and presidential performance echoes the positive correlation between Openness and intelligence when assessed by psychometric instruments on contemporary research participants (Ackerman & Heggestad, 1997; Bates & Shieles, 2003; Gignac, Stough, & Loukomitis, 2004; Harris, 2004). As a consequence, Openness may also bear a relationship with historiometric assessments of intelligence based on personality sketches, developmental histories, and content analyses. This possibility becomes more apparent when one examines more closely the six facets that define the factor: (a) Openness to Fantasy—"Vivid imagination and rich fantasy life; dreamy"; (b) Openness to Aesthetics—"Deep appreciation of art, music, poetry, beauty; artistic, original"; (c) Openness to Feelings—"Receptivity to own inner feelings and emotions. Experience emotions fully and value them; excitable, spontaneous"; (d) Openness to Actions—"Willingness to try new activities, go new places, do things differently; wide interests, adventurous"; (e) Openness to Ideas—"Intellectual curiosity, willingness to consider new ideas; idealistic, inventive"; and (f) Openness to Values—"Readiness to reexamine (or reject) social, political and religious values; unconventional" (Rubenzer & Faschingbauer, 2004, p. 12).

Several of these facets overlap the adjectives that define the Intellectual Brilliance factor, namely, interests wide, artistic, inventive, curious, and idealistic. Some of the Openness facets also share variance with the Intellectual Sensitivity factor obtained from E. L. Thorndike's (1950) personality ratings, especially regarding the traits "liking for art, music, beauty" and "liking for reading" (insofar as the latter implies omnivorous reading). Finally, it is also apparent that the facets of Openness to Ideas and Openness to Values would presuppose a certain minimal level of integrative complexity—at least to the degree that the individual could engage in differentiation. A president cannot be receptive to new ideas and values without a willingness and capacity to conceive alternatives to his own perspectives.

To be sure, it is not immediately apparent that any of these assessments bear any connection with the IQ scores derived from developmental histories. Precocious development does not have an obvious relationship with adulthood Openness to Experience. However, to the extent that these IQ scores capture the underlining construct of general intelligence, one would assume that they would provide a necessary basis for this disposition. In partial support for this conjecture, Simonton (1976) has shown that the uncorrected IQ scores that Cox (1926) calculated for her 301 geniuses correlate between .29 and .30 with the versatility of those same individuals, where versatility is a measure of the number of distinct domains in which they achieved eminence (see also White, 1931). Presumably, versatility would have some dependence on Openness to Experience. One cannot make a mark in several disciplines without having an initial openness to the values and ideas of those disciplines (but see Cassandro & Simonton, in press).

Rather than speculate more on the possible relationships among the four types of historiometric assessment, the question can be examined empirically. This empirical examination will integrate the findings of the four types of historiometric assessments.

Integrative Illustration: U.S. Presidents

As was pointed out earlier, Intellectual Brilliance was the only personality variable that predicted presidential greatness (Simonton, 1986). This result has been replicated numerous times using different criteria variables, adding more recent presidents, and introducing new controls (Cohen, 2003; Simonton, 1988, 1991c, 1992, 1996, 2001b, 2002b; cf. McCann, 1992). The standardized partial regression coefficients tend to range between .20 and .30, with a coefficient in the middle of the range being the most typical. But how does Intellectual Brilliance compare with the other measures, such as IQ and Openness to Experience? Do they correlate with each other? Do they predict presidential performance to an equal degree?

A partial answer to these questions was provided by Simonton's (2006) historiometric study. It began with the following three sets of scores: (a) the Intellectual Brilliance scores for 39 presidents (from Simonton, 1986), (b) the Openness to Experience scores for 32 presidents (from Rubenzer & Faschingbauer, 2004), and (c) the four IQ scores for 8 presidents (from Cox, 1926). Simonton then showed that these six measures all correlated very highly with each other. Most obviously, the highest correlations were among the four Cox IQ scores, namely, between .84 and .94 ($n = 8$). Yet these developmental-history scores also correlated highly with the personality-sketch and expert-survey scores. In particular, the IQ scores correlated between .70 and .82 with Intellectual Brilliance ($n = 8$) and between .74 and .92 with Openness to Experience

($n = 8$). Just as significant is the fact that Intellectual Brilliance and Openness to Experience correlated .69 with each other ($n = 29$). So these alternative indicators using three out of the four historiometric methods appear to be measuring highly overlapping constructs. Overall, the correlations range between .69 and .94.

