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# A scientometric appreciation of H. J. Eysenck's contributions to psychology

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## Abstract

This article describes Hans Eysenck's productivity, his citations, his students, his department, his journals, his personality in relation to his scientific achievement, his legacy, and a personal note of appreciation. Eysenck's influence brought the "London School" of psychology into the twenty-first century. Originating in Darwin's theory of evolution and the psychometrics of Galton, Spearman, Pearson, and Burt, Eysenck applied it to individual differences in social behavior and its modifiability. Even before starting his own department in 1950, Eysenck had begun work on his theory of personality, including its genetic and environmental basis and its applications to the neuroses. His work also examined the inefficacy of psychoanalysis, the relation between heritable personality traits and crime, sexuality, genius, and race, and the use of behavior therapy and vitamin-mineral supplements to modify behavior. Before his death, Eysenck had published over 1000 journal articles and book chapters and 80 books, an average of an article or book chapter every 2 weeks for 50 years and a book every 9 months. When he died, he was the most cited living psychologist and he is the third most cited psychologist of all time (after Sigmund Freud and Jean Piaget). In this writer's opinion, Hans Eysenck was the single most important psychologist who ever lived. His citation legacy will be tracked for decades to come.

*Keywords:* Behavior genetics; Personality; Intelligence; Citations; History of psychology; H. J. Eysenck

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## 1. Introduction

In the expanded edition of his autobiography, *Rebel With a Cause*, Eysenck (1997, pp. 63–65) set out five principles he thought should govern the study of psychology as a scientific discipline. Although these seemed to him little more than commonsense, each was savagely attacked by what was often a majority of psychologists, and each led to large-scale theoretical battles. The first of Eysenck's principles (1) was that human beings were *biosocial organisms* whose conduct

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was determined by both genetic factors and by social factors. Eysenck thus situated himself firmly in the “London School” of psychology, which originated in Charles Darwin’s theory of evolution and was extended by Sir Francis Galton’s applications to individual differences and the psychometric methodologies of Charles Spearman, Karl Pearson, and Sir Cyril Burt. Eysenck’s four other principles: (2) a mind-body continuum; (3) reconciling correlational and experimental methods; (4) abandoning distinctions between pure and applied psychology; and (5) requiring proof for all assertions, can likewise be seen as a program of unifying, rather than compartmentalizing, knowledge.

At the conclusion of *Rebel With a Cause* (pp. 283–307), Eysenck offered his own summation and assessment of his impact. Although he had won many honors and awards, such as the American Psychological Association’s (APA) Award for Distinguished Contributions to Science (1988), APA’s Presidential Citation for Outstanding Contributions to Psychology (1994), the APA Division of Clinical Psychology’s Centennial Award for Lifelong Contributions to Clinical Psychology (1996), and the American Psychological Society’s (APS) William James Award (1994), Eysenck preferred objective indices such as publication and citation counts. This is not surprising, given his deep belief in Lord Kelvin’s adage that “Anything which exists must do so in some quantity and therefore is capable of being measured.” It is a personal pleasure to write this article because I had used scientometric analyzes earlier on that charted Eysenck’s achievements (Endler, Rushton & Roediger, 1978; Rushton, 1989; Rushton & Endler, 1977).

## 2. Eysenck’s productivity

Eysenck’s productivity in pursuit of his program was legendary. In Gibson’s (1981, p. 50) biography of Eysenck, he relates how Cyril Burt, Eysenck’s PhD supervisor, once took him aside to warn him about publishing too much, saying that it was somehow ungentlemanly, certainly “un-British,” and not quite proper.

Eysenck charted his own productivity over the years (Eysenck, 1997, p. 315–322), assigning each article or book chapter a value of one point, and each book 10 points (see Fig. 1). The beautifully sigmoid nature of the curve suggested to Eysenck that by extrapolation he would cease to publish in the year 2010, at the age of 95, if he lived that long! Close to his death (which occurred on September 4, 1997), he documented well over 1000 articles and book chapters and 79 books, with at least one other published posthumously (Eysenck, 1998). This enormous output averaged a journal article or book chapter every 2 weeks for 50 years, and a book every 9 months, to which must be added shorter items like editorials, book reviews, conference papers, lectures, and media appearances (Fig. 1).

How did Eysenck do it? Speed of thinking, reading, and writing — and an impatience with painstakingly going over everything to correct typos — was one way. Another way, he tells us (Eysenck, 1997 p. 302), was the ability he acquired to dictate a 9000 word article in a 5-h day, needing little if any corrections or amplifications when typed. He did concede that this needed his total concentration and careful thinking out ahead of time! Still another “trick” to his enormous productivity was to collaborate with others, people like Irene Martin on conditioning, Glenn Wilson on social psychology, Jack Rachman on behavior therapy, Lindon Eaves, David Fulker, and Nick Martin on genetics, Ronald Grossarth-Maticek on cancer and coronary heart disease,

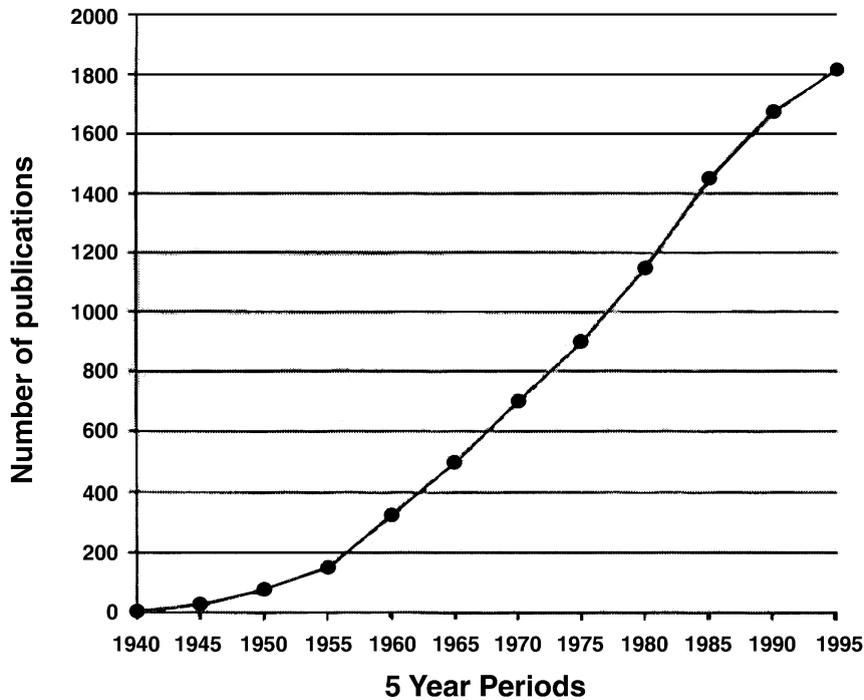


Fig. 1. Hans Eysenck's Productivity from 1940 to 1995. From H. J. Eysenck (1995, p. 315). Copyright 1997 by Hans Eysenck. Reprinted with permission of Hans Eysenck Estate.

Paul Barrett on the psychophysiology of intelligence, David Nias on the effects of television and astrology, Gisli Gudjonsson on criminality, and, of course, Sybil Eysenck on personality.

