BOOK REVIEWS

Family Niche and Intellectual Bent

Born to Rebel. Birth Order, Family Dynamics, and Creative Lives. FRANK J. SULLOWAY. Pantheon, New York, 1996. xviii, 654 pp., illus. $30 or C$39.95. ISBN 0-679-44232-4.

In this much-publicized examination of the determinants of the lives of historic figures there is much to celebrate. Its author's bold ambition, his fervent search across disciplinary boundaries, and his eagerness to take on big, important opponents have yielded much that is valuable and memorable. But at the same time his passionate advocacy has produced a text seemingly designed to overwhelm readers rather than to lay before them what they need in order to evaluate its ideas.

Born to Rebel is in effect an attack on three major lines of thought: those of Freud, Marx, and historians of science both pre- and post-Kuhnian. Sulloway daringly accepts Freud's notion that the "family drama" gives direction to one's lifetime of efforts on far more public stages, but argues that the drive at work is not libidinal but is instead a Darwinian search for a reliable niche within the family of origin. Sulloway attacks Marx for falsely proposing that social class background inspires lifetime vectors of individual action, because this mechanism of differentiation is inter- rather than intra-familial. And, finally, Sulloway challenges as disregarding the force of personality both conventional internalist historians of science who describe scientific growth as a successive approximation to the truth through scientific method and Kuhnian and postmodernist historians of science who offer explanations of discontinuous scientific change in terms of social or cultural factors.

Sulloway's challenge to Freud's Oedipal model of the nuclear family dynamics is nicely formed. There is a vast literature on the importance of birth order, and Sulloway cites it amply. The citations I checked were generally pertinent, although they often contained findings that partially contradict his argument. Sulloway seeks to banish Marx's ghost by showing for various categories of historical figures that birth order explains more than does social-class background (even in the French Revolutionary Terror: Sulloway adores fratricide as Marx adores class struggle and Freud parricide), or that social class has impact only through interaction with birth order and not directly. Most contemporary Marxian explanations, though, do not operate primarily on the level of individual predispositions but at more macroscopic levels, seeking to explain, for instance, the nature of the scientific enterprise rather than individual scientists' scientific conclusions.

Born to Rebel is structured around a theory of human development derived, by extension, from its author's admiring reading of Darwin. In Sulloway's model, firstborn children seek to secure their initial hold on their parents' adulation through a "sibling strategy" that involves identification with and compliance to parents. (His image of the family, like Freud's, is that of the modern Euro-American bourgeois.) Firstborns gain and hold the most obvious intrafamilial niche, leaving laterborn children to seek other ways of gaining parental favor, since toadying to power boots them not. Laterborns are in this sense "born to rebel."

To support this argument, Sulloway cites numerous studies pointing to male firstborns' well-known overrepresentation among the conventionally successful and to their predilection for dutifulness. He further adduces a sociobiological argument that parental genetic survival is best served by a distribution of support favoring one child, most obviously the firstborn (primogeniture being a common legal-institutional manifestation of this tendency), and another noting that differentiation of behavioral niches among the kindred likewise facilitates family genetic continuity.

Sulloway often seems carried away by enthusiasm for his own ideas. His substantial reanalysis of one classic study of birth-order effects yielded such a welter of qualifications that I myself would not have pronounced it confirming evidence, as he does. His most ambitious effort at reanalysis is a meta-study of the near-200 adequately controlled studies enumerated in a massive 1983 literature review that concluded (as Sulloway forthrightly notes) that birth order as an explanatory mechanism should be largely abandoned as unproductive. I was persuaded by Sulloway's reworking of these materials—until I tried to replicate it with the literature review in hand. I could not do so, try as I might, or even come near. The problem may lie in Sulloway's book's peculiar organization and his imprecise diction, but I find it hard to escape the conclusion that Sulloway claims a straightforward fit of meta-analytic approach to the 1983 materials that simply is not there.