That conclusion is not equivalent to concluding that they all must have identical relationships with presidential leader performance, as is measured by the greatness ratings. Unfortunately, it is difficult to gauge their relative predictive power because they are not all assessed on the same U.S. presidents. Therefore, to render the comparisons more equitable, Simonton (2006) used Expectation Maximization method to impute the missing values for all three variables (Little & Rubin, 2002). He thus obtained scores on Intellectual Brilliance, Openness, and the four IQ measures for all 42 presidents, from Washington to George W. Bush. These were then correlated with a 12-item composite measure of presidential greatness that was highly reliable (coefficient alpha .99) and that exhibited high correlations with independent survey measures of leadership, prestige, strength, activity, political skill, accomplishments, and quality of appointments (rs = .90–.97). The correlations between this greatness measure and the historiometric assessments were as follows: Intellectual Brilliance, .56; Openness to Experience, .34; and the four IQs, .31 to .35. Not only does Intellectual Brilliance have the largest coefficient, but it is also the only one to emerge as a significant predictor when introduced into a multiple regression equation with the necessary situational variables as controls ($\beta = .29$, $p < .01$, vs. $\beta = .19$, $p > .05$, for the other measures). Hence, Intellectual Brilliance, while sharing considerable variance with the other measures (i.e., 48% or more), is the superior predictor of leader performance.

Simonton (2006) did not directly consider historiometric measures on the basis of content analyses but rather pointed out in a footnote that integrative complexity correlated .58 with Openness to Experience for the 11 presidents for whom both measures were available. However, because all of the relevant scores are published in the literature (Simonton, 1986; Suedfeld & Leighton, 2002; Tetlock, 1981), it is possible to add that integrative complexity also correlates .59 with Intellectual Brilliance and between .60 and .63 with the four IQ measures, using the imputed scores. In addition, when E. L. Thorndike's intelligence scores for nine U.S. presidents are correlated with the same measures (missing values imputed), one obtains a correlation of .89 for Intellectual Brilliance and correlations between .82 and .94 for the four IQ measures. So again, the alternative historiometric methods appear to converge on a common assessment, at least in the case of presidents of the United States. The correlation between any two measures, no matter how divergent the method, never gets lower than .59, and it can get as high as .94.

One other observation should be made about the intercorrelations among the four types of intellectual assessment: The bivariate scatterplots are uniformly elliptical rather than triangular in shape. In general, those who score high on one measure will score high on another, and those who score low on one will score low on the other. For instance, although general intelligence was conjectured to be a necessary but not sufficient basis for integrative complexity, presidents who score high on IQ do not score low on integrative complexity. Similarly, those who score high on IQ do not score low on Intellectual Brilliance or Openness to Experience. No matter what the pairing of measures, prominent high–low and low–high scores do not appear in the data. This outcome reinforces the substantive inference that all four measurement methods are tapping into the same underlying individual-difference variable.

But why is Intellectual Brilliance apparently the best predictor of presidential greatness? Perhaps the best answer is that it constitutes the most comprehensive or inclusive measure. Some of the items forming the composite indicator are clearly related to general intelligence, most notably, intelligent, insightful, wise, and perhaps idealistic (as an index of abstract thought), whereas other items are more strongly associated with Openness, such as interests wide, artistic, inventive, and curious, and still others are more indicative of high integrative complexity, such as sophisticated and complicated (and perhaps the inverse items of dull and commonplace). Accordingly, the Intellectual Brilliance measure based on personality sketches captures more of the personal ingredients for success in the White House. Because the composite measure's reliability is so high, these particular traits may define a cohesive profile of the great president. As a result, Intellectual Brilliance should correlate more highly with the leadership criterion than would any of its components.[3]

