BOOK REVIEWS

The NORC Sex Survey

The Social Organization of Sexuality. Sexual Practices in the United States. EDWARD O. LAUMANN, JOHN H. GAGNON, ROBERT T. MICHAEL, and STUART MICHAELS. University of Chicago Press, Chicago, 1994. xxxii, 718 pp., illus. $49.95 or £39.95.

Sex in America. A Definitive Survey. ROBERT T. MICHAEL, JOHN H. GAGNON, EDWARD O. LAUMANN, and GINA KOLATA. Little Brown, New York, 1994. x, 300 pp., illus. $22.95; paperback edition, Warner, New York, 1995, $12.99.

The publication of these two volumes in 1994 attracted a great deal of attention. Cover stories in *Time* and *U.S. News & World Report* and front-page articles in many newspapers summarized the data reported in the books. The results of the National Health and Social Life Survey (NHSLS) are quickly being incorporated into our conventional wisdom about sexuality in America. But before we accept them as "the truth about Americans and sex" (*Time*, 17 Oct. 1994) we need to ask how well the survey stands up as science.

According to the dust jacket of *The Social Organization of Sexuality*, the NHSLS is "the nation's most comprehensive, representative survey of sexual behavior in the general adult population of the United States." It is comprehensive; the 90-minute interview included questions about a wide variety of sexual attitudes and behaviors. It is also representative; it is based on a stratified, multistage area probability sample of clusters of households, the state-of-the-art technique in survey research. Within the selected households, one English-speaking adult between 18 and 59 years of age was randomly selected as the respondent. Interviews were completed with 3342 persons, 78.6% of those eligible to participate.

The research was carefully designed. The questionnaire, reproduced in an appendix in both books, was written in "standard English," rather than slang or technical language. Terms were defined for the respondents the first time they were used. To minimize problems of recall, highly detailed questions were asked about sexual partners and behavior only for the 12 months immediately preceding the interview. The interviewing was conducted by the National Opinion Research Center (NORC), a widely respected scientific survey organization. The interviewers were primarily persons who had worked for NORC previously, and each received at least three days of training in the specifics of the NHSLS.

The questionnaire content and the data analyses reported in both books were guided by a social-constructionist theoretical orientation. Three specific theories are used consistently in the interpretation of results. Sexual script theory (developed by Gagnon) suggests that culturally based scripts influence what kinds of people we select as partners and what behaviors we engage in. Choice theory (Michael) proposes that sexual behavior reflects individual goals and opportunities. Social network theory (Laumann) is used to explain what types of people do and do not develop sexual relationships with one another. These are presented as alternatives to the biological perspective that the authors claim (incorrectly) has dominated prior research on sexual behavior.

The authors acknowledge that scripts, rational decision-making, and composition of social networks cannot be measured in a population survey. Instead, they use the demographic characteristics of gender, age, marital status, education, religious preference, and race/ethnicity as "master statuses."

> Our approach is to focus on differences across the "status groups" defined by the master statuses in sexual behaviors, attitudes, and partnering activity in an attempt to infer the existence of different scripts, choices, and network structures [Laumann *et al.*, p. 31].

The Social Organization of Sexuality was written for a scientific audience. It begins by describing the theories and the design of the research. The remaining 12 chapters present results: sexual practices (behavior), number of partners, sexual networks, homosexuality, formative experiences including coerced sex, sexual health (satisfaction, dysfunctions), sexually transmitted infections, sexual unions (cohabitation, marriage), and sexual attitudes. In each chapter, tables and graphs present the distribution of responses on relevant measures according to the master statuses. There are usually substantial differences by gender, age, and marital status and often differences by race. These differences are consistently interpreted as reflecting the impact of sexual scripts, choices and opportunities, and network ties, especially ties to other "stakeholders," such as spouse/partner or parents. Thus, most couples are homophilous (that is, similar) in race, a finding that is said to reflect the strong pressures exerted by parents, friends, ministers, and others against interracial relationships. Frequently two or more of the master statuses are related to a measure such as frequency of sexual activity, leading the reader to ask what the contribution of each is, the other being controlled for. Too often, the analyses do not answer that question. Multivariate analyses, logistic regressions, are reported in only a few cases.