Sulloway asserts that history provides many natural experiments that allow one to test whether rebels are overrepresented among laterborns and their establishmentarian opponents overrepresented among firstborns. The centerpiece of his book is a series of such tests carried out through multivariate analysis on samples of individuals with prominent, known positions on one of a large number of major public or scientific issues for whom birth order can additionally be discovered or imputed. Sulloway's three major tests are the Protestant Reformation, the French Revolutionary Terror, and 28 important scientific controversies over the last four centuries. His lesser tests range from the suggestive to the silly (the wives of Henry VIII, $n = 5$, to take the most bizarre example). The historian in me finds his account of the Protestant Reformation test dizzyingly superficial and his study of the Terror loaded with ad hoc procedures. But his most concerted effort is the examination of contestants in scientific revolutions, and this is fascinating.

Over the last two centuries, the discipline of history has shifted its focus from the deeds of great men to institutions (notably the state) and to impersonal or transpersonal forces. In reaction to the implied diminishment of human agency, and gaining force from the intuition that Adolf Hitler changed the world in ways explicable only in terms of his idiosyncratic personality, a subdiscipline often called psychohistory arose after World War II. Its argument was that the discipline of history required an explicit psychology to motivate the actors whose behavior it narrated. In keeping with the times, its psychology was most commonly Freudian.

Sulloway is anything but a Freudian, but he shares psychohistory's fundamental argument regarding the disjunction of historical actors' intent from their unconscious energies. He extends the critique with intriguing (and to me quite plausible) implications for the field of the history of science. In Sulloway's distinctive model, scientific rationality shares the stage with the unconscious rationality of sibling strategies, with individual scientists eager or reluctant to respond to the early theoretical implications of scientific evidence according to their characteristic mode of responding to authority, itself a product of the sibling strategy they long ago perfected. In his sample of persons expressing opinions on evolution before *The Origin of Species* (after which

evolutionary views were no longer shocking) the average laterborn in the sample was 9.7 times as likely to express a positive view of evolution as was the average sampled firstborn. This is the nature of Sulloway's evidence, and he offers instance after instance.

The data, however, are quite inappropriate to the task to which they are put. Historians have long employed prosopography, or collective biography, as a method of characterizing the backgrounds and other attributes of persons who, in common, have achieved some particular distinction or made some particular accomplishment. Sulloway's sample of persons who espoused readily ascertainable positions on one of 28 major scientific controversies is essentially a prosopographical sample. He employs this sample, however, to test a theory dealing with outcomes of a childhood attribute, rather than antecedents of a midlife event—that is, he uses a prosopographical sample as though it were a prospective one, of the sort that is commonly used in studies of human development. In this, Sulloway's sample has the near-fatal quality of being drawn in accordance with an attribute very close to the dependent variable instead of randomly or at least indifferently with regard to that characteristic. Estimates of size-of-effect parameters—which constitute the bulk of Sulloway's empirical account—simply make no sense in a sample heavily biased in the distribution of values on their dependent variable. Sulloway's estimates are further thrown off by the overrepresentation of firstborns in his samples relative to all persons in the population (because firstborns are more likely than others to become scientists) and perhaps also relative to all scientists (because firstborns more often achieve stardom and have their opinions recorded).

In the last analysis, Sulloway's theory is developmental, explaining individual differences among adults through the initial sibling strategy they adopted years before within their families of origin. Even were this theory perfect for early or middle childhood, most accounts of human development record a widening scope of significant milieux after middle childhood. Much of Freudian theory was concerned with the psychodynamics that may in some or even many cases fix aspects (often much transformed) of the child's role in the "family drama" as an obsessively repeated pattern in adult life; and psychoanalysis constituted a path to undoing those patterns, for the minority who had not found their own. But Sulloway's children simply grow up carrying out endlessly, in even such remote arenas as the Terror or the Royal Society, the sibling strategy that had gained them a successful niche as children.