Immense productivity, of course, is a defining feature of genius. One of the most salient characteristics of scientific achievement is its unequal distribution. Whereas personality and intelligence are normally distributed, scientific achievement is not. A very few scientists are responsible for the great majority of creative works. Across scientific disciplines, the most productive 10% of scientists typically account for 50% of the publications (Dennis, 1955; Shockley, 1957). Academic psychologists show a similar distribution as shown in Table 1. The citation and publication counts reported there are based on 4070 faculty members at the top 100 departments of psychology in the USA, Canada, and the UK (Endler et al., 1978). Over half (52%) did not publish an article in 1975 in any of the journals reviewed. Only 1% had more than 100 citations.

### 3. Eysenck's citations

Citation counts for psychology, indexed by the Science Citation Index (SCI) and the Social Sciences Citation Index (1975; SSCI), provide quantitative indices of research quality relatively free of special interest bias (Rushton, 1984). The rationale for using citations as a measure of eminence is straightforward. If A's work has been cited 50 times, and B's only 5, A's work has had more impact than B's, thereby making A the more eminent. Most citations are assumed to be

Table 1

Frequencies and cumulative percentage for the distribution of citations of and publications by faculty members at the Top 100 British, Canadian, and American Graduate Departments of Psychology<sup>a</sup>

Number of citations or publications	Citations		Publications	
	Cumulative frequency	Percentage	Cumulative frequency	Percentage
> 100	134	100	–	–
26–99	556	97	–	–
21–25	164	83	1	100
16–20	223	79	1	99
11–15	338	74	1	99
10	97	65	3	99
9	82	63	4	99
8	102	61	12	99
7	105	58	18	99
6	125	56	37	99
5	187	53	54	98
4	187	48	147	97
3	207	44	259	93
2	302	38	468	87
1	365	31	971	75
0	896	22	2094	52
Total	4070		4070	

<sup>a</sup> From the 1975 *Social Sciences Citation Index*. (Endler, Rushton and Roediger, 1978, p. 1079, Table 5). Copyright 1978 by the American Psychological Association. Reprinted by permission.

given because they refer to good work that develops a theme. Although errors can occur in estimating eminence this way, the scientometric evidence suggests that whereas good citations cumulate, idiosyncratic citations do not.

The reliability of citation counts were shown by Myers (1970). From the references in 14 psychology journals over a 6-year period, citations for individuals from each journal correlated from 0.15 to 0.82 with their total citations obtained from the remainder of the journals. Moreover, a very close agreement (0.91) was found between Myers's (1970) counts and those from the much larger sample of journals from the SCI.

The validity of citations as measures of eminence has been shown in many ways; thus Nobel prize-winners tend to have high counts (even before the award), as have members of the Royal Society, the National Academy of Sciences, and other highly regarded scientific organizations (Garfield, 1977). In psychology too, Myers (1970) showed that recipients of major awards and honors typically have high citation counts. The three psychologists who had been awarded the US National Medal of Science were all in the 99th percentile of his citation counts; the eight psychologists listed in the 1966 edition of *Modern Men of Science* were in the 90th percentile; and the 42 psychologists who had been given the APA's Distinguished Scientific Contribution Award were all above the 50th percentile. Clark (1957) and Myers (1970) found the number of votes received by peers for quality work correlated highly with citations.

Eysenck's citation count is phenomenally high. One study by Eugene Garfield (1977), president of the Institute for Scientific Information (ISI) and the man most responsible for the Citation Index, published an international list of the 250 most-cited authors from 1961 to 1975 from all the major sciences, including physics, chemistry, physiology, and medicine. Of the one million or more authors who had published between those years, Garfield looked at the top two-and-a-half-hundredths of 1%. Eysenck was included with a total of 5241 citations, along with people like Linus Pauling (a double Nobel Prize winner with 15,662 references), M. Gell-Mann with 9669, and M. Born with 9206. In this glittering list, which included forty-two Nobel Prize winners, Eysenck came in the middle — which is especially remarkable considering that these figures were from the SCI, not the SSCI. His most cited work was *The Biological Basis of Personality*, which earned 177 SCI citations.

In another publication, Garfield (1978) listed the 100 most cited authors in the *social sciences* for the period 1969–1977. Now Eysenck headed the list of living psychologists, with an average score of 597 per year, just ahead of B. J. Winer (581) and Albert Bandura (561). However, when Garfield (1992) updated the list using as his criterion those most actively publishing in North American psychology journals, Eysenck had fallen to 33rd place.

In the 1978 issue of the *American Psychologist*, Endler et al. (1978) published a list of the 100 most cited psychologists in the 1975 SSCI. Eysenck came fifth. Freud and Piaget lead the field. Number three was B. J. Winer, there because he had written a widely cited textbook of psychological statistics. In fourth place was Albert Bandura. The list also included B. F. Skinner at No. 8, Raymond Cattell in 11th place, J. P. Guilford in 12th, and Carl Rogers in 13th.

Table 2 presents 100 of the most frequently cited psychologists based on the sum of the citation frequencies across several lists on which the name appeared by Haggbloom (1999). These included: Myers's (1970) 62 most cited psychologists, 1962–1967, from an analysis of selected, prestigious, psychology journals; Endler et al.'s. (1978) 100 most cited psychologists from an SSCI search for the year 1975; Garfield's (1978) 100 most cited psychologists from an SSCI search covering 1969–1977; and Garfield's (1992) most frequently cited authors in SSCI-indexed psychology journals, 1986–1990, for authors who published at least 10 papers in SSCI-indexed journals during that period. Although any such list is imperfect and will omit people who deserve to have been included, it provides one summary of “Who's Who” in psychology over recent decades and so places Eysenck's contributions in perspective.

The strengths of Haggbloom's (1999) composite list are that it samples four (mostly) non-overlapping time periods as well as different methodologies. The methodologies include manual searches (Endler et al., 1978; Myers, 1970) and computerized database searches (Garfield, 1978; 1992) of selected journals deemed “prestigious” (Myers, 1970); full searches of all SSCI-indexed psychology journals (Endler et al., 1978, Garfield, 1978); and a search of SSCI-indexed psychology journals that included only those who had published at least 10 articles in SSCI-indexed journals during the period covered (Garfield, 1992). Table 2 represents a balance between historically established authorities and contemporarily active psychologists.