Highlights of the results: the modal respondent engaged in sexual activity "a few times a month"; vaginal intercourse appeals to more men and women than any other sexual practice; 80% of those interviewed had no or one sexual partner in the preceding year; 25% of the married men and 10% of the married women reported extramarital sexual activity; most sexual partnerships involve people who are of the same race and religion and similar in education and age; 4.9% of the men and 4.1% of the women report having had sexual activity with a same-gender partner since age 18; people are engaging in intercourse for the first time at younger ages; people with one sexual partner are happier than people with none or more than one; from 4.7% to 49% of various subgroups engage in sexual activity with partners who are relatively unknown to them; and 50% of cohabiting relationships last less than one year.

The presentation of the results is confusing at times. There is considerable commentary interspersed with the data. There are comparisons with the data reported by Kinsey in 1948 and 1953, discussions of the historical context of particular findings, analyses of the social or epidemiological significance of behaviors, and summaries of additional analyses. Though at times these make for interesting reading, they often make it difficult to grasp the principal results. The presentation also suffers from inconsistent use of italics to highlight major findings and from the lack of substantive concluding sections at the ends of several of the chapters.

Sex in America was written for nonscientific audiences. It presents the same general results, using a small number of illustrations and tables. It contains much less technical detail. The presentation consistently contrasts what are said to be popular myths about sex with the findings of the survey. The data are supplemented with real-life examples and vignettes, drawn from films, newspaper articles and columns, and books. The emphasis throughout is on how sexual behaviors and relationships are socially patterned. There is no obvious organization of the material within or across chapters.

Vignette: Song of Ourselves

If Walt Whitman were with me, I bet he'd sing the song of the sequences metapattern. He would see each detail of the prophase, metaphase, anaphase, and telophase sequence of a cell's arrow of mitosis. He would be there through all the explosive stages of a rocket. He would molt with the caterpillar through each instar of its growth and follow the path of aluminum from ore to foil. He would sing the stages of personal development in the theories of Piaget and Erickson, and the stages of cosmic creation in main-sequence stars. Embryo development from morula to blastula and gastrula; energy shuttled along the cytochrome chain in the membrane of a chloroplast; state formation, power consolidation, imperialization, and collapse in archeology; Carlos Castaneda's progression through the gates of dreaming; the sequential splitting of the four forces of physics in the early universe; the genetic leaps that altered the wild teosinte into maize; the primary, secondary, and tertiary steps that take proteins from amino acid chains into folded, globular forms ready for action; the computer bucket brigades of genetic algorithms; and for every human being the painful and glorious alchemical steps toward individuation—all these and more our friend Walt would extol.

—*Tyler Volk*, in *Metapatterns, across Space, Time, and Mind* (Columbia University Press)

In the year since its publication, *Social Organization* has generated several controversies. The most fundamental concerns the validity of the data, which are based entirely on what the respondents said in answer to the questions. Direct methods of verifying reports of sexual behavior do not exist. Laumann and colleagues used several indirect methods. First, they compared the answers of people who readily agreed to be interviewed with those of people who were "reluctant." Only 2 of 30 comparisons revealed statistically significant differences. Second, the researchers compared reports of sexual activity in the NHSLS to those obtained by a 1991 NORC survey; only one of 22 comparisons revealed statistically significant differences. Finally, the authors note numerous instances where their findings are similar to the results reported by other researchers. Some critics are unconvinced. Some design features may have reduced honesty, such as not matching interviewer and respondent on gender or race and allowing the interview to be conducted when others were physically present (in 21% of the cases). Limited evidence indicates that matching interviewer and respondent does not affect reported sexual behavior. The extreme view is that self-reports of sexual behavior will never be truthful and that surveys such as this one are of questionable value. I believe that the NHSLS used the best current survey technology and that the data have a high degree of internal validity. Exact numbers, such as the mean number of sexual partners since age 18, may not be accurate, but the ordering of respondents on the resulting scale probably is.

A second controversy concerns the conclusions that Laumann and colleagues reach about the threat of HIV infection. The findings that 80% of the respondents have no or one sexual partner per year and that most partnerships involve people of similar age, education, and race/ethnicity lead to the inference that there are few if any persons whose sexual contacts "bridge" the boundary between groups where rates of infection are high and groups where the rates are low. In *Social Organization*, the conclusion is stated as follows:

> We are suggesting . . . that the general lack of connectivity present in sexual networks among adults in the United States, together with the relatively low transmission probability of AIDS through vaginal intercourse, will significantly restrict the extent to which this disease will spread into the general population [p. 282].

