of a typical human body each hour. Yet there is no evidence that background radiation causes cancer.[3] I believe that the new upper limit for radiation workers of 20 millisieverts per year proposed by the International Commission on Radiological Protection is scientifically unjustified. To me, this new limit suggests that the ICRP is suffering from radiation phobia.

Radiation phobia does kill humans. Italy had an increase[4] of about 4000 legal abortions in the five months following the Chernobyl accident in April 1986. We can assume that this increase was due to unfounded fears of giving birth to a deformed infant. The increase in effective dose equivalent in Italy for the first year after the accident was about equal to a month or two of additional background radiation. There was no evidence of an increase in deformity among the infants born to the atomic bomb survivors.

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JOHN CAMERON

5/92 *University of Wisconsin, Madison*

Teller, Wood: Silent on Goldin to Quayle

The very interesting Washington Reports story in your April issue (page 77) conveyed a number of serious misunderstandings. Since