Table 3 provides a similar composite snapshot of British psychology from the 1975 and 1985 Social Sciences Citation Indices based on the scientometric studies of British psychology by Rushton and Endler (1977) and Rushton (1989) which included lists of individuals with high citation counts. Table 3 sums the lists on which the names appeared. However, it also follows the corrections made by Eysenck (1997, p. 307) to include Donald Broadbent who had been omitted

Table 2

The 100 most frequently cited psychologists based on citation analyses of journals: a composite list<sup>a</sup>

Rank	Name	Citation frequency
1	S. Freud	13,890
2	J. Piaget	8821
3	H. J. Eysenck	6212
4	A. Bandura	5831
5	R. B. Cattell	4828
6	B. F. Skinner	4339
7	C. E. Osgood	4061
8	D. T. Campbell	3969
9	L. Festinger	3536
10	G. A. Miller	3394
11	J. S. Bruner	3279
12	L. J. Cronbach	3253
13	E. H. Erikson	3060
14	J. B. Rotter	3001
15	D. Byrne	2904
16	J. Kagan	2901
17	J. Wolpe	2879
18	R. Rosenthal	2793
19	B. J. Underwood	2686
20	A. Paivio	2678
21	M. Rokeach	2676
22	D. E. Berlyne	2673
23	S. S. Stevens	2580
24.5	A. R. Jensen	2515
24.5	C. R. Rogers	2515
26.5	H. A. Simon	2446
26.5	E. Tulving	2446
28	R. Brown	2469
29	H. A. Witkin	2461
30	D. C. McClelland	2388
31	J. Cohen	2376
32	N. H. Anderson	2360
33	A. H. Maslow	2321
34	M. Deutsch	2244
35	E. L. Thorndike	2222
36	L. Kohlberg	2220
37	D. E. Broadbent	2207
38	L. Berkowitz	2193
39	N. E. Miller	2170
40	M. Rutter	2117
41	A. Freud	2074
42	S. Schacter	2045
43	K. Lewin	2015
44	W. Mischel	2011
45	C. G. Jung	1994
46	G. W. Allport	1987

*(continued on next page)*

Table 2 (continued)

Rank	Name	Citation frequency
47	L. Postman	1908
48	H. G. Gough	1869
49	R. R. Carkhuff	1854
50	J. Bowlby	1852
51	E. E. Jones	1827
52	D. O. Hebb	1823
53	U. Neisser	1787
54	A. Rapoport	1747
55	M. I. Posner	1714
56	B. J. Winer	973
57	S. Siegel	823
58	A. L. Edwards	618
59	J. P. Guilford	593
60	E. Goffman	514
61	D. L. Schacter	457
62	W. K. Estes	399
63	J. W. Atkinson	388
64	K. W. Spence	378
65	E. R. Hilgard	324
66	E. Maccoby	319
67	A. Campbell	292
68	E. E. Lindquist	291
69	P. T. Costa	271
70	H. H. Kelly	269
71	C. L. Hull	267
72	S. E. Asch	264
73	R. N. Shepard	257
74	C. L. Hovland	255
75	M. D. Newcomb	254
76	O. H. Mowrer	252
77	M. J. Rosenberg	237
78	L. Lorge	236
79.5	D. A. Kenny	230
79.5	R. R. McCrae	230
81	A. E. Kazdin	223
82.5	E. T. Higgins	221
82.5	E. Lichtenstein	221
85	E. Fromm	220
85	R. Plomin	220
85	S. E. Taylor	220
87.5	W. L. Hays	214
87.5	J. P. Rushton	214
89	M. Fishbein	213
90	D. Wechsler	212
91	A. T. Beck	208
92	E. B. Blanchard	206
93	M. E. F. Seligman	205

(continued on next page)

Table 2 (continued)

Rank	Name	Citation frequency
94	J. H. Flavell	204
95.5	H. Markus	199
95.5	G. T. Wilson	199
97	K. A. Matthews	197
98	P. M. Bentler	193
99	H. W. Marsh	192
100	H. F. Harlow	199

<sup>a</sup> From Haggblom (1999).

(because he worked for the Medical Research Council rather than being a member of a Psychology Department), and to exclude Jerome Bruner (because his stay at Oxford was very short and all the citations to his work were related to his American studies). Both Eysenck's wife Sybil, and his son Michael (from an early first marriage), are well up in this table — as indeed are many of his former students, such as J. A. Gray, J. Sandler, G. D. Wilson, P. H. Venables, and W. Yule.

Four of Eysenck's works have been designated "Citation Classics" by the ISI. Garfield (1977) wrote that an article could be on its way to citation stardom if it earned 10 citations a year for each of 2 years running (although that number could depend on the size of the scientific literature in a particular field; Garfield, 1986). ISI identified four Citation Classics by Hans Eysenck, two co-authored with Sybil, his wife and partner. Hans or Sybil then wrote essays in *Current Contents* explaining the context and likely reason for why the articles had generated their impact. The four Citation Classics were:

Eysenck, H. J. (1952). The effects of psychotherapy: an evaluation. *Journal of Consulting Psychology*, 16, 319–324. (This paper was cited in 275 publications between 1961 and 1980; see *Current Contents*, 11 August 1980, Number 32).

Eysenck, S. B. G., & Eysenck, H. J. (1968). The measurement of psychoticism: a study of factor stability and reliability. *British Journal of Social and Clinical Psychology*, 7, 286–294. (This paper was cited in over 100 publications between 1968 and 1986; see *Current Contents*, 1 September 1986, Number 35).

Eysenck, H. J. (1967). *The Biological Basis of Personality*. Springfield, IL: Thomas. (This paper was cited in over 855 publications between 1967 and 1987; see *Current Contents*, 25 January 1988, Number 4).

Eysenck, H. J., & Eysenck, S. B. G. (1975). *The Eysenck Personality Questionnaire*. London: Hodder & Stoughton. (This paper was cited in over 770 publications between 1975 and 1990; see *Current Contents*, 30 April 1990, Number 18).

Eysenck's measured impact is even greater when citations from papers co-authored by him on which he was not the first author are taken into account. Although Cole and Cole (1971) reported a study of 120 physicists that contained the full range of citation data, including citations in which the author was first, second, or third, and found a 0.96 correlation between citations to first author only and citations to all authors, thereby suggesting that people's rank orders stay the same, a study by Garfield (1978) showed that for some individuals, if their co-authored works were included, their rank orders changed considerably.

Table 3

Members of British Psychology Departments with high citations combining the 1975 and 1985 *Social Sciences Citation Index* (after Rushton & Endler, 1977; Rushton, 1989; as amended by Eysenck, 1997, p. 307)

Psychologist	University	Total citations
H. J. Eysenck	London, BPMF <sup>a</sup>	1350
J. A. Gray	London, BPMF	341
D. Broadbent	London, MRC <sup>b</sup>	313
J. M. Argyle	Oxford	306
N. J. Mackintosh	Cambridge	230
E. K. Warrington	London, BPMF	221
M. Coltheart	London, Birkbeck College	209
P. H. Venables	York	138
T. G. R. Bower	Edinburgh	135
G. D. Wilson	London, BPMF	126
H. R. Schaffer	Strathclyde	123
P. B. Warr	Sheffield	120
S. Rachman	London, Institute of Psychiatry	113
D. A. Booth	Birmingham	101
M. R. Trimble	London, BPMF	97
J. Sandler	London, University College	97
S. B. G. Eysenck	London, BPMF	91
M. W. Eysenck	London, Birkbeck College	90
D. N. Lee	Edinburgh	84
O. J. Braddick	Cambridge	83
S. J. Cooper	Birmingham	82
P. L. Broadhurst	Birmingham	75
C. B. Trevarthan	Edinburgh	73
D. S. Pugh	London, Graduate Business School	71
H. Giles	Bristol	70
T. W. Robbins	Cambridge	69
C. Hutt	Keele	67
R. S. Peters	London, Institute of Education	64
L. Weiskrantz	Oxford	64
A. F. Furnham	London, University College	62
E. T. Rolls	Oxford	61
W. Yule	London, BPMF	60
A. M. Treisman	Oxford	59
N. S. Sutherland	Sussex	56
H. Tajfel	Bristol	54
N. Moray	Stirling	52
N. C. Waugh	Oxford	48
R. Lynn	Ulster	47
P. E. Bryant	Oxford	42
M. Treisman	Oxford	41
G. Jahoda	Strathclyde	41

<sup>a</sup> BPMF, British Postgraduate Medical Federation. This is part of the University of London and contains institutes of various medical specialities associated with appropriate hospitals in these fields.