Conclusion

Three general conclusions can be drawn from the foregoing review. The first generalization is an historical one: The emergence and development of historiometric intelligence measures often ran in parallel with what was going on with respect to the psychometric assessment of intelligence. This parallel history was largely synchronized by major figures who contributed to both types of measurement strategies. Galton, J. M. Cattell, Terman, E. L. Thorndike, and R. B. Cattell all contributed to both movements, albeit not always in equal degree. It is also true that since R. B. Cattell's (1963) publication, psychometric and historiometric assessments have not been authored by the same psychologists. Indeed, the main proponent of historiometric research today has only once tested research participants on a standard intelligence test, and that occurred in research conducted before launching his mature research program (Simonton, 1975). Even so, one should not make too much of this divergence of psychometric and historiometric approaches. As any scientific discipline grows, its investigators tend to become increasingly more specialized in substantive interests and research methodologies (Simonton, 2002a), so perhaps this separation should be expected. Historiometricians and psychometricians do not have to be the same persons anymore.

The second conclusion is a substantive one: Although historiometric research has developed four separate techniques for assessing intelligence, these methods very likely converge on a single assessment of individual differences. The two most important techniques derive scores from personality sketches and develop-

[3] One of the three anonymous referees expressed the view that I passed up on an ideal opportunity to discuss the 44th President of the United States (Barack Obama), whom the referee believed was highly intelligent. Unfortunately, none of the four possible historiometric techniques has yet been applied to this particular case. Worse still, I am not in the position to speculate with any semblance of objectivity, given that Mr. Obama began his higher education at my first alma mater (Occidental College) and ended his professional training at my second alma mater (Harvard University). I would just sound like a proud alumnus of either institution.

mental histories, while the two subsidiary techniques obtain scores from content analyses and expert surveys. The clear convergence of the four approaches was demonstrated via the historiometric research on the presidents of the United States. Intellectual Brilliance and Intelligence scores obtained from personality sketches, IQ scores calculated from developmental histories, scores on integrative complexity estimated from content analyses, and scores on Openness to Experience obtained from expert surveys all tended to concur on who were the brightest U.S. chief executives and who were much less bright. So to some extent the four approaches appear to be measuring the same underlying construct. This consensus is critical because each method relies on different segments of the historical record (e.g., childhood and adolescence vs. adulthood) and extracts scores from that record in distinctive ways (e.g., developmental chronologies vs. content analyses). Hence, the biases or inadequacies of one measurement technique are not the same as those of another technique. As a case in point, although some measures might possibly be contaminated with hindsight bias (e.g., the assumption that great presidents must have been intellectually brilliant), other measures cannot be so compromised, such as the integrative complexity scores extracted from contemporary correspondence and speeches with all identifying content removed (Song & Simonton, 2007). Yet the latter still correlate in the expected direction with leader performance.

The third and last conclusion is also substantive: Historiometric research appears to corroborate what has been found in psychometric research. In the latter case, researchers have shown that general intelligence positively associated with (a) successful adaptation to the demands of everyday life (L. S. Gottfredson, 1997), (b) job performance in a wide range of occupations (Ones, Viswesvaran, & Dilchert, 2005), and (c) the performance of leaders in a diversity of venues (Bass, 1990; Simonton, 1995). In the last case, for example, a meta-analysis of 151 independent samples obtained an overall correlation of .27, after correction for range restriction (Judge, Colbert, & Ilies, 2004). Historiometric research complements these psychometric results by showing that assessed intelligence is a consistent predictor of achieved eminence in general and of leader performance in particular. Moreover, the effect sizes fall in the same range for both psychometric and historiometric research, namely, .25 $\pm$ .10 (whether as a correlation coefficient or a standardized partial regression coefficient). In other words, increasing intellect by 1 standard deviation tends to increase expected achievement by one quarter of a standard deviation, plus or minus one tenth of a standard deviation.[4]

Because the criterion in most of the historiometric literature is a composite measure of eminence, and because this measure has been shown to assess a single latent variable styled Galton's *G*, one might infer from these findings that *G* is a positive function of *g*, where the latter represents general intelligence. However, this inference is probably wrong: The historiometric literature hints that the optimal indicator of ability may be one that is more broadly defined—a measure that incorporates both cognitive and dispositional traits. This contrary conclusion certainly holds for presidents of the United States. Thus, Intellectual Brilliance emerged as a better predictor of leader greatness than did either IQ (which largely ignores Openness to Experience) or Openness to Experience (which largely ignores general intelligence). Moreover, although Openness overlaps with integrative complexity, so does Intellectual Brilliance. All things considered, then, Intellectual Brilliance combines general intelligence with those facets of cognitive style or personality that seem most conducive to success as a U.S. chief executive. Great presidents should have a high general intelligence; a conspicuous openness to ideas, values, feelings, actions, aesthetics, and fantasy; and the exceptional ability to differentiate and integrate contradictory points of view.

