icists overcame difficulties in measuring electrons? The basic issues follow.

Can people accurately recall their recent sexual behavior? The evidence suggests that sexual memory is often fallible, especially when the behaviors being remembered are temporally distant or occur relatively frequently. Thus, it becomes critically important to rigorously characterize and quantify the error rates and various biases inherent in sexual behavior data (*2*).

Similarly, researchers need to recognize the interpersonal nature of the survey procedure. Survey respondents *react* to the questioner, often in nonobvious ways. Interviewer characteristics, and especially interviewer-respondent similarities and differences, can affect the veracity of the responses obtained. Gender, age, and ethnic characteristics can each play a role in eliciting valid data. The very act of measurement disturbs the system being measured, whether that of electrons or of the sexual behavior of humans.

Sex is an intensely private matter. It is also emotionally charged, can be socially stigmatizing, and, depending on the particular act and surrounding circumstances, can even violate criminal statutes. Researchers need to devise methods to minimize distortion and to provide estimates of residual bias.

Sampling and generalizability are also problematic. Exhaustive sampling of a target population is seldom feasible, and it is often difficult to ensure the representativeness (hence, generalizability) of a restricted sample, even if it is randomly selected. Care must therefore be exercised both in generalizing results to disparate populations and in designing studies to ensure that generalization is possible.

There is also the complex issue of culture, which provides the proximal environment in which sexual behavior unfolds; it is the structure that gives meaning to sex and legitimates alternative forms of sexuality (*3*, *4*). Research tools (including survey instruments and interviewing techniques) should be culturally sensitive and linguistically appropriate, and data must be interpreted in culturally meaningful ways (*5*).

Finally, the theoretical underpinnings of sex research must be better explicated. Sexual measurement should derive from, and adhere to, theoretical foundations. There is no shortage of sexual theories, ranging from the distal focus of evolutionary psychology (*6*) to proximal theories in which sexual pleasure or intimacy take center stage (*3*). These seemingly different (although not irreconcilably divergent) theoretical foci suggest somewhat different approaches to the measurement and interpretation of human sexuality. Regardless of the theory selected, the collection of sexual behavior data should be informed by *some* theory.

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Predicting Career Success

We were intrigued by the 10 May article by Jeffrey Mervis about ongoing studies by the U.S. National Science Foundation (NSF)

and the U.S. National Institutes of Health (NIH) on the relationship between mode of support for graduate study and subsequent career development (News & Comment, p. 806). The Medical Research Council of Canada (MRC) has looked for differences in post-training research productivity among groups of graduate students supported through different funding mechanisms. One of our studies examined three groups of students: those who had been awarded graduate support in a national competition, those who had been turned down in the national competition, and those who had received personal awards from other granting agencies. While there were statistically significant differences in the undergraduate records of the three groups, there were no significant differences in Ph.D. achievement, pursuit of postdoctoral training, employment sector, time devoted to research, publications, or role in training the following generation of students.

The critical issue is finding selection criteria that relate to the desired program outcome. Suppose that the objective of a training award program is graduates who make a useful contribution to the search for new knowledge during their subsequent career. Should awardees be selected on the basis of interest in research, academic achievement, research accomplished, or some other factor? If a variety of criteria are used, what weight should each criterion bear in the selection decision? To explore these questions, the MRC surveyed a large sample of former research trainees to obtain data on variables that might be expected to serve as useful criteria when recipients of research training funds are selected. Results suggested that personal qualities, such as a critical attitude, independence, inventiveness, and curiosity (a set of characteristics that we labeled "investigative personality" were correlated with research career activity. Likewise, a set of variables that we labeled "focused energy" (qualities of determination, organization, and energy) were good discriminators of levels of research activity. Of 11 other criteria that we examined for possible use in selecting students with a predisposition for careers involving research, only one, the research orientation of the graduate training environment, showed any promise. For the sample group, undergraduate academic grades were not correlated with post-training research activity, a finding that has sparked controversy in a community where grades carry a high weight in decisions as to who gets research training awards.

The MRC hopes to develop a graduate award selection process which facilitates assessment of qualities that relate to the spirit of investigation and search for new knowledge. We look forward with great interest to learning the results of the NSF and NIH studies.

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Science: The Broader Context

I applaud M. R. C. Greenwood's call to scientists to take on the responsibility "to be more civically inclined" (Editorial, 17 May, p. 933). She notes that we are in a period of skepticism about the importance of scientific research. One way that scientists can move past this skeptical period is to examine our own mythology about how science works—that science is always objective and apolitical, that the scientist is best understood as a modern-day hero, a pioneer struggling on the frontiers of