

PSYCHOLOGY

Siblings We Know and Love—Usually

Nancy L. Segal

Overlooked in the professional literature for many years, sibling relationships have made a stunning comeback, probably because of their constant and meaningful presence across the life span: Siblings are typically with us from early childhood on, unlike spouses who enter our lives in adulthood and can vanish when marriages turn sour. Even singleton children weigh in importantly on this topic because they are natural developmental experiments in growing up alone.

Jeffrey Kluger's comprehensive *The Sibling Effect* covers nearly every sibling-related topic from birth order to favoritism, blended families to risky behavior, and sexuality to multiple birth. Kluger (a writer and editor at *Time*) mingles the latest research with sibling interviews on specific themes as well as his own experiences as the second oldest of what he lovingly labels "our four-boy mob." We hear his entertaining yet informative recollections of unthinkable ploys and moving moments that he and his siblings uniquely share and cherish. The boys' placement of their youngest brother in a fuse box when he was three seemed "wise" at the time. In contrast, the unsolicited support that Kluger received from the next oldest during a challenging childhood venture was deeply touching. Siblings may occasionally "torment" one another, but they can usually be counted on in times of need.

The early chapters lay the foundation for the multilayered tour through brother- and sisterhood. Despite his very positive view of his own "band of brothers," Kluger concedes that the nature and qualities of sibships vary. He aims to offer insight on why this is so, generally meeting that goal through discussions spanning the range of genetic and environmental influences. He also describes cap-

tivating and revealing observations on sibling behavior in nonhuman animals, relaying interesting parallels to and distinctions from humans. Concepts from evolutionary psychology inform many of these observations, and a bit more background science here would help new readers.

Exploring sibling hostility, Kluger notes that young siblings often fight over possessions. He offers parents wise counsel on when and how much to become involved in siblings' conflict resolution.

One chapter addresses the ever-compelling topics of birth-order effects on intelligence and personality. Those studies showing slightly higher IQ scores for first-borns and slightly greater risk-taking behaviors among later-borns within families have had ardent supporters and harsh critics. There is nothing noteworthy about birth order, per se—as Frank Sulloway stressed, birth order is a proxy for factors directly affecting sibling interaction, among them age, size, power, and status (*1*). In fact, birth order explains only a small percentage of individual differences in behavior, and Kluger presents a generally balanced view by citing the negative findings.

Kluger treats the untoward effects of parental favoritism, divorce, and remarriage on siblings with sensitivity and candor. Mothers and fathers rarely admit to preferring one child over another, but there are still unmistakable "kings and queens." Of course, not all preferred siblings relish their privileged position, variously experiencing guilt and empathy toward the others. The author's experience with his parents' break-up, mother's remarriage, and reconstituted family (with a new father and two new sisters) underscores the possible challenges of such arrangements. A new parent may wield an unfamiliar (and unwelcome) authority, and new siblings may infringe upon parental time and resources.



The Sibling Effect

What the Bonds Among Brothers and Sisters Reveal About Us

by Jeffrey Kluger

Riverhead Books, New York, 2011. 316 pp. \$26.95, C\$31. ISBN 9781594488313.

At the same time, such situations can affirm fraternal (and sororal) bonds, as in Kluger's case. The book emphasizes the difficulties children experience in the wake of parental conflict and the likelihood of their modeling parents' behavior in their own relationships.

Such modeling may have some effect, but twin research shows that divorce has a heritable component—divorce, per se, is not genetically mediated, but the temperamental traits associated with parents' bad marriage may be transmitted to children with similar outcomes.

Sibling interactions may have negative as well as positive outcomes, as when (mostly) younger siblings follow older siblings' leads on smoking and drug use. However, the degree of influence varies with gender composition and age spacing, and not all younger siblings readily follow in older siblings' footsteps. At the same time, children often turn to their siblings for guidance and support in troubled times. Siblings who do not get along on a daily basis may be surprised to discover the warm feelings they share when problems arise.

One of the more interesting chapters covers sexuality. Here we learn of Kluger's first meeting with his younger half-sibling Allison, one of a set of twin children from his father's second marriage. Meeting 20-year-old Allison triggered feelings of familiarity and comfort (similar to those of many of the identical and some fraternal twins reared apart and then reunited who I have studied), but also a "creepy" feeling at her beauty. Without actually naming the Westermarck effect, he details the cues that develop between cohabitating relatives that dampen sexual attraction between close kin and discusses the importance of this developmental process for reproductive outcomes. (However, the probability that a child from a brother-sister union expresses a recessive genetic trait would be 25%, not 50% as indicated.) In the absence of a common rearing, what adoption researchers call genetic sexual attraction may occur between mothers and sons, fathers and daughters, and brothers and sisters. The open discussion of this phenomenon will help people recognize and deal with such feelings. Kluger also candidly discusses his eldest brother's homosexuality and the brotherly acceptance that followed that revelation. He recounts the siblings' inquisitiveness over their brother's sexual orientation with honesty and a light touch of humor.

