

## COGNITIVE DEVELOPMENT AND PARENTAL LOSS AMONG THE GIFTED, THE EXCEPTIONALLY GIFTED AND THE CREATIVE<sup>1</sup>

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*Summary.*—This paper reports an analysis of descriptions of children with IQs of 155 or better. It is suggested that these children be distinguished from gifted children by the label *exceptionally gifted*. The paper reports some important cognitive differences between the two groups as well as the high rate of early parental loss among historically famous highly intelligent persons. This finding is discussed in the light of how certain parent-child relationships might contribute to the development of cognitive giftedness into high level of creative behavior.

Cox (1926) suggested that an IQ of 155 or higher characterized her sample of geniuses; Galton (1869) defined true eminence as that occurring once among 4000 men, which converts to an IQ close to 160. Galton believed such eminence was based on exceptionally high, inborn, ability. Review of the literature shows far less information regarding what could be termed the *exceptionally gifted children*, i.e., IQs 155 or higher than we have regarding gifted children, i.e., IQs up to 135 or 140. Missing is a discrimination between levels of giftedness such as that required to graduate from college from that level or type of giftedness which might be required to become eminent, i.e., become a Nobel laureate.

Earlier (Albert, 1969) we reviewed social science articles from 1927 to 1965. There were 135 articles regarding genius. The period of greatest interest was 1920 to 1930. After World War II interest shifts almost completely to giftedness and creativity. We now rarely see references to study of genius, although "genius" often anchors the highest limits of creativity and intelligence.

Early interest in genius was considerably different from professional interest in creativity and giftedness. A large part took up questions of pathology, heredity, and demography (45% of the references); much of the interest in creativity related to personality dynamics and cognitive processes and the conditions and characteristics related to or contributing to creativity (37%), and much less with the question of psychopathology, pathology, or ill health. Giftedness is very much a matter dealing with the education, the training or the identification of the gifted (68%). Nonetheless one of the main results of works on genius was to keep social scientists aware of productive people, who, by their very achievements have continuously raised questions concerning the bases of

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<sup>1</sup>Parts of this paper were presented at the Western Psychological Association meeting June 1969, Vancouver, Canada. The author expresses his thanks to Pitzer College for its support in this research.

such productivity and the psychological meaning and processes of achievement. If anything, this early work was one of the first efforts to link motivation to creative behavior. There is still one crucial issue to this area to be investigated: the prediction from giftedness to eminence. Few studies have attempted to do this.

Since we shall be dealing with IQs as our independent variable much of the time—one caution: Bell in *Men of Mathematics* (1937) states that Poincaré scored so poorly on the Binet that “had he been judged as a child instead of as the famous mathematician he was, he would have been rated by the tests as an imbecile” (p. 532).

The literature on gifted children was surveyed for descriptions of individual children with IQs of 155 or better. A number of articles deal with (or include) references to such children (39); we were able to find 19 descriptions of individual children who were not historically important persons: 10 girls, 9 boys; mean IQ 185; median age 8½ yr.; mainly of middle to upper middle class; well educated parents. Where appropriate, we will mention Hollingsworth’s findings regarding her 12 children with IQs of 180 or better. The main group to which we shall refer our findings is Cox’s historical geniuses.

The majority of our write-ups come from the same period, the early 1920’s up through to 1930’s, sharing the non-dynamic psychological framework of the time. Descriptive interest centered on Ss’ academic performances, types of interests, the age when they began talking, their very early sizeable vocabularies and in most cases their early reading ability.

#### *Career*

It is commonly believed that geniuses or eminent persons start their careers at extremely early ages. Cox’s Ss, our criterion group for much of this study, were divided into three groups according to their early estimated IQs based on biographical and autobiographical data.

Group 1, Ss with IQs 110 to 135, started their careers at an average age of 18.5 yr. This age is not simply a function of information available for we find that Group 2, IQs 135 to 150, started their careers at an average age of 17.4 yr. Group 3, IQs 150 to 190, is perhaps most representative of “geniuses.” Their careers began around age 12.2 yr. Group 3 differs significantly from Groups 1 and 2. As IQs increase, age for starting a career decreases; this is very much accelerated within IQ range of 150 to 190.