<sup>b</sup> MRC, Medical Research Council.

According to Eysenck's Personal Citation Report from the ISI for 1981–1998, which is a complete inventory of his journal publications during the last 17 years of his life, aged 64–81, there were 625 articles on which he was an author or co-author. Including articles, book reviews and letters to the editors (but omitting books and chapters in books), these earned a total of 2183 citations. This phenomenal output amounts to 37 items a year and includes 124 papers, eight reviews, six proceedings papers, 16 notes, 384 book reviews, and 56 letters to the editor. Fifty-eight of the publications were those on which Eysenck was not the primary author and they accumulated 1080 citations (49% of the total), thus implying his citation impact would double if papers on which he was not primary author were considered. Seven of these papers were co-authored with Paul Barrett on intelligence, three were with Sybil Eysenck on personality, three were with me and colleagues on the genetics of altruism, and one was with Nick Martin and colleagues on the genetics of social attitudes. Eysenck's 16 most cited articles between 1981 and 1998 (including primary and secondary authorship) are:

- Eysenck, S. B. G., Eysenck, H. J., & Barrett, P. (1985). A revised version of the psychoticism scale. *Personality and Individual Differences*, *6*, 21–29 (405 cites).
- Rushton, J. P., Fulker, D. W., Neale, M. C., Nias, D. K. B., & Eysenck, H. J. (1986). Altruism and aggression: the heritability of individual differences. *Journal of Personality and Social Psychology*, *50*, 1192–1198 (110 cites).
- Eysenck, H. J. (1991). Dimensions of personality: 16, 5 or 3? — Criteria for a taxonomic paradigm. *Personality and Individual Differences*, *12*, 773–790 (88 cites).
- Eysenck, H. J. (1992a). 4 ways 5 factors are not basic. *Personality and Individual Differences*, *13*, 667–673 (86 cites).
- Martin, N. G. Eaves, L. J., Heath, A. C., Jardine, R., Feingold, L. M., & Eysenck, H. J. (1986). Transmission of social attitudes. *Proceedings of the National Academy of Sciences of the U.S.A.*, *83*, 4365–4368 (60 cites).
- Eysenck, H. J., Nias, D. K. B., & Cox, D. N. (1982). Sport and personality. *Advances in Behavior Therapy*, *4*, 1–56 (49 cites).
- Frearson, W., & Eysenck, H. J. (1986). Intelligence, reaction-time (RT) and a new odd-man-out paradigm. *Personality and Individual Differences*, *7*, 807–817 (48 cites).
- Eysenck, H. J., Wakefield, J. A., & Friedman, A. F. (1983). Diagnosis and clinical assessment: the DSM-III. *Annual Review of Psychology*, *34*, 167–193 (47 cites).
- Eysenck, H. J. (1988). Personality, stress and cancer: prediction and prophylaxis. *British Journal of Medical Psychology*, *61*, 57–75 (44 cites).
- Grossarth-Maticek, R., Eysenck, H. J., & Vetter, H. (1988). Personality type, smoking habit and their interaction as predictors of cancer and coronary heart-disease. *Personality and Individual Differences*, *9*, 479–495 (44 cites).
- Eysenck, H. J., & Fulker, D. W. (1983). The components of Type-A behavior and its genetic determinants. *Personality and Individual Differences*, *4*, 499–505 (43 cites).
- Barrett, P., Eysenck, H. J., & Lucking, S. (1986). Reaction time and intelligence: a replicated study. *Intelligence*, *10*, 9–40 (40 cites).
- Eysenck, H. J. (1992b). The definition and measurement of psychoticism. *Personality and Individual Differences*, *13*, 757–785 (40 cites).
- Eysenck, H. J. (1985b). Personality, cancer and cardiovascular disease: a causal analysis. *Personality and Individual Differences*, *6*, 535–556 (39 cites).

Eysenck, H. J. (1988b). The respective importance of personality, cigarette-smoking and interaction effects for the genesis of cancer and coronary heart-disease. *Personality and Individual Differences*, 9, 453–464 (38 cites).

Schoenthaler, S. J., Amos, S. P., Eysenck, H. J., Peritz, E., & Yudkin, J. (1991). Controlled trial of vitamin-mineral supplementation: effects on intelligence and performance. *Personality and Individual Differences*, 12, 351–362 (37 cites).

#### 4. Eysenck's students

When Eysenck was appointed by Aubrey Lewis to head the new department of Psychology at the Institute of Psychiatry (in 1950), he promised Lewis three things (Eysenck, 1997, p. 288): (1) that he would get the profession of clinical psychology established in the United Kingdom; (2) that he would make the department the best in the country, if not in Europe; (3) and that he would give their research students the best training in the country. It is understandable therefore, that Eysenck took an obvious pride in the achievements of his Department's 180 PhD students, many of them coming from outside Britain, and a large proportion of whom achieved notable positions (pp. 284–285).

Clinical psychology formed the largest group of students, several helping establish behavior therapy in the UK. In this context, Eysenck listed Monte Shapiro, H. Gwynne Jones, Robert Payne, Aubrey Yates, Maryse Israel, Stanley (Jack) Rachman, Jack Tizard, Alastair Heron, Neal O'Connor, and Alan and Anne Clarke who did pioneering work in mental deficiency. The next generation included Michael Berger, Don Kendrick, Gordon Claridge, Anne Broadhurst, Reginald Beech, Victor Meyer, Jim Inglis, Don Bannister, Ernest Poser, Hans Brengelmann (who introduced behavior therapy into Germany), Cyril and Violet Franks (who did much to introduce the topic in the USA), Arthur Arthur, Ron Ramsey (who later introduced behavior therapy into the Netherlands), Jim Humphrey (who did the same in Australia), Martin Herbert, Alan R. Dabbs, Philip Feldman, and many others. Then there is a third generation, represented by people like Tony Gibson, Ian M. W. Evans, Richard Hallam, John Teasdale, Andrew M. Mathews, Ray Hodgson, Peter Slade, John Marzillier, Fraser N. Watts, Graham Powell, David Hemsley, and William Yule. Eysenck seemed proud even of "the renegades and apostates who fled from science into the bosom of psychoanalysis," people like Sidney Crown and Joseph Sadler who, he pointed out, made their marks, respectively, as editors of the *British Journal of Medical Psychology* and the *International Journal of Psychoanalysis*.