It is possible that this inclusive conception of intellect is unique to the United States presidency. Yet it can be argued that this broadened view of intelligence is justified according to current psychometric research. Many psychologists have tried to expand the concept of intelligence beyond Spearman's *g*. Often these attempts have involved the addition of cognitive abilities that go beyond the analytical skills most often assessed on intelligence tests (e.g., Gardner, 1999; Sternberg, 1997). However, some investigators have suggested that intelligence might be extended to encompass dispositional as well as cognitive traits. A case in point is the argument that certain traits define an intelligent personality and that this cluster underlies intellectual competence (Chamorro-Premuzic & Furnham, 2006). For instance, this cluster may be defined in terms of a particular profile on the Big Five personality factors, including Openness to Experience. Hence, the complex mixture of cognitive and personality traits that constitute the Intellectual Brilliance factor in the U.S. presidents may be considered one example of this more inclusive conception of intelligent behavior. Consequently, *G* is not a function of pure *g*.

It remains to be seen whether historiometric research will continue to occupy a small but useful place within the literature on intelligence assessment. The approach certainly lacks the degree of methodological rigor to be found in the best psychometric investigations.[5] Nevertheless, historiometric studies have the distinctive asset of showing that psychological concepts are not confined to contemporary and ordinary research participants. On the contrary, the historiometric investigations reviewed in this article show that psychological variables have had repercussions throughout history. In the specific case of intelligence, such studies show how this particular individual-difference variable has had a substantial role in the emergence of the world's most distinguished creators and leaders. Moreover, this psychological impact survives control for a host of concomitant individual and situational variables. As an example, Intellectual Brilliance predicts presidential greatness even after controlling for the political context in which the chief executive governed. Because psychometric research cannot introduce the same set of statistical controls, historiometric research adds a unique increment to what is known about human intelligence in the real world. Intelligence matters, even when it matters most.

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[4] This association is uncorrected for attenuation. The correlations would be larger if corrected with published data reliabilities. For example, the intelligence–eminence correlation published by Simonton (1991b) increases from .35 to .45, and the correlation between Intellectual Brilliance and presidential greatness in the work by Simonton (2006) increases from .56 to .67. However, because the reliabilities are seldom available, the uncorrected correlations are used throughout.

[5] For far more detailed discussions of the methodological problems associated with historiometric research, see Simonton (1990, 2003, 2009). The issues are far more complicated than can be treated in this article. Yet I would not be writing this article if I did not believe that the pros did not surpass the cons.

References

Ackerman, P. L., & Heggestad, E. (1997). Intelligence, personality, and interests: Evidence for overlapping traits. *Psychological Bulletin, 121,* 219–245.

Bass, B. M. (1990). *Bass & Stogdill's handbook of leadership: Theory, research, and managerial applications* (3rd ed.). New York: Free Press.

Bates, T. C., & Shieles, A. (2003). Crystallized intelligence as product of speed and drive for experience: The relationship of inspection time and openness to g and Gc. *Intelligence, 31,* 275–287.

Binet, A., & Simon, T. (1905). Méthodes nouvelles pour le diagnostic du niveau intellectuel des anormaux. *L'Année Psychologique, 12,* 191–244.

Boake, C. (2002). From the Binet–Simon to the Wechsler–Bellevue: Tracing the history of intelligence testing. *Journal of Clinical and Experimental Neuropsychology, 24,* 383–405.

Cassandro, V. J., & Simonton, D. K. (in press). Versatility, openness to experience, and topical diversity in creative products: An exploratory historiometric analysis of scientists, philosophers, and writers. *Journal of Creative Behavior.*

Cattell, J. M. (1890). Mental tests and measurements. *Mind, 15,* 373–381.

Cattell, J. M. (1903a). A statistical study of eminent men. *Popular Science Monthly, 62,* 359–377.