#### *Speech and Reading*

What might underlie such an early start? Very early speech and reading are the two developmental indices said to best distinguish the gifted from the average child. Sudden transitions from no reading to reading, from one word statements to simple sentences are the pattern of cognitive development often described for the gifted and especially the *exceptionally gifted child*, famous or

not. Regarding speech, the evidence is striking. *Exceptionally gifted children* start to speak in sentences in almost half the time that the average child does. Hollingsworth reports a median age for sentences of 14 mo.; our cases show a median age of 16 mo. Lenneberg (1966) argues that the first few years of language development is very much a function of biological endowment than of social and environmental conditions, tying up with those positions holding that much of intelligence is inborn ability.

Regarding reading, Hollingsworth's group's median age for first reading was 3 yr. For our cases (15/19) it was 4½ yr. Other studies (cf. Hollingsworth, 1942) report early reading between 3½ to 4 yr.; Hildreth (1958) reports for a sample of 100 children (7 to 11 yr. old, mean IQ 163) that *all* were reading by 6 yr., and Terman (1926) reported that half of his gifted were reading by 6 yr. Analysis of Cox's data shows that for Subjects of IQ 150 to 190, 57% were reported reading well before 6 yr.; average age 4.3 yr.; for Ss with IQs of 135 to 150, 31% were reported reading before age 6; average 4.3 yr. Only 11% of Cox's Ss with IQs 110 to 135 were mentioned reading early; the average age was 5½ yr. In general, the higher the IQ the more often early reading is observed. Where it is mentioned, the higher the IQ the lower the age of Ss, generally. Cox's highest IQ group (150 to 190), Hollingsworth's, Hildreth's, and the present sample of *exceptionally gifted children* appear to read earlier than the "usually" gifted child, and with little or no tutoring.

*Unusual memory* is another cognitive process that often first calls attention to the gifted and especially the exceptionally gifted. Obviously it underlies some of the ability to perform so in advance of their contemporaries. Memory underlies, in part, conceptual organization as well as acquiring vocabularies and learning to read. It plays a part in generalizing and aids in developing principles of organization. There are repeated references to *exceptionally gifted subjects* continuously classifying, which appears related somewhat to the often reported *exceptionally gifted child's* early interest in categorization, science, nature and moral issues. The occurrence of such classificatory systems and accelerated reading ability attest to highly abstract, conceptual schemata upon which, the child operates in a manner usually observed in adolescent children.

To check whether or not this held for less gifted children, we analyzed reports of children with IQs of 130 to 150. A greater variety of interests is mentioned for this group—their enjoying making up stories, reading, music (especially), drawing, and other talents are mentioned more frequently than for *exceptionally gifted children*. This difference in interests and abilities seems to go with another difference between them. The gifted child is often described as physically larger and healthier than his peers, as a popular child and often a leader among his peers.

Of 15 *exceptionally gifted children* 12 were also described as physically larger and healthier than the average child but were noted as preferring the company

of adults, older children, or (less often) younger children. They were described as peer-oriented clearly in only three cases. This finding agrees with McCurdy's (1957) description of the childhood of 20 of Cox's geniuses, who were somewhat cut-off from children their own ages and appeared to take little interest in age-appropriate activities. It appears that the *exceptionally gifted child* prefers libraries and laboratories to peers and games and is somewhat more isolative than his less gifted peers.

#### *General Discussion*

Some differences between the gifted and the *exceptionally gifted* are not only their formal interests, but their degree of preference (one is tempted to say "need") for intellectual behavior. The *exceptionally gifted child* is often noted as self-sufficient and very persistent in pursuing highly abstract interests. What we see is intellectual, and to a lesser degree artistic, interests taking precedent over peers for these children. In their preferences and in their persistence such children also resemble Cox's Ss, who were noted for their persistence, the one personality characteristic, we might add, which is most commonly attributed to genius.

