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Think Ahead

Floyd Bloom

Between concern about "Y2K" computer failures and the frenzy to find special ways to celebrate the start of the year 2000, why not refocus your thoughts on more imaginative and constructive ideas for the next millennium? As noted in our issue of 26 March 1999 (p. 2106), *Science* is beginning its coverage of this popularly awaited calendrical transition with a challenge to our readers to envision their scientific life in the year 2050.

We invite all readers to consider conceptual, technical, and practical advances that have occurred during their careers to date and to describe what problems they think they will be solving or encountering 50 years hence. What new problems will have been solved or recognized when the genomes have been completed and annotated, when the next waves of hadron accelerators have been operational for some time, and when the successors to the Hubble telescope and the Space Station have been fully deployed?

We expect the unexpected.

To illustrate your visions, we want you to stretch your mental boundaries and tell us about your activities in the next millennium. Write us the introduction and specific aims for the grant application you'll be submitting, stating the problem to be examined and the insights to be realized. Give us the outline for a course in physics, chemistry, computer sciences, or any other field you choose that you would plan to teach in the fall semester of 2050. Perhaps you'll imagine the opening paragraphs of the prospectus from your 2050s equivalent of a biotechnology, bioinformatics, or botanoceutical startup company, describing the origins of the enabling technology and the products of its development. As an economist, epidemiologist, or legislative assistant, you might identify the trends you see ongoing in the society of 2050 and develop plans for actions to respond to those trends. As an environmentalist devoted to the oceans, atmosphere, or cyberspace, you could tell us how you will be dealing with 2050s threats to your bio-psycho-sphere. As a biomedical specialist, consider how remaining and newly recognized diseases will be diagnosed and treatments developed, and imagine the consequences for population growth and natural resources.

Why start our views of the next century with what might appear to be whimsy? *Science* feels that broadening one's perspective and starting to anticipate new ways of solving problems are immediately useful. We often have such thoughts as "if only I could watch a planet form, or ride on the back of a phosphatase, or listen to the debates in the subconscious, what problems I could solve." If an atomic force microscope could function with living material, what would you learn? If the factual substance of pre-university education could be absorbed by age 10, what kinds of adults would emerge? Many of today's scientists have lamented the fact that the rapid pace of scientific life, competitive forces, and continual funding pursuits deplete the time available for unfettered creativity. Here's a chance to hone the spirit of innovation that may have been neglected or abandoned in our drive for successful grant applications.

Some of the most valuable advances in scientific understanding have been attributed to serendipity or simple curiosity. When an innovative scientific discovery has been totally unanticipated and becomes immediately useful, the immense sense of thrill and admiration it generates is value added for the whole scientific enterprise. Short-horizon thinking tends to keep horizons nearby. If you can envision what's over the edge of the horizon, then perhaps you can begin to invent the tools needed to get there. If the vision is apocalyptic, perhaps the necessary discovery lies in how to avoid getting there.

Enter our essay competition "Visions of the Future" and tell us how you envision a day in the life of a scientist in the year 2050. Whether pessimistic or optimistic, your prescient tales may help chart the course of science over the next several decades. We expect the unexpected.