Cattell, J. M. (1903b). Statistics of American psychologists. *American Journal of Psychology, 14,* 310–328.

Cattell, J. M. (1910, November 4). A further statistical study of American men of science. *Science, 32,* 633–648.

Cattell, J. M., & Farrand, L. (1896). Physical and mental measurements of the students of Columbia University. *Psychological Review, 3,* 618–648.

Cattell, R. B. (1963). The personality and motivation of the researcher from measurements of contemporaries and from biography. In C. W. Taylor & F. Barron (Eds.), *Scientific creativity: Its recognition and development* (pp. 119–131). New York: Wiley.

Cattell, R. B., & Drevdahl, J. E. (1955). A comparison of the personality profile (16 P. F.) of eminent researchers with that of eminent teachers and administrators, and of the general population. *British Journal of Psychology, 46,* 248–261.

Chamorro-Premuzic, T., & Furnham, A. (2006). Intellectual competence and intelligent personality: A third way in differential psychology. *Review of General Psychology, 10,* 251–267.

Coan, R. W. (1968). Dimensions of psychological theory. *American Psychologist, 23,* 715–722.

Coan, R. W. (1979). *Psychologists: Personal and theoretical pathways.* New York: Irvington.

Cohen, J. E. (2003). The polls: Presidential greatness as seen in the mass public: An extension and application of the Simonton model. *Presidential Studies Quarterly, 33,* 913–924.

Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO–PI–R) and NEO Five Factor Inventory (NEO–FFI): Professional manual.* Odessa, FL: Psychological Assessment Resources.

Cox, C. (1926). *The early mental traits of three hundred geniuses.* Stanford, CA: Stanford University Press.

Farnsworth, P. R. (1969). *The social psychology of music* (2nd ed.). Ames, IA: Iowa State University Press.

Galton, F. (1865). Hereditary talent and character. *Macmillan's Magazine, 12,* 157–166, 318–327.

Galton, F. (1869). *Hereditary genius: An inquiry into its laws and consequences.* London: Macmillan.

Galton, F. (1874). *English men of science: Their nature and nurture.* London: Macmillan.

Galton, F. (1883). *Inquiries into human faculty and its development.* London: Macmillan.

Gardner, H. (1999). *Intelligence re-framed: Multiple intelligences for the 21st century.* New York: Basic Books.

Gignac, G. E., Stough, C., & Loukomitis, S. (2004). Openness, intelligence, and self-report intelligence. *Intelligence, 32,* 133–143.

Ginsburgh, V., & Weyers, S. A. (2006). Persistence and fashion in art: Italian Renaissance from Vasari to Berenson and beyond. *Poetics, 34,* 24–44.

Gottfredson, L. G. (2004). Intelligence: Is it the epidemiologists' elusive "fundamental cause" of social class inequalities in health? *Journal of Personality and Social Psychology, 86,* 174–199.

Gottfredson, L. S. (1997). Why *g* matters: The complexity of everyday life. *Intelligence, 24,* 79–132.

Gottschalk, L. A., Uliana, R., & Gilbert, R. (1988). Presidential candidates and cognitive impairment measured from behavior in campaign debates. *Public Administration Review, 48,* 613–619.

Gough, H. G., & Heilbrun, A. B., Jr. (1965). *The Adjective Check List manual.* Palo Alto, CA: Consulting Psychologists Press.

Harris, J. A. (2004). Measured intelligence, achievement, openness to experience, and creativity. *Personality & Individual Differences, 36,* 913–929.

Judge, T. A., Colbert, A. E., & Ilies, R. (2004). Intelligence and leadership: A quantitative review and test of theoretical propositions. *Journal of Applied Psychology, 89,* 542–552.

Knapp, R. H. (1962). A factor analysis of Thorndike's ratings of eminent men. *Journal of Social Psychology, 56,* 67–71.

Little, R. J. A., & Rubin, D. B. (2002). *Statistical analysis with missing data.* Hoboken, NJ: Wiley-Interscience.

Lubinski, D., & Humphreys, L. G. (1992). Some bodily and medical correlates of mathematical giftedness and commensurate levels of socioeconomic status. *Intelligence, 16,* 99–115.

Maranell, G. M. (1970). The evaluation of presidents: An extension of the Schlesinger polls. *Journal of American History, 57,* 104–113.