The similarities between children with reported IQs of 155 or better and Cox's historical geniuses are intriguing, but little more than similarities.

Although there is clear evidence that gifted and *exceptionally gifted children* maintain over a decade or more their high IQ test scores, and thus, we believe their tremendously accelerated learning and thinking development, there is little reason to assume that these abilities by themselves would lead to eminence or make for "genius" in the sense of producing high level work over long periods of time. At best, these children appear to be literally *exceptionally gifted*, highly absorbed and persevering intellectually. Is something else important for eminence? If they start their careers early—some extremely so—even allowing for the present general lengthening of education and career preparation, are other factors involved?

#### *Parental Loss*

Recall Roe's (1953) finding about her eminent scientists. They were intellectually gifted although the range of giftedness reported is wide. More striking is the high proportion (15%) of her eminent scientists who had lost a parent by death before they were 10 yr. old, well above the average of 6% for college students (Gregory, 1965), and 26% by death before Ss' adulthood. Nothing like this was reported among the literature for gifted or *exceptionally gifted*. Therefore Cox's sample was reanalyzed for cases where the parent(s) was lost *before* S was known to have shown either a great interest or had begun activities in the field in which he subsequently became famous.

Where there is information for Group 1 (IQs 110 to 135) the proportion

of parental loss reported is 23%, for Group 2 (IQs 135 to 150) 31%, and for Group 3 (IQs 150 to 190) 22%.<sup>2</sup> There are two aspects to these figures that should be mentioned; by the nature of the way we counted time of parental loss, i.e., before career start, Group 3 would have suffered its parental losses earlier than the other two groups since this group started its career much earlier. This could indicate differences in the nature and longevity of parent-child relationships experienced. It could have implications for child-parent identification process in terms of length of time modeling occurred, and the consequences to this that an early loss might have. Secondly, these figures, while surprising in themselves, must be checked against the actuarial tables, although it is difficult to envision any period that had a death rate so high that it resulted in 22% to 31% of the children losing a parent before reaching adulthood (cf. Gregory, 1965). The next question was whether or not these losses occurred mainly among scientists. They do not. Parental losses occurred among persons in the arts, humanities, and military as well as the sciences in proportion to the number of Cox's Ss in those fields. Roe's earlier finding pertained to scientists only.

Parental loss suggests the importance of extended family life and members in the development of creative and eminent persons. (Three of the better examples of such life is Galton's biography by Pearson, the recent autobiography of Bertrand Russell and William Gibson's *A Mass for the Dead*.)

Additional indirect evidence for the influence of "independence" from parents in the maintenance and development of giftedness is to be found in the high average ages of the parents of gifted and *exceptionally gifted* children. Terman found that the fathers of his gifted children averaged 33.6 yr. and the mothers 29 yr. of age at the time of the gifted child's birth. Hollingsworth reports that the parents of her *exceptionally gifted children* had median ages of 31 for fathers and 28.5 for mothers; where mentioned in 3/19 cases, the average ages of fathers at birth of the *exceptionally gifted child* was 35.3 yr. and mothers, 33.3 yr. All three sets of data point to older than average parents at the time of birth for gifted and *exceptionally gifted children*. (Unfortunately, Cox's and Roe's studies do not contain relevant data on this variable.)

How might *parental loss* or *attenuation* be a positive factor in the achievement of eminence, if the cognitive development is high enough in its own right? Since Baldwin *et al.*'s (1945) early study on home atmosphere, there have been a number of reports suggesting that home atmosphere is a critical factor in the development of creative behavior regardless of level of intelligence. The common theme appears to be that of respecting the child, and interacting consistently

<sup>2</sup>A recent study (Brown, 1968) of 57 "distinguished writers, mainly poets" reports that 55% of the Ss had lost a parent before age 15. Because of the number of cases in Cox (1926) which did not have adequate information to determine parental loss or not, and Brown's study, one suspects that the figures reported above are substantially less than is the case.