The chapter on singletons and twins helps dispel some myths associated with

The reviewer, the author of *Someone Else's Twin*, is at the Department of Psychology, California State University, Fullerton, Post Office Box 6846, Fullerton, CA 92834-6846, USA. E-mail: nsegal@fullerton.edu

being an only-born, such as reduced sociability and problematic adjustment. In fact, it seems that singletons may be advantaged in some of these areas. Unfortunately, the section on multiple births is weakened by the author's tendency to blur the crucial behavioral distinctions between identical and fraternal twins. Twin types certainly overlap in their degree of behavioral resemblance and social closeness, but numerous studies show that, on average, identicals are more alike and closer to one another than are fraternal. Parents may encourage separation between twins who isolate themselves from others, but parents cannot "force" twins to be more similar or more different than they are. It is an often-repeated misconception that treatment of twins by parents and others explains why they turn out as they do. However, that identical twins are generally treated alike and fraternal twins are usually treated differently mostly reflects people's responses to twins' naturally expressed behaviors. (A rich literature supports this position.)

Several factual errors mar the discussion of the effects of multiple births. I never conducted the experiment or provided the results for which I am credited—I simply proposed comparing the behaviors of same-age unrelated males and females raised together (virtual twins) with male-female twins reared apart to disentangle the biological and social influences behind the assertiveness often shown by females in opposite-sex twin pairs (2). In mentioning reared-apart identical twins, Kluger mistakenly attributes the signature quirk of Trinidad-born Jack and Oskar to the famous fireman twins (3). And these twins, and other reared-apart pairs that Kluger names, were studied by the Minnesota Study of Twins Reared Apart, not the Minnesota Twin Family Study that came later. More generally, I regretted the absence of notes and of references to the original research that underlies Kluger's discussions. These would have been especially helpful on occasions when his accounts were at odds with my understanding of particular topics.

Overall, *The Sibling Effect* is informative and engaging. The stories Kluger tells remind us that the bonds among brothers and sisters are loving, soothing, irritating, sometimes bitter, but always fascinating.

References

1. F. J. Sulloway, *Born to Rebel: Birth Order, Family Dynamics, and Creative Lives* (Pantheon, New York, 1996).
2. N. L. Segal, *Entwined Lives: Twins and What They Tell Us About Human Behavior* (Dutton, New York, 1999).
3. N. L. Segal, *Indivisible by Two: Lives of Extraordinary Twins* (Harvard Univ. Press, Cambridge, MA, 2005).

10.1126/science.1215525

ENGINEERING

Greening the Neighborhood

Every other autumn, university students from around the world convene in Washington, DC, not for a rally or school trip but to literally construct their vision of the future of housing. An impressive competition comprising 20 collaborative student teams from five countries, the U.S. Department of Energy Solar Decathlon is part design contest, part science fair, and part public service. It showcases actual, livable homes that incorporate the most promising green, energy-efficient technologies available today.

The contest guidelines ensured a balanced focus among affordability, design,

homes and their furniture; and, in one case, a liquid desiccant dehumidifier waterfall kept the living quarters comfortable. This year's winning entry (University of Maryland's WaterShed) contained an integrated water recycling system that includes a green roof, rainwater cisterns, and graywater collection for irrigation alongside a constructed wetland as part of the landscaping.

One aspect that seemed overlooked in the competition itself—both in terms of an educational opportunity and also in terms of the design guidelines—is that single-family homes typically have larger energy footprints than multiunit dwellings. As more of the global population migrates to cities, increasing efficiency in these areas should at least be part of the discus-

sion. Only two of this year's homes included multiunit flexibility in their designs: Team New York's Solar Roofpod (intended for pre-existing urban midrise buildings) and Tide-

Solar Decathlon 2011

Richard King, Director
U.S. Department of Energy,
West Potomac Park,
Washington, DC. 22 September
to 2 October, 2011.
www.solardecathlon.gov



Down-jacket CHIP. The Southern California Institute of Architecture/Caltech team submitted this small-footprint dwelling.

and engineering. Each home was designed and built over a 2-year period. The diverse background of teams resulted in a wide contrast in architectural styles, from a relaxing beach house (New Zealand's First Light) to an ultrafunctional two-story home more resembling a down-filled jacket than an actual residence (Southern California Institute of Architecture/Caltech's CHIP). The energy technologies featured in the homes also varied considerably despite the ubiquitous use of solar photovoltaic electricity and solar thermal heating. Computer-controlled homes managed energy use and entertainment systems; sustainably harvested building materials formed the backbone of the

water Virginia's Unit 6 (a module for a suburban multifamily residence).

Although the event in Washington is over, there will still be opportunities to see these or similar homes. Complementary competitions have been scheduled for Europe in 2012 and China in 2013, and many of this year's designs will return to their campuses as part of educational or research programs. What's more, some houses have already been sold or donated to new homeowners. Judging by the quality of all of this year's entries, they'll certainly turn some heads wherever they end up.

—Nicholas S. Wigginton

10.1126/science.1215459