McCann, S. J. H. (1992). Alternative formulas to predict the greatness of U.S. presidents: Personological, situational, and zeitgeist factors. *Journal of Personality and Social Psychology, 62,* 469–479.

McFarlan, D. (Ed.). (1989). *Guinness book of world records.* New York: Bantam Books.

Miles, C. C., & Wolfe, L. S. (1936). Childhood physical and mental health records of historical geniuses. *Psychological Monographs, 47,* 390–400.

Murray, C. (2003). *Human accomplishment: The pursuit of excellence in the arts and sciences, 800 B.C. to 1950.* New York: HarperCollins.

Murray, H. A. (1938). *Explorations in personality.* New York: Oxford University Press.

Murray, R. K., & Blessing, T. H. (1983). The presidential performance study: A progress report. *Journal of American History, 70,* 535–555.

Ones, D. S., Rubenzer, S. J., & Faschingbauer, T. R. (2004). Predicting presidential success. In S. J. Rubenzer & T. R. Faschingbauer (Eds.), *Personality, character, & leadership in the White House: Psychologists assess the presidents* (pp. 38–59). Washington, DC: Brassey's.

Ones, D. S., Viswesvaran, C., & Dilchert, S. (2005). Cognitive ability in selection decisions. In O. Wilhelm & R. W. Engle (Eds.), *Handbook of understanding and measuring intelligence* (pp. 431–468). Thousand Oaks, CA: Sage.

Over, R. (1982). The durability of scientific reputation. *Journal of the History of the Behavioral Sciences, 18,* 53–61.

Pearson, K. (1914). *The life, letters and labours of Francis Galton.* London: Cambridge University Press.

Porter, C. A., & Suedfeld, P. (1981). Integrative complexity in the correspondence of literary figures: Effects of personal and societal stress. *Journal of Personality and Social Psychology, 40,* 321–330.

Quételet, A. (1968). *A treatise on man and the development of his faculties.* New York: Franklin. (Reprint of 1842 Edinburgh translation of 1835 French original)

Ridings, W. J., Jr., & McIver, S. B. (1997). *Rating the presidents: A ranking of U.S. leaders, from the great and honorable to the dishonest and incompetent.* Secaucus, NJ: Citadel Press.

Rosengren, K. E. (1985). Time and literary fame. *Poetics, 14,* 157–172.

Rubenzer, S. J., & Faschingbauer, T. R. (2004). *Personality, character, & leadership in the White House: Psychologists assess the presidents.* Washington, DC: Brassey's.

Rubenzer, S. J., Faschingbauer, T. R., & Ones, D. S. (2000). Assessing the U.S. presidents using the revised NEO Personality Inventory. *Assessment, 7,* 403–420.

Schroder, H. M., Driver, M. J., & Streufert, S. (1967). *Human information processing: Individuals and groups functioning in complex social situations.* New York: Holt, Rinehart & Winston.

Simonton, D. K. (1975). Creativity, task complexity, and intuitive versus analytical problem solving. *Psychological Reports, 37,* 351–354.

Simonton, D. K. (1976). Biographical determinants of achieved eminence: A multivariate approach to the Cox data. *Journal of Personality and Social Psychology, 33,* 218–226.

Simonton, D. K. (1983). Intergenerational transfer of individual differences in hereditary monarchs: Genes, role modeling, cohort, or sociocultural effects? *Journal of Personality and Social Psychology, 44,* 354–364.

Simonton, D. K. (1984). Leaders as eponyms: Individual and situational determinants of monarchal eminence. *Journal of Personality, 52,* 1–21.

Simonton, D. K. (1986). Presidential personality: Biographical use of the Gough Adjective Check List. *Journal of Personality and Social Psychology, 51,* 149–160.

Simonton, D. K. (1988). Presidential style: Personality, biography, and performance. *Journal of Personality and Social Psychology, 55,* 928–936.

Simonton, D. K. (1990). *Psychology, science, and history: An introduction to historiometry.* New Haven, CT: Yale University Press.

Simonton, D. K. (1991a). Latent-variable models of posthumous reputation: A quest for Galton's *G. Journal of Personality and Social Psychology, 60,* 607–619.