Eysenck catalogued other, smaller groups, noting there had been more financial support for clinical than experimental psychology. In psychophysiology, Eysenck mentioned Peter Venables and Irene Martin; in animal research, Peter Broadhurst, Jeffrey Gray, J. (Peter) Keehn, Jim Williams, Justin Joffe and Harry Holland; in behavioral genetics, with David Fulker at the head, there was Michael Neale and Robert Blizard as graduate students; in statistics, Ardl Lubin, Patrick Slater, Owen White, A. E. Maxwell, A. Jonckhere, and Paul Barrett. More generally, in personality, intelligence, and experimental research in its widest sense, there had been Hilde Himmelweit and Asenath Petrie, his earliest research assistants. Still others included Jim Easterbrook, Desmond Furneaux, Frank Farley, Chris Frith, Kieron O'Connor, Richard Passingham, Glenn Wilson, David Nias, Russell Willett, Donna E. and Alan E. Hendrickson, and John Allsop.

According to Eysenck, about one in three of his department's students became full professors; another one in three achieved academic status, or a leading position in clinical psychology. The rest went into industrial psychology, public relations, advertising or business generally, and even one utterly psychopathic individual managed to marry an heiress! Eysenck could hardly think of a single failure. Almost a third of British psychologists with 60 or more citations in the 1985 SSCI were members of the Eysenck family or former students (Table 3).

## 5. Eysenck's department

Departments and whole universities can also be assessed using citations. In 1966, the American Council on Education (ACE) conducted an extensive survey of 4000 faculty members in 30 disciplines, including psychology. Those departments rated highly by the judges had faculty which collectively received a larger number of citations. Myers (1970) summarized the results for psychology. The mean number of citations per member of departments rated as "distinguished" was 22.0; as "strong" 12.2; as "good," 7.3; and as "adequate," 4.1. In a subsequent ACE study, Roose and Anderson (1970) found chairpersons' ratings of the quality of psychology graduate programs correlated 0.90 with the earlier study, demonstrating considerable stability in such ratings. More importantly for present purposes, these latter ratings correlated 0.64 with the departments' mean citations, 0.67 with their median citations, and 0.69 with total citations, measured 6 years later (Endler et al., 1978).

Table 4 lists the top 25 British Departments of Psychology, both for total citations and total number of publications, based on the 1975 SSCI, summing citations received by each individual member of the department (Rushton & Endler, 1977; Rushton, 1989). Again following Eysenck (1997, pp. 288–289), the figures for J. Bruner have been subtracted from those summed for Oxford University, because all the citations to Bruner's work were related to his American studies, and none to the short period he spent at Oxford.

## 6. Eysenck's journals

How about the journals Eysenck started and then edited? In the Journal Citation Reports, academic journals can be ranked using their impact factor, which is based on the number of citations an average article in that journal earns in a given year (the total number of citations in the previous two years divided by the total number of articles published during the same time period). According to the 1998 *Journal Citation Reports Social Sciences Edition*, the first journal Eysenck founded (in 1963), *Behavior Research and Therapy* (BRAT), had an impact factor of 1.731, similar to *Behavior Therapy* which had an impact factor of 1.195; and considerably higher than the *British Journal of Medical Psychology* (0.702), *Behavior Modification* (0.940), the *Journal of Clinical Psychology* (0.474) or the *International Journal of Psychoanalysis* (0.898). It was not as high as the *Journal of Abnormal Psychology* (3.077), or the *Journal of Consulting and Clinical Psychology* (3.375).

The second journal he founded (in 1980), *Personality and Individual Differences* (PAID), had an impact factor of 0.559, almost as high as the *European Journal of Personality*, (0.820), the *Journal*

Table 4

Citations earned and publications recorded in the 1975 *Social Sciences Citation Index* by 49 British Departments of Psychology (following Rushton & Endler, 1977; Rushton, 1989; as amended by Eysenck, 1997, p. 289)

Institute	Total citations	Total publications
London, Institute of Psychiatry	886	62
Oxford	524	31
Sussex	303	27
Bristol	189	19
Birmingham	174	17
Edinburgh	136	12
Keele	134	17
Strathclyde	122	11
Stirling	119	8
Aberdeen	115	26
Cambridge	115	13
London, University College	92	10
Sheffield	84	13
York	80	9
Cardiff	79	18
Exeter	79	12
Reading	77	13
Aston	74	7
Dundee	71	14
London, Birkbeck College	64	16
Swansea	62	12
Durham	58	9
London, Institute of Education	58	12
London, London School of Economics	53	7
Nottingham	53	19
Remaining 24 departments, average	35	6

of *Research in Personality* (0.956), and the *British Journal of Social Psychology* (1.000), but less than the *Journal of Personality* (2.486) or the *Journal of Personality and Social Psychology* (2.837). However, PAID publishes many more smaller items than the other journals, such as book reviews and shorter notes, and these work to lower impact. Regardless, Eysenck was pleased with the figures for his journals, especially given that they had to stand alone without institutional support such as the official journals of the American Psychological Association and the British Psychological Society.

## 7. Eysenck's personality

Why are the publication and citation frequencies in Table 1 so unequally distributed? As Walberg, Strykowski, Rovai and Hung (1984) explain, the normal distribution does not apply to exceptional performance. Instead, J-shaped distributions such as those shown in Table 1, are characteristic. J-shaped distributions — monotonically decreasing at a decelerating rate — typically occur when the underlying causes combine multiplicatively rather than additively. Additive causes produce normal distributions.

In his book *Genius*, Eysenck (1995) proposed that some individuals are more creative than others because they are higher in psychoticism, as measured, for example, by the P scale on the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975). Psychoticism involves the tendency to form wide associative horizons and over-inclusive thinking which facilitate the discovery of remote associations, which in turn is the basis for creative inspiration. Add productivity to creativity and you get achievement, with the term “genius” reserved for work of outstanding achievement.

Of course, having a high P score is hardly sufficient. Eysenck’s book elaborates that creative achievement is a multiplicative function of cognitive, personality, and environmental variables. *Cognitive* abilities (such as intelligence, acquired knowledge, technical skills, and special talents) combine with *personality* traits (such as internal motivation, confidence, non-conformity, and persistence) and *environmental* variables (such as political-religious, socioeconomic, and educational factors) in producing creative achievements. Many of these variables act in a multiplicative (synergistic) rather than an additive manner. Assuming independence of each of these traits, a scientist who is at the 90th percentile on intelligence, internal motivation, independence, and endurance is a person who is one in 10,000.

Eysenck discussed the makeup of his own personality (Eysenck, 1997, pp. 298–299) suggesting that he could not have achieved what he had if his personality had been otherwise: very low Neuroticism, moderately low Extraversion, and average Psychoticism, which he elaborated: “independence, dominance, non-conformism, emotional stability, assertiveness, rebelliousness, risk-taking, ego control, and (perhaps?) bloody-mindedness.” He acknowledged the downside to this profile — an apparent lack of warmth, and a tendency to think rather than to act. He also tells us that he had “always been a fighter” (p. 306) which, in any case, we can infer from the title he chose for his autobiography, along with much of its content! Along with his personality came a natural style — “clear, incisive, sardonic, factual, not given to meretricious sesquipedalianism, eminently suitable for scientific description, but not for literary excursions or philosophical confrontations.” He liked to think that a sense of humor was present in his writings!