Much as the lifetime is flattened out in *Born to Rebel*, so is human endeavor. Sulloway is a frank believer in the inherently progressive quality of science, but sometimes—in eugenics, for example—a new scientific direction seems "conservative," supporting the political or religious status quo. Firstborns, jealous since infancy of privilege derived from the established order, support these retrograde scientific breakthroughs. Sulloway's history of science threatens to become as unidimensional as his political and religious history; indeed, it employs pretty much the same dimension.

The text of *Born to Rebel* is disrupted by numerous anecdotes and visual vignettes, many attractive and refreshing, some abrasive and ad hominem, presumably designed to engage readers. Worse, technical discussions of the empirical tests have been banished to the rear of the book, partly in endnotes, partly in appendixes. Reference citations, too, are in endnotes, but these are in scientific style that requires further reference to the alphabetized bibliography. At an extreme, one has to go to six places—text, table, table note, endnote, appendix, and bibliography—to make sense of a given operation, a task made all the harder by the author's careless diction. This heedless intricacy, further exacerbated by the omission of conventional information about sample sizes, the distribution of values of variables employed, and the proportion of values missing and imputed, surely will lead most readers to throw up their hands, either accepting the author's procedures on faith or dismissing the book out of hand. Just as I have argued that the former would be a mistake, so would the latter.

Badly flawed in execution as Sulloway's book is, the evidence suggesting that intrafamilial background affects individuals' scientific opinions demands notice by its sheer bulk and intensity. What if, as Sulloway argues, the details of scientific progress depend on the personal qualities of those recruited into the enterprise? This issue has been raised by those challenging science's authority from the left; but Sulloway presents evidence suggesting that the recruitment process may be affected not so much by such factors as race and class as by processes within families.

These ideas deserve better. Sounder evaluation of the existing literature and some secondary analysis of existing prospective data sets of representative samples of children followed into adulthood would help. So would pursuing the history of science through a series of exploratory prosopographical studies, with explicit consideration of the mechanism connecting childhood behavior in the family arena and adult behavior in the arena of science, where, some would say, the game is so different.

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Browsings

The Biology of *Xenopus*. R. G. Tinsley and H. R. Kobel, Eds. Published for the Zoological Society of London by Clarendon (Oxford University Press), New York, 1996. xxii, 440 pp., illus. $78 or £45. ISBN 0-19-854974-1. Symposia of the Zoological Society of London, no. 68 (London, Sept. 1992).

An effort to stimulate a cross-fertilization of ideas by bringing together 22 papers on the ecology, systematics, behavior, development, neurobiology, immunology, and evolution of a genus familiar in the laboratory and now being more fully studied in its own right.

Caves. Processes, Development, Management. David Gillieson. Blackwell, Cambridge, MA, 1996. xii, 324 pp., illus. $90 or £75, ISBN 0-631-17819; paper, $27.95 or £18.99, ISBN 0-631-19175-5. The Natural Environment.

An Australian author gives "an unashamedly antipodean view" of his subject, aiming at "the many with a keen, developing interest rather than . . . the few with detailed knowledge of small parts of the world of caves."

Made for Each Other. A Symbiosis of Birds and Pines. Ronald M. Lanner. Oxford University Press, New York, 1996. x, 160 pp., illus., + plates. $35 or £26.95. ISBN 0-19-508902-2.

A reflective natural history of Clark's nutcracker, the whitebark pine, and some of their kith and kin.

A Place on the Glacial Till. Time, Land, and Nature within an American Town. Thomas Fairchild Sherman. Oxford University Press, New York, 1997. x, 213 pp., illus. $22. ISBN 0-19-510442-0.

Geological, ecological, and some human history of north central Ohio discussed in a leisurely style by an Oberlin College biologist.

Why Michael Couldn't Hit. And Other Tales of the Neurology of Sports. Harold L. Klawans. Freeman, New York, 1996. xii, 308 pp, illus. $22.95. ISBN 0-7167-3001-4.

A clinical neurologist looks at the successes and otherwise of Michael Jordan, Primo Carnera, Ben Hogan, Muhammad Ali, Roger Bannister, Willie Mays, Babe Didrikson Zaharias, and other athletes of note.