Simonton, D. K. (1991b). Personality correlates of exceptional personal influence: A note on Thorndike's (1950) creators and leaders. *Creativity Research Journal, 4,* 67–78.

Simonton, D. K. (1991c). Predicting presidential greatness: An alternative to the Kenney and Rice Contextual Index. *Presidential Studies Quarterly, 21,* 301–305.

Simonton, D. K. (1992). Presidential greatness and personality: A response to McCann (1992). *Journal of Personality and Social Psychology, 63,* 676–679.

Simonton, D. K. (1995). Personality and intellectual predictors of leadership. In D. H. Saklofske & M. Zeidner (Eds.), *International handbook of personality and intelligence* (pp. 739–757). New York: Plenum Press.

Simonton, D. K. (1996). Presidents' wives and First Ladies: On achieving eminence within a traditional gender role. *Sex Roles, 35,* 309–336.

Simonton, D. K. (1998). Fickle fashion versus immortal fame: Transhistorical assessments of creative products in the opera house. *Journal of Personality and Social Psychology, 75,* 198–210.

Simonton, D. K. (1999). Significant samples: The psychological study of eminent individuals. *Psychological Methods, 4,* 425–451.

Simonton, D. K. (2000). Methodological and theoretical orientation and the long-term disciplinary impact of 54 eminent psychologists. *Review of General Psychology, 4,* 1–13.

Simonton, D. K. (2001a). Kings, queens, and sultans: Empirical studies of political leadership in European hereditary monarchies. In O. Feldman & L. O. Valenty (Eds.), *Profiling political leaders: Cross-cultural studies of personality and behavior* (pp. 97–110). Westport, CT: Praeger.

Simonton, D. K. (2001b). Predicting presidential greatness: Equation replication on recent survey results. *Journal of Social Psychology, 141,* 293–307.

Simonton, D. K. (2002a). *Great psychologists and their times: Scientific insights into psychology's history.* Washington, DC: American Psychological Association.

Simonton, D. K. (2002b). Intelligence and presidential greatness: Equation replication using updated IQ estimates. *Advances in Psychology Research, 13,* 143–153.

Simonton, D. K. (2003). Qualitative and quantitative analyses of historical data. *Annual Review of Psychology, 54,* 617–640.

Simonton, D. K. (2006). Presidential IQ, openness, intellectual brilliance, and leadership: Estimates and correlations for 42 US chief executives. *Political Psychology, 27,* 511–639.

Simonton, D. K. (2007). Historiometrics. In N. J. Salkind (Ed.), *Encyclopedia of measurement and statistics* (Vol. 2, p. 441). Thousand Oaks, CA: Sage.

Simonton, D. K. (2008). Childhood giftedness and adulthood genius: A historiometric analysis of 291 eminent African Americans. *Gifted Child Quarterly, 52,* 243–255.

Simonton, D. K. (2009). Historiometry in personality and social psychology. *Social and Personality Psychology Compass, 3,* 49–63.

Simonton, D. K., & Song, A. V. (2009). Eminence, IQ, physical and mental health, and achievement domain: Cox's 282 geniuses revisited. *Psychological Science, 20,* 429–434.

Smith, C. P. (Ed.). (1992). *Motivation and personality: Handbook of thematic content analysis.* Cambridge, England: Cambridge University Press.

Song, A. V., & Simonton, D. K. (2007). Studying personality at a distance: Quantitative methods. In R. W. Robins, R. C. Fraley, & R. F. Krueger (Eds.), *Handbook of research methods in personality psychology* (pp. 308–321). New York: Guilford Press.

Spearman, C. (1927). *The abilities of man: Their nature and measurement.* New York: Macmillan.

Stern, W. (1914). *The psychological methods of testing intelligence.* Baltimore: Warwick & York.

Sternberg, R. J. (1997). *Successful intelligence.* New York: Plume.

Suedfeld, P. (1985). APA presidential addresses: The relation of integrative complexity to historical, professional, and personal factors. *Journal of Personality and Social Psychology, 47,* 848–852.

Suedfeld, P., & Bluck, S. (1993). Changes in integrative complexity accompanying significant life events: Historical evidence. *Journal of Personality and Social Psychology, 64,* 124–130.