In light of the above, it is fascinating to examine the personality profile of the successful researcher and teacher revealed in Fig. 2, based on two separate studies by Rushton, Murray and Paunonen (1983; summarized by Rushton, 1990, 1997b). In the first study, 52 psychology professors at the University of Western Ontario were assessed on 29 personality traits by scale scores, self-ratings, student-ratings, and faculty peer-ratings. The results here are based on the peer-ratings. (Due to the small number of females, all analyzes were collapsed across sex.) Ratings were made on nine-point-scales relative to other professors rather than to people in general. Research eminence was indexed by combining several years of publication and citation counts from the SCI and the SSCI. A five-point rating of “overall effectiveness” as a teacher was determined from an average of 5 years of end-of-course student evaluations.

In Study 2, a questionnaire was mailed to nine other psychology departments in Canada, to which 69 people responded. The same 29 personality traits and definitions were used as in Study 1. Respondents were instructed to rate themselves in percentiles, “relative to other Canadian university psychology professors.” The distributions were roughly normal with socially desirable traits rated higher than socially undesirable traits such that professors rated themselves at the 80th percentile on intelligence and at the 26th percentile on authoritarianism! As before, several items were aggregated to index research and teaching effectiveness.

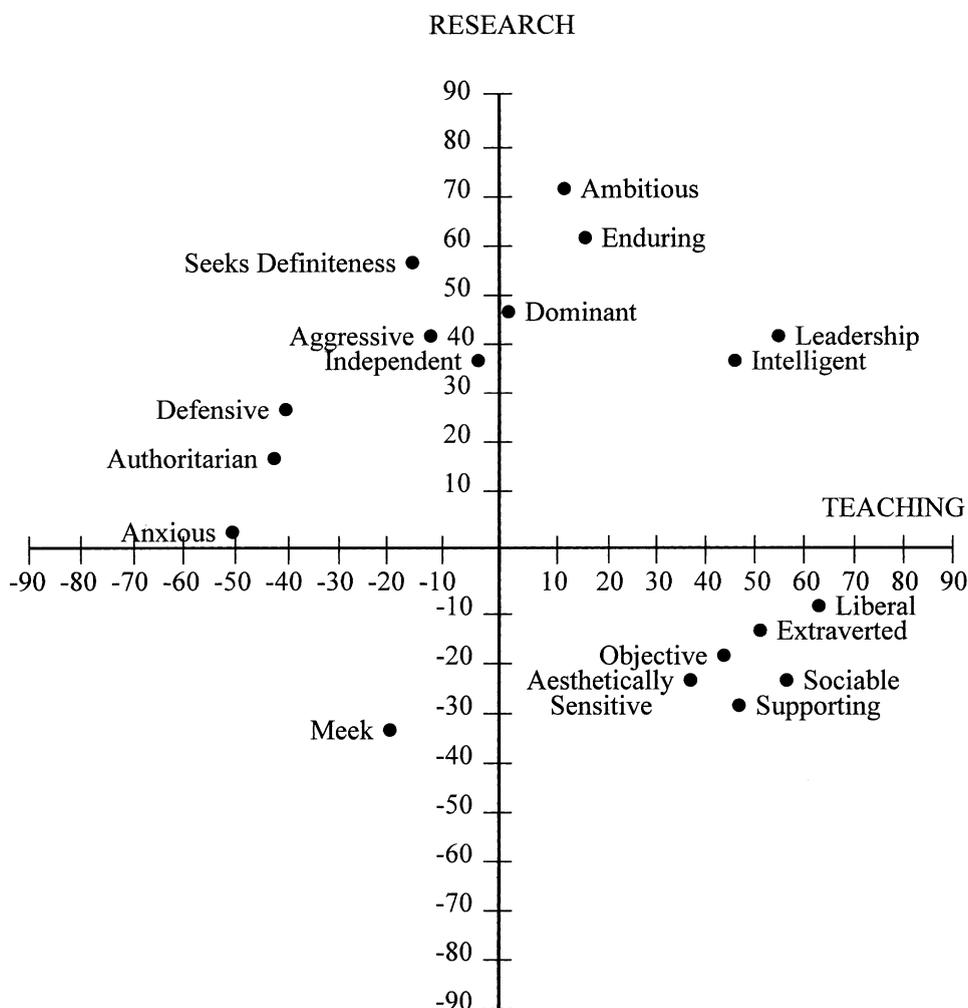


Fig. 2. Plot of mean factor pattern coefficients of personality traits on dimensions of research productivity and teaching effectiveness, averaged across two studies. Only those traits with absolute values of  $>0.30$  on either factor in both studies are shown (After Rushton, Murray & Paunonen, 1983; Rushton 1997b).

Fig. 2 plots the traits which loaded 0.30 or greater on either dimension in both studies. (The research and teaching effectiveness composites intercorrelated zero.) Based on both studies combined, the 10 main traits of productive researchers were: ambitious, enduring, seeking definiteness, dominant, showing leadership, aggressive, intelligent, independent, not meek, and non-supportive. The effective teacher, on the other hand, was described on 11 traits: liberal, sociable, showing leadership, extraverted, low in anxiety, objective, supporting, non-authoritarian, not defensive, intelligent, and aesthetically sensitive. The cluster of traits associated with being an effective researcher were essentially orthogonal to those characterizing the effective teacher, and were generally less socially desirable. Only intelligence and leadership loaded positively on both the research and the teaching dimensions, while meekness was associated with being poor in both.

To test whether the profile of the successful researcher in Rushton et al.'s (1983) study conformed to the high psychoticism expected by Eysenck's theory, Rushton (1990) sought Professor Eysenck's help in weighting each of the 29 traits used on a scale from  $-3$  (strong negative correlation with psychoticism) to  $+3$  (strong positive correlation with psychoticism). The results confirmed Eysenck's theory of creativity. The correlation between psychoticism and creativity was 0.40 ( $P < 0.01$ ) in Study 1 and 0.43 ( $P < 0.001$ ) in Study 2.

## 8. Eysenck's legacy

At the end of his autobiography (Eysenck, 1997, pp. 288–290), Eysenck went beyond describing the personal satisfaction and high visibility obtained from his career to assess the direction psychology had taken. This he thought it less easy to be optimistic about. Although positive changes had occurred, progress had been slower than he had wished.

For Eysenck, his greatest success was the three-dimensional theory of personality that he formulated which emphasizes broad consistent patterns of individual differences in Extraversion, Neuroticism, and Psychoticism, each with a firm genetic basis, mediated by physiological and hormonal mechanisms. Although the generality of behavior traits would likely have been recognized even without Eysenck's contributions, it would have been different in form and taken longer, as would his view that psychiatric disorders reflect extreme positions on normal traits of personality, not categorical disease states. Psychoanalysis was on the slide, incapable of fulfilling its promise, and Eysenck's (1952, 1985a) efforts helped speed its downfall. Cognitive social learning theory's attack on trait psychology had also collapsed and trait theory was once again the dominant paradigm.

Jeffrey Gray, Eysenck's one-time PhD student, friend, and successor as Department Head, eloquently echoed Eysenck's opinion. Gray (1997b, p. xii) wrote in the Foreword to Helmuth Nyborg's (1997) *The Scientific Study of Human Nature*, a book published in honor of Eysenck's 80th birthday:

[T]here is no doubt where his major achievement lies: in the theory and evidence that he has put together, breathtaking in their scope, which makes up nine-tenths of what anyone might mean, in 1997 as at any time since the early 1950s, by the phrase (the title of one of his most important books), *the biological basis of personality*. The theoretical edifice that he has constructed in this area of research, central to so much of experimental and clinical psychology, not only defines the field today, it sets both the standard and the very mold of what such theories will look like for many decades to come.