In *Sex in America*, the statement is less tentative:

> We believe . . . that AIDS is, and is likely to remain, confined to exactly the risk groups where it began: gay men, intravenous drug users and their sexual partners. We are convinced that there is not and very unlikely ever will be a heterosexual AIDS epidemic in this country [p. 216].

Several observers, including public health experts, are critical of this conclusion. Even if the reasoning is correct, there are infected middle-class heterosexuals. The problem for any individual is uncertainty about the sexual history of his or her next partner. Heterosexuals are at risk, and it is a disservice to make statements that encourage them to be less vigilant. Furthermore, other aspects of the NHSLS data are inconsistent with this conclusion. The probability of HIV transmission is much greater through anal intercourse, and 10% of the heterosexual men and 9% of the heterosexual women report that behavior in the preceding 12 months. As noted earlier, up to 49% of various subgroups engage in sexual activity with unfamiliar partners. Furthermore, the NHSLS sample excludes the homeless and persons in institutions such as colleges, the military, and prisons. The rate of infection may be greater in these groups, and members may have sexual partners who are less similar in age, race/ethnicity, and education. Certainly if significant numbers of college students become infected there will be a heterosexual AIDS epidemic, because the pattern of multiple partners is widespread among college students.

A third controversy is over the incidence of homosexuality in the population. For two decades, the commonly accepted figure has been that 10% of the population is homosexual. In recent years, scholars have argued for a multidimensional definition of sexual orientation, one that includes self-identification, the gender of sexual partners, and preference. The NHSLS uses this approach; thus the answer to the question "how many" is "it depends." In the survey, 2.8% of the males and 1.4% of the females identify themselves as homosexual, 4.9% and 4.1% report having had a same-gender partner since age 18, and 4.4% and 5.6% report that same-gender sex is "very appealing." The largest percentage is only about half of the commonly accepted 10%. Some critics have cited this as evidence that respondents were not truthful, arguing that these percentages should be much larger. However, the NHSLS results are very similar to those reported by several other studies of American samples and by the recent British and French surveys of sexual activity. Laumann and colleagues present data showing that the incidence of male-male sexual activity since age 18 is 16.4% in the 12 largest central cities; residents of those cities will correctly perceive that more than 5% of their male population is gay.

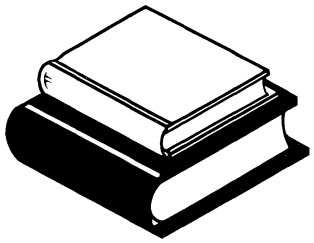
The fourth controversy is over the contribution of the NHSLS relative to other research on sexual behavior in the past 30 years. Laumann and colleagues make sweeping claims in this regard (for example, *Sex in America* is subtitled "The Definitive Survey"). They dismiss most prior research as not comprehensive and representative. However, there are at least ten prior surveys that have utilized probability sampling techniques and several that have included questions about a broad range of sexual

activity. These studies have made important contributions; in fact, many of the results of the NHSLS replicate, albeit with a larger or more representative sample, results of these earlier studies.

The mass media have given extensive coverage to some of the results of the survey. Generally, articles and stories have focused on single numbers, such as the mean number of sexual partners. The results have typically been used to reinforce traditional values such as heterosexuality, monogamy, and marriage. According to *U.S. News* (17 Oct. 1994), "Fidelity reigns." The *U.S.A. Today* (7 Oct. 1994) headline read, "We are 'sexually conventional.' " The bottom line in many media treatments, and in *Sex in America*, is that sex is not nearly as frequent, exotic, or important as many people thought it was. On the one hand, this is a reassuring message to many whose sexual activities do not involve multiple orgasms and multiple partners. On the other hand, it is a highly selective interpretation. One could as readily focus on distributions, for example, the number of partners since age 18 ranges from 0 to over 1000, and emphasize the diversity of sexual expression in the contemporary United States.

On the whole, the NHSLS is a major accomplishment. Thanks to the extraordinary time and effort invested by the principals, we have comprehensive data on the sexual activities of a representative sample of Americans 18 to 59. These data provide a baseline against which the results of future studies will be compared. The focus on and analysis of sexual networks, and the analysis of unions and their characteristics are innovative. The publication of these books has focused attention on the validity of self-report data, which may lead to some methodological advances. The major strength of the research is its major limitation as well; it is a quantitative survey. Surveys cannot assess the cognitive and emotional processes or the dynamics of social interaction that lead to sexual expression. What is needed now are equally well-done qualitative studies of these processes.