in a manner that is both adult-like, reasonable, and open to disagreement. The important features are: consistency, respect, and opportunity for disagreement. There is supporting evidence for this view in a number of studies concerned with creativity in children (Coopersmith, 1967; Dreyer & Wells, 1966; Getzels & Jackson, 1962; MacKinnon, 1962, 1964; Weisburg & Springer, 1961). Getzels and Jackson found that parents of adolescents with high IQ but low in creativity were both more critical and more supervisory than the parents of creative Ss. In a sense, parents of Ss with high IQs and low in creativity appear more anxiously involved with, and emotionally bound to, their children. Parents of creative children have been described repeatedly as less emotionally tied to their children and more respectful and confident of their children than parents of uncreative children. It appears that one important factor making such a freeing relationship possible (other than parental loss) is that the parents of creative children are themselves creative, at least to the extent of being more involved in their own interests outside the home and have high self-esteem (Coopersmith, 1967; Grunebaum *et al.*, 1962). This permits them to view the child if not more objectively, at least less competitively and less possessively. The general home atmosphere of creative people is more emotionally open, less harmonious in terms of interparental agreement, less concerned with status; the parents themselves are more capable of verbalizing and living with higher tension within the family and within themselves. (Creative persons might have learned this "complexity" from their parents and come to "expect" it as a quality of their environments and selves.) There appears a great deal of respect and freedom in such homes for the child to act independently, i.e., emotional openness. A factor "permitting" this is that the parents, *especially* the fathers, in such homes appear more involved and more confident in their own occupational life than parents of less creative children. This would go along with their higher self-esteem. It would also result in parents being successful identification models of intellectual and personal pursuit and interests, not needing their children either as emotional supports or substitutes for successes not found elsewhere, and equally important opening up opportunities for their children to find additional identification models.

In a real sense, parents of creative children are generally secure, economically and emotionally. Equally important, they are invested in pursuits outside the home as much as within. This, we believe, is one of the unstated critical factors characterizing Galton's (1869) prominent families. Like so many families in contemporary studies of creative children, the majority of Galton's families were high in socio-economic status. However, unlike Galton (1869, p. 386), we do not believe that high SES and higher than average ability will almost always lead to eminence. The other characteristics we have found regarding the parents of creative and eminent people are not that directly tied to socio-economic status.

Confirming evidence for the type of interests, respect and freedom which seem to generate creativity is found in the reports of Roe's eminent scientists as well as a report (Bishop, 1968) on the preferred teachers of gifted children who are also identification models. In both studies teachers were nominated who were themselves very intellectually involved and knowledgeable in their subject matter, they allowed their students to explore the subject matter on their own, and were noted for stimulating their gifted students to think for themselves. Ss reported both an excitement in their pursuits and a confirmation of their own sense of giftedness from such respect.

### *Conclusions*

There appear to be differences in the rate of cognitive development between gifted children and those with IQs from the high 150's and up, who might best be termed *exceptionally gifted*. There appear to be marked differences in interests and in social preferences between gifted children and *exceptionally gifted children*. Among persons designated as "eminent" or "historical geniuses" there appears a rate of parental loss at least three times that of the average college population (gifted), with the ratio of father-loss to mother-loss being 2 to 1, and, occurring proportionately among Ss in the arts, the humanities, the sciences, and the military.

This datum raises the following questions: (a) Does *parent-loss* or *attenuation* in the *exceptionally gifted* lead to an early maturity or to a pseudo-maturity, to psychological problems or to cognitive freeing? (b) How does it play a role in the recurrent finding that creative persons of all ages and both sexes tend to be less consistently sex typed than less creative Ss, i.e., creative males being more "feminine" in some behaviors than less creative males, and creative females being more "masculine" in some behaviors than less creative females. (c) Such a high rate of parental-loss raises questions regarding the role of extended family and the role of "interested others" (third parties, such as tutors) in the development of the gifted and of the creative individual. The above questions have implications regarding our views of the role of the: (1) family in cognitive development and in development of creativity, (2) links between identification and creativity processes, and (3) educational practices regarding the gifted and the *exceptionally gifted*.

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*Accepted April 8, 1971.*