An analysis of Eysenck's 748 citations from the 1998 SSCI shows that the great majority of Eysenck's citations are indeed to his theory of personality. Two hundred and thirty-nine (32%) were to the various published scales used to measure his personality dimensions (e.g. the Eysenck Personality Questionnaire: Eysenck & Eysenck, 1975). Another 198 (27%) were to one of the books he had written on his general theory (e.g. *Personality and Individual Differences*: Eysenck & Eysenck, 1985). Yet another 100 (13%) were to applications of his theory to specific topics like sex, politics, crime, and genius (e.g. *The Causes and Cures of Criminality*: Eysenck & Gudjonsson,

1989). Even his famous 1952 exposé of the inefficacy of psychoanalysis still garnered 18 citations, more than enough to maintain its status as a Citation Classic (see earlier).

Eysenck thought much less progress had been made in getting the genetic basis of intelligence and personality accepted. For this, he believed the media was a major culprit, blocking fair discussion even 30 years after he had weighed in to support Jensen's (1969) work on Black–White IQ differences (Eysenck, 1971). As evidence, he cited the surveys carried out by Snyderman and Rothman (1987, 1988) showing that experts in behavioral genetics, with the background necessary to understand the methodology, believed that people like he, Jensen, Herrnstein, and others, were correct. Of 1020 experts in mental testing, 60% agreed that IQ was an important determinant of socio-economic status (Snyderman & Rothman, p. 66); 58% agreed that intelligence was a general ability rather than a multiplicity of separate faculties (p. 71); a majority agreed that there was a substantial within-group heritability for intelligence (p. 95); and a plurality agreed that part of the Black-White difference in average IQ was genetic (p. 128). Eysenck (p. 290) cited Snyderman and Rothman's (1988) conclusion that, "by any reasonable standard, media coverage of the IQ controversy has been quite inaccurate." He himself wrote (Eysenck, 1997, p. 272): "It would be a mammoth task to list all the misstatements, inventions, and downright lies propagated by newspapers."

For Eysenck, the genetic basis of intelligence had been firmly established as early as 1941 by Woodworth (Woodworth, 1941). The genetic basis of personality, however, he felt might not have been recognized even by specialists without his efforts. It is, therefore, briefly worth documenting again here, Eysenck's substantial contributions to behavior genetics (Rushton, 1998), for these are likely to become increasingly salient as work continues on mapping human genes.

Immediately after starting his own department (in 1950), Eysenck began a study of 25 pairs of monozygotic (identical) and 25 pairs of dizygotic (fraternal) twins, which uniquely combined factor analysis, questionnaire data, behavioral data, and behavior genetic analyzes, and revealed a strong genetic contribution to neuroticism, a discovery contrary to then prevailing opinion (Eysenck & Prell, 1951). Eysenck followed this study up with one on extraversion finding a similar strong heritability (Eysenck & Prell, 1956).

Beginning in the 1960s, he influenced professional geneticists equipped with the most advanced methodologies of plant and animal genetics, especially John Jinks, David Fulker, and Lindon Eaves at the University of Birmingham, to analyze data on personality and IQ. Following important publications in major journals (e.g. Eaves & Eysenck, 1974, 1975; Jinks & Fulker, 1970; Martin et al., 1986), Eysenck's biometric collaboration culminated in his book *Genes, Culture, and Personality* (Eaves, Eysenck & Martin, 1989). In these studies, genetic factors were firmly established as contributing something like 50% of the variance to a person's personality. More sensationally, genes were found to contribute roughly 50% of the variance to a variety of social attitudes like prejudice, authoritarianism, religion, and conservatism.

Eysenck and his colleagues were among the very first to discover the remarkable (and counter-intuitive result) that the main source of environmental variance is *within* a family, (thus making twins and other siblings different from one another), rather than *between* families (making family members similar to each other). The environmental factors operating to make family members different from one another include prenatal events, accidents during birth, illness, and the luck of having a good or a bad teacher. The shared environmental factors making siblings similar include sharing the same parents, the same home, the same food, the same schools, the same friends, and

so on. But, as Eysenck and others have discovered, these between-family variables turn out to be relatively weak influences on long-term personality.

One of Eysenck's most important pragmatic achievements was to build up a register of several hundred pairs of twins at the Institute of Psychiatry. Dozens of researchers from around the world have used this register, including the present writer. Today, it plays a significant role in the hunt for the specific genes underlying personality and intelligence being conducted as part of the Human Genome Project. Indeed, the genes are in the test tube waiting to be analyzed.

Of special importance is the new ground Eysenck broke by suggesting that the major dimensions of personality should also be observable in non-human animals. In one study, rhesus monkeys were observed on a regular basis for 2 years (Chamove, Eysenck & Harlow, 1972). Ratings of their behaviors were then analyzed and three major factors extracted. Monkeys tended to be either aggressive (High Psychoticism), sociable (High Extraversion), or afraid (High Neuroticism). More recent work with chimpanzees has followed up Eysenck's initial ideas and examined sibling and other relationships to find that individual differences are heritable (Weiss, King & Figueredo, 2000).

Eysenck's main behavior genetic work with animals, however, focused on anxiety in rats. By breeding separate lines of fearful and non-fearful animals it was possible over several generations to obtain strains very different in appearance and behavior. This animal work continues today at the molecular level where the clinical implications are profound. If the same genes operate in highly emotional people as they do in animals, we may discover the means to understand (and alleviate) the anxiety that limits and sometimes cripples many lives. Eysenck regretted the shortsightedness of governments and universities for not supporting large-scale work on the genetics of personality (as well as the principles of behavior therapy). He envisioned a laboratory, even an institute, that would work on dogs and monkeys as well as rats, but that was not to be.

Eysenck's contributions to behavioral genetics shows up in his citation counts. For example, his magnum opus with Lindon Eaves and Nick Martin (Eaves et al., 1989) *Genes, Culture, and Personality*, was cited 310 times in its first 10 years (i.e. 31 times a year between 1989 and 1999). Similarly, high citations were recorded for numerous specific papers, such as the 110 cites for his work cited earlier with me and colleagues on the heritability of altruism and aggression (Rushton et al., 1986) and the 60 cites for his work with Nick Martin and colleagues on the genetic transmission of social attitudes (Martin et al., 1986).

How about behavior therapy? Here, Eysenck thought, the pluses and minuses were about equal. Behavior therapy was certainly universally accepted as a valuable method of treatment and was widely taught and practiced. On the other hand, he had hoped that behavior therapists would be scientist-clinicians and combine the role of the scientist who discovers new facts and keeps abreast of developments, with the role of the clinician who routinely treats patients. This had not happened. Instead clinicians had followed the psychiatric model which he had originally (and famously) criticized for failing to evaluate scientific evidence (Eysenck, 1952).