John DeLamater
Center for Demography and Ecology, University of Wisconsin, Madison, WI 53706, USA



Scale in Ecology

Species Diversity in Space and Time. MICHAEL L. ROSENZWEIG. Cambridge University Press, New York, 1995. xxii, 436 pp., illus. $74.95 or £50; paper, $27.95 or £17.95.

Macroecology. JAMES H. BROWN. University of Chicago Press, Chicago, 1995. xiv, 269 pp., illus. $42.50 or £33.95; paper, $15.95 or £12.75.

When Robert MacArthur introduced the assembled students in his lectures on biogeography at Princeton in 1966 to the study of patterns in the number of species of plants and animals, I felt the thrill of bringing order to the bewildering variety that had drawn me to natural history in the first place. In his quiet yet deliberate manner, MacArthur showed how a broadly comparative approach coupled with the application of simple mathematical models could transform the ecological study of diversity from a mere cataloging of species and place names into the recognition of principles with explanatory power.

We have come a long way in our understanding of diversity since 1966, but the insights and enthusiasm that MacArthur imparted live on undiminished in Rosenzweig's wide-ranging treatise on the geography of diversity. In what may be the most important book on this subject since MacArthur's *Geographical Ecology* (Harper and Row, 1972), Rosenzweig combines theory with a huge body of empirical observations on terrestrial, aquatic, and marine organisms living today as well as in the geological past to produce a coherent account that brings together several previously separate research traditions ranging from experimental ecology to ecosystems analysis, paleontology, biogeography, and macroevolution. He not only reviews and summarizes the contribution of these fields but reanalyzes and reinterprets them, throughout emphasizing new approaches and new questions. Rosenzweig confronts the complexity of diversity directly, convincing the reader that a predictive understanding can come about only when we study the phenomenon at all scales of space and time. Why are there more species in the tropics than at higher latitudes? Why is polyploidy among plants more common on tropical mountaintops than in tropical lowlands, when in the temperate zones the proportions remain constant with altitude? Why are there so many rodents in earthquake-prone regions of the former Soviet Union, or so many plant species in the superficially monotonous South African fynbos or the southwest Australian kwongan heathlands?

More clearly than anyone else, Rosenzweig shows why we cannot employ small-scale patterns of diversity uncritically as models to explain larger scale patterns of diversity among biogeographical provinces and over geological time. When ecologists compare numbers of species among experimentally manipulated plots or even among islands in an archipelago, they are subsampling a known and relatively constant species pool. In comparisons among provinces, across latitudes, or over time, however, the pool of available species changes by virtue of such evolutionary processes as speciation, extinction, and large-scale invasion. Thus, although area emerges as the most important factor controlling diversity at all spatial scales of analysis, its precise relationship to species number differs strongly at the various scales. Productivity, or at least the access that organisms have to available energy and nutrients, is clearly also important, but here our understanding remains sketchy.

Brown's *Macroecology* covers some of the same ground but deals with a narrower range of scales—regional to global in space, decadal to millennial in time. With most of his data coming from the abundance, distribution, and sizes of North American mammals and birds, Brown's empirical base is much more limited than Rosenzweig's, and he runs the risk of wringing too much out of what may be a skewed sample of the biota. For example, given that nearly all large mammals and many large birds disappeared in North America at the end of the Pleistocene, how should we interpret the relationships among body size, abundance, and size of range that Brown documents for the living subsample of North American birds and mammals?

Nevertheless, Brown makes many important points that ecologists should ponder. Like Leigh Van Valen, whose important but often overlooked paper on energy (*Evol. Theory* **1**, 179–229 [1976]) he cites, Brown argues that energy should be adopted as the preferred currency of ecological and evolutionary studies. He also persuasively pleads for the use of a diversity of methods in comparative biology, not only those derived from cladistic analysis as some biogeographers would insist. Brown recognizes that geographical range limits are changeable, that a given geographical configuration and geological history do not affect all lineages in the same way, and that many explanations typically considered mutually exclusive are instead complementary.

Both books go far in bridging the enormous gulf that has existed for decades between Big Ecology—the analysis of energy flow and nutrient cycles in ecosystems—and Little Ecology, the experimental dissection of the effects of competition, predation, host-guest relationships, and physical factors on local patterns in the abundance