Suedfeld, P., & Coren, S. (1992). Cognitive correlates of conceptual complexity. *Personality and Individual Differences, 13,* 1193–1199.

Suedfeld, P., Corteen, R. S., & McCormick, C. (1986). The role of integrative complexity in military leadership: Robert E. Lee and his opponents. *Journal of Applied Social Psychology, 16,* 498–507.

Suedfeld, P., Guttieri, K., & Tetlock, P. E. (2003). Assessing integrative complexity at a distance: Archival analyses of thinking and decision making. In J. M. Post (Ed.), *The psychological assessment of political leaders: With profiles of Saddam Hussein and Bill Clinton* (pp. 246–270). Ann Arbor: University of Michigan Press.

Suedfeld, P., & Leighton, D. C. (2002). Early communications in the war against terrorism: An integrative complexity analysis. *Political Psychology, 23,* 585–599.

Suedfeld, P., & Piedrahita, L. E. (1984). Intimations of mortality: Integrative simplification as a predictor of death. *Journal of Personality and Social Psychology, 47,* 848–852.

Suedfeld, P., Tetlock, P. E., & Streufert, S. (1992). Conceptual/integrative complexity. In C. P. Smith (Ed.), *Motivation and personality: Handbook of thematic content analysis* (pp. 393–400). Cambridge, England: Cambridge University Press.

Terman, L. M. (1916). *The measurement of intelligence*: *An explanation of and a complete guide for the use of the Stanford revision and extension of the Binet–Simon intelligence scale.* Boston: Houghton Mifflin.

Terman, L. M. (1917). The intelligence quotient of Francis Galton in childhood. *American Journal of Psychology, 28,* 209–215.

Terman, L. M. (1925). *Mental and physical traits of a thousand gifted children.* Stanford, CA: Stanford University Press.

Terman, L. M. (1925–1959). *Genetic studies of genius* (5 vols.). Stanford, CA: Stanford University Press.

Terman, L. M., & Oden, M. H. (1959). *The gifted group at mid-life.* Stanford, CA: Stanford University Press.

Tetlock, P. E. (1980, March). *Integrative complexity as a variable in political decision making*. Paper presented at the annual meeting of the International Studies Association, Los Angeles, CA.

Tetlock, P. E. (1981). Pre- to postelection shifts in presidential rhetoric: Impression management or cognitive adjustment. *Journal of Personality and Social Psychology, 41,* 207–212.

Thorndike, E. L. (1927). *The measurement of intelligence.* New York: Columbia University Teachers College.

Thorndike, E. L. (1936). The relation between intellect and morality in rulers. *American Journal of Sociology, 42,* 321–334.

Thorndike, E. L. (1950). Traits of personality and their intercorrelations as shown in biographies. *Journal of Educational Psychology, 41,* 193–216.

Thorndike, R. L. (1994). g. *Intelligence, 19,* 145–155.

Thorndike, R. M. (1997). The early history of intelligence testing. In D. P. Flanagan, J. L. Genshaft, & P. L. Harrison (Eds.), *Contemporary intellectual assessment*: *Theories, tests, and issues* (pp. 3–16). New York: Guilford Press.

Walberg, H. J., Rasher, S. P., & Hase, K. (1978). IQ correlates with high eminence. *Gifted Child Quarterly, 22,* 196–200.

Whipple, E. M. (2004). Eminence revisited. *History of Psychology, 7,* 265–296.

White, R. K. (1931). The versatility of genius. *Journal of Social Psychology, 2,* 460–489.

Winter, D. G. (2003). Measuring the motives of political actors at a distance. In J. M. Post (Ed.), *The psychological assessment of political leaders: With profiles of Saddam Hussein and Bill Clinton* (pp. 153–177). Ann Arbor: University of Michigan Press.

Wissler, C. (1901). The correlation of mental and physical tests. *Psychological Monographs, 3,* 1–62.

Woods, F. A. (1906). *Mental and moral heredity in royalty.* New York: Holt.

Woods, F. A. (1909, November 19). A new name for a new science. *Science, 30,* 703–704.

Woods, F. A. (1911, April 14). Historiometry as an exact science. *Science, 33,* 568–574.

Woods, F. A. (1913). *The influence of monarchs.* New York: Macmillan.

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