In his obituary of Eysenck, Gray (1997a, p. 510) agreed that:

Almost of equal importance [as his theory of personality] was Hans's contribution to the creation of an empirically tested and scientifically based psychotherapy — now called 'cognitive-behavioral therapy' — to replace psychodynamic dogma. Although he himself did not do clinical work, his Department was the first to pursue a systematic programme of research and

training in this field, and the ‘Maudsley’ model of clinical psychology has since spread to the whole of the developed world — not least to the USA, which he had toured in vain looking for existing models before establishing his own.

Eysenck’s contribution to establishing behavior therapy as an independent discipline shows up clearly in his citation counts. His edited book *Behaviour Therapy and the Neuroses* (Eysenck, 1960) was cited 319 times in the SSCI during its first 20 years, (i.e. 16 times a year between 1960 and 1980). His 1965 book with S. Rachman, *Causes and Cures of Neurosis*, (Eysenck & Rachman, 1965), the first textbook in behavior therapy, was cited 245 times during its first 20 years (12.25 times a year). Thus, the citation record leaves little doubt that he has been influential in the development of behavior therapy. Also, as we have seen, in 1963, Eysenck and Rachman started *Behavior Research and Therapy*, which rose to a prime position in the citation charts.

## 9. A personal note

Because I think of myself as a second-generation Hans Eysenck PhD, I would like to conclude on a personal note (Rushton, 1997a). I did my PhD in social psychology at the London School of Economics under Hilde Himmelweit and Hilde had received her PhD with Hans at the Institute of Psychiatry. Subsequently I carried out a post-doc with Jeffrey Gray at the University of Oxford and Jeffrey too had received his PhD with Hans. So, I think that doubly qualifies me as being an intellectual grandson of Hans. Because I believe that Hans was the single most important psychologist who ever lived, I am proud of those connections.

For me, Hans was a charismatic leader. Max Weber defined a charismatic leader as one who was able to transcend the boundaries of conventional thinking to achieve a sense of union with forces larger than himself and to carry forward others by a clear sense of conviction. Through his writing and through his example, Hans was such a leader. He completely altered the way we look at the world. By tapping a higher mode of thinking than we ordinary mortals are able to do, he inspired us too to see through his eyes a world of elegant simplicity.

Unlike most charismatic leaders, Hans’s vision had nothing to do with religion, or mysticism, or politics. It was about science. He seemed to see just so much more clearly than anyone else that there *was* an objective reality in human affairs and that *nothing* existed that was incapable of being measured. And Hans set out to measure a *lot* of different things.

Like most other people, I first met Hans through his writings. His trilogy of popular science books: *Uses and Abuses of Psychology* (1953), *Sense and Nonsense in Psychology* (1957), and *Fact and Fiction in Psychology* (1965) were what first attracted me to psychology. Their rendering of hard-nosed philosophy of science on practical topics like IQ testing, vocational interests, personality, politics, hypnosis, and psychotherapy provided a paradigm for emulation. Long before entering university, I used a questionnaire from *Sense and Nonsense* to locate the political attitudes of my family and friends in the Eysenckian two-dimensional space: radical and conservative, tough- and tender-minded. What a revelation it was to find that psychology could be so elegant and straightforward and that people could be so easily assessed and placed so sensibly in juxtaposition to each other.

When I enrolled at Birkbeck College, London, to do a Bachelor of Science degree (1967–1970), I was disappointed to find how little of the material in Hans’s three books were covered in the

curriculum. One compensation was that we had Michael Eysenck as one of our lecturers and he brought individual differences into the equation. In more than one of the experimental lab classes that he taught, Michael agreed that we use his father's personality inventory. Like hundreds of others, we too found through doing experiments that introverts and extraverts differed in response to all sorts of laboratory stimuli.

By the time Hans's book *Race, Intelligence, and Education* appeared in 1971, I was a graduate student at the London School of Economics (LSE). Two years later, Hans came to give us a lecture on "The Biological Basis of Intelligence." In 1973, the LSE was one of the most radically left-wing universities in Britain. I was sitting with a friend in the eighth row. Unfortunately for Hans, the entire first row was made up of Maoists proudly sporting red Mao-Tse Tung badges in their lapels. As Hans began to speak, these Maoists jumped forward in unison and physically attacked him.

Little did I know then, sitting horrified in the audience watching Hans being attacked, that not 20 years later I would experience the same primal encounters. Although my early work focused on the social learning of generosity in 7- to 11-year-olds, I subsequently broadened my study of altruism to include the sociobiological and behavioral genetic perspectives. During a 1982–1983 sabbatical with Hans, I carried out the co-authored twin study cited earlier (Rushton et al. 1986).

I think that incident at the LSE highlights one of Hans's inspirational qualities — his enormous courage. He had the inner fortitude to stand alone and give voice to unpopular positions when he felt that was required. Hans stood firm on the race-IQ issue. He stood firm on the genetics of crime. He stood firm on the issue of sex differences, on the poverty of psychoanalysis, and yes, too, on the legitimacy of questioning orthodoxy on such matters as smoking and cancer, astrology, and other unpopular causes. Some might say his high P score sometimes got the better of him here, with over-inclusiveness on ESP and an excess of stubbornness on smoking! But those who risk nothing achieve nothing.

I know I shall be forever grateful for the wonderful letters that he wrote on my behalf when I ran afoul of political correctness in Canada. In 1989, after I had reviewed the literature on race differences and proposed an evolutionary explanation for them (e.g. Rushton, 1988, 1995), the media began a witch-hunt, the Premier of Ontario called for my dismissal, the Ontario Provincial Police and the Ontario Human Rights Commission investigated me, and some university administrators bayed for my blood. Hans stood like the Rock of Gibraltar: completely reliable and absolutely unbudgeable. I happen to know that his letters in particular carried special weight in my department, with my Dean, with the Ontario Press Council, and in all the other places that I needed it, and so helped to carry the day.

Hans Eysenck truly *was* a creative genius. His ability to find "elegant, virtuous, and beautiful" solutions, to use Robert Oppenheimer's poetic phrase, required long hours of arduous thinking, mastering complex and sometimes recalcitrant problems that defied solution by the vast majority of other leading psychologists. Hans was always able to see further and clearer or think penetratingly more deeply than others.

Hans's lack of fear about controversy led him into many battles during his long and productive life. I have heard some say that, despite being an introvert, he had a great need to be the center of attention, or to have his own way, or that he simply enjoyed a good fight. My own view, in addition to these, is that his core value was "Truth" perhaps even with a capital T. When he felt this was being violated in some important way, the need arose in him to rise to the occasion. It

was this need to speak the truth and have it known, or at least to have it properly investigated and not shut off because of political correctness or some other form of authoritarian orthodoxy that, I believe, was the primary reason he ended up with such a high profile on so many issues. Plus, of course, his devastating fighting ability when he did take up the cudgels on behalf of some cause or another. He was just so superb at exposing loose thinking and pseudoscientific orthodoxy.

Very few people have the drive to seek the Truth, regardless of where it may lead. Hans Eysenck was one who did. That was the source of his charisma. His like does not walk often enough on this earth. I feel privileged indeed to have known and worked with him. When the future giants of psychology see further, it will be because they will have stood on the shoulders of Hans Jurgen Eysenck.

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