possible for the average scientist to distinguish between a vagary of chance to be noted and placed aside and a potential breakthrough result which could unlock a logjam of inexplicable data. Others, like Newton and Mendel before them, consciously or unconsciously suppress variations in their data which "do not fit" in order to sustain the hypothesis they believe to be the right one. All of these perturbations of conduct and reasoning need not occur in the "perfect" practice of the scientific method, with its insistence on blind observation and reproducibility. But human foible, ambition, and the urgency to straighten things out often suppress the ideal.

A science in revolution fairly *invites* scientific entrepreneurs to ply their new hypotheses. It is these people who are simultaneously the most valuable and the most dangerous among the dramatis personae of the morality play of scientific discovery. One extra bit of egoism, one iota of self-aggrandizement and the play can become a tragedy. The stakes are enormous, the tensions great. Some are keen to take up the challenge; others succumb to what Lawrence Kubie (*2*) described as "the neurotic distortion of the creative process." There are those who have the courage to promulgate seemingly rash hypotheses selflessly, willingly taking responsibility for their actions by setting about to refute their own ideological progeny. This is when science is at its best.

Then there are those for whom the fragility of the times calls forth an opportunism that leads to a contamination of the free marketplace of ideas with forged data or rigged experiments. This happened in the Summerlin affair. These events are so troubling and potentially so damaging to the conduct of science that they call out for action.

It is a disservice to science and society alike to treat such events as isolated and idiosyncratic. My experience as a transplantation immunologist at three major laboratories in this country strongly suggests that Summerlin-like observations are the rule, not the exception. Indeed, as Karl Popper has emphasized, the vitality of a science may depend on the number and richness of falsifiable hypotheses available as grist for the scientific mill. However, the proliferation of false (rather than falsifiable) hypotheses may also be a sinister symptom of the heightened stakes for scientific success in research areas, such as cancer or immunology, in which public expectations have been grossly inflated. Scientists in fast-breaking areas and "normal" science alike ought now to take seriously the implications of misconduct on the part of their colleagues. Some laboratories have already instituted internal checks to verify novel results. But such checks themselves are likely to have a chilling effect on innovative research. The line must be strictly drawn between proffering serious hypotheses, simple speculation, and outright fabrication. Somehow, the recognition must be engendered in scientist and citizen that the scientist who intentionally forges or misrepresents basic research data is no simple miscreant or neurotic. Such persons misuse the public trust as well as public funds and should not be shielded behind a veil of "psychiatric illness" or bureaucratic maneuvering. Scientists must be willing to look at the systems which create these perturbations—both in society and in their own enterprise —and begin to undertake a searching analysis of their roots.

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Laser Fusion Research

The article "Laser fusion: One milepost passed—millions more to go" by William D. Metz (Research News, 27 Dec. 1974, p. 1193) seems to imply that only government and private companies are involved in significant work in this field. Actually, the academic community—specifically, the University of Rochester—has been active in this area from the time that laser fusion was first declassified in the late 1960's. More recently, the University of Rochester has joined with industry and government in a long-range commitment to the development of controlled thermonuclear fusion as a future energy source.

This collaboration has resulted in the only suprakilojoule, subnanosecond laser target irradiation facility presently operating. Data from this facility (thousands of on-target shots with neutron

measurements carried out as a standard diagnostic) are published in the scientific literature. (Incidentally, Metz's article mentions the General Electric Company's participation in laser fusion research but does not explain that GE is one of five major participants in the University of Rochester's Laser Fusion Feasibility Project; other principal sponsors are the EXXON Research and Engineering Company, the Northeast Utilities Service Company, and the New York State Atomic and Space Development Authority.)

The academic community has been a primary source of many new ideas in laser fusion and related research. At Rochester, the laser fusion project is completely unclassified; thus, all information generated through its activities is made public. One laser fusion breeding concept (reenergizing used fuel rods from fission reactors) has been developed by researchers at Rochester. The university has filed several patents relating to this concept, and the patents will be made available to others through licensing.

Compared to efforts in governmental and private industrial laboratories, university-based programs in fusion research appear relatively small. However, in a field that is largely idea-limited, universities have a major contribution to make in developing the scientific understanding necessary to develop this process as a future energy source. The kind of collaboration exemplified by the Rochester project—involving government, industry, and university—is a pioneering one that seems to hold much promise, and we hope it will serve as a model for cooperative research in other areas.

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Immigration Policy

Charles B. Keely, in his well-balanced article "Immigration composition and population policy" (16 Aug. 1974, p. 587), correctly laments the poor quality of U.S. immigration and emigration data, especially the latter. But better data are likely to be slow in coming. Based on past experience, one might estimate that it will take two or more years for Congress to authorize such data collection and appropriate necessary funds, another 2 years for transition to the new system, and 6 years to accumulate the experience needed to describe in detail what is happening. Unfortunately, we do not have a decade to wait. The question of the demographic significance of immigration will likely mature in the next few years. As a result, decisions will have to be made with the deficient data now available, as is the case with most political questions.

Beyond this, more accurate data may not help much in deciding the role that demographic considerations should play in setting U.S. immigration policy. What will count is the policy-maker's appreciation of the significance of additional population growth for the United States. Those who do not see additional growth as a problem are not likely to be moved by more accurate statistics. Those concerned about additional growth will find little solace in refinement of the figures. As Keely points out, it is a value judgment.

The projected addition of some 15 million to our population through legal immigration between 1970 and 2000 (*1*) is a responsibility not to be taken lightly. (Illegal immigration, which also needs to be addressed, will add an additional and perhaps even larger number.) As competition for resources grows abroad and our domestic supplies dwindle, we may find ourselves hard pressed to provide for today's numbers, much less those that will be added by natural increase and net immigration. The situation calls for great prudence in making any additions to our population, from whatever source.

The main numeric limitations on immigration were established 50 years ago, when there were 100 million fewer people in the United States and the world setting was quite different. These limits should be reevaluated in the light of today's world. Demographic concerns should take their place alongside the more traditional ones in the setting of our immigration policy. Unfortunately, immigration law is complex and controversial. The public is not well informed on the topic. These conditions make a reasoned public debate of this sensitive and complex topic difficult, but it must be attempted. Keely's article is a useful step in this direction.

Finally, it is possible to envision a world in which international migration could be relatively free of restrictions. A basic requisite would be a social