the article.

Poiseuille's law for blood flow and Hooke's law for elasticity have nonetheless been widely accepted in the neurosurgical literature and have been successfully applied to cerebrovascular diseases such as aneurysms[1] and arteriovenous malformations.[2] I would like to suggest that King consult the references cited in this letter for a more appropriate and current review of the applications of blood flow and elasticity to biological systems than the 45-year-old review articles he cites.

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Labs Collaborate on ICF Research

The Search and Discovery story on inertial confinement fusion (September 1994, page 17) gave an accurate picture of this exciting, formerly classified frontier of research. One of the most important aspects of the ICF research is the nationally cooperative nature of the program. Los Alamos National Laboratory, Sandia National Laboratories and the University of Rochester also perform a significant number of experiments on the Nova laser at Lawrence Livermore National Laboratory. Los Alamos, in particular, has been key to resolving a number of critical physics issues for ignition, has pioneered state-of-the-art modeling for hohlraums and fundamental physics and has used its state-of-the-art fabrication capability to further Nova target manufacture and cryogenic research.

Los Alamos has made significant contributions to experimental campaigns on Nova addressing both radiation drive symmetry[1] and laser plasma instabilities.[2] Both issues are critical to being able to predict ignition-target performance confidently. Within the symmetry campaign, Los Alamos and Livermore collaborated on understanding time-independent drive symmetry[1] by measuring x-ray images of capsules imploded under a variety of drive conditions on Nova. Recently Los Alamos has taken the primary responsibility for extending this research to encompass time-dependent characterization of drive symmetry.[3] Two separate techniques developed at Los Alamos were proved successful through an extensive series of experiments on Nova. These techniques should also prove useful for understanding and hence being able to control radiation drive on the proposed National Ignition Facility.

For the ICF program and NIF to accomplish their missions within DOE defense programs, it is widely recognized that there must be broad national participation. In particular, for NIF to achieve its mission within the Science-Based Stockpile Stewardship Program, there must be significant involvement of all the nation's nuclear weapons laboratories. Los Alamos and Livermore have forged a productive collaboration that is expeditiously addressing the physics issues crucial for ignition. With the recent declassification of much of the ICF program, both laboratories are now working to extend the collaborations on ICF to universities in the US and institutions around the world.

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Photon Tunneling Goes Back in Time

The wording of the Optical Society of America's Engineering Excellence Award to John Michael Guerra for "the invention and development of the photon tunneling microscope" (December 1994, page 81) leaves out some history. Photon tunneling in microscopy is not new. Mechau[1] and later I[2] made microscopes that observed the topography of a specimen by the way it frustrates internal reflection at a nearby surface. Local specimen height is given by a nonlinear gray scale of intensity in the image. Mechau's instrument used unidirectional illumination and had a severely tipped image plane. Mine was axially symmetric, used illumination from all azimuthal angles and had the resolution of a high-aperture microscope.

Guerra's big contribution was to use a computer to process the image from Mechau's optics and then the image from mine (properly acknowledged in his articles[3]) to make it easier to interpret. The result is spectacular. The processed image looks like a landscape. A second advance made by Guerra was to use a flexible internal-reflecting surface that more easily gets within frustrating distance of the specimen. These improvements promise to make Guerra's instrument a standard method of microscopy.

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'Shrinking Science' Revisited

The letter on "shrinking science" by Adam Frank (February, page 11) is grimly familiar and totally convincing. But one remark, "I have always thought that science, like art, is our society's way of looking outward beyond the details of everyday commerce," stood out and seems worth commenting upon. It is precisely the details of everyday commerce that always did generate the surplus revenue that funded science, and it is lack of attention to those details that has resulted in our stumbling economy, gradually imperiling physics and practically everything else that makes life interesting.

Lest that remark be misunderstood, let us insist upon the fact that it is not the shortcomings of American science that have resulted in the loss of our manufacturing base, the loss that is so apparent every time one goes to a hardware or electronics store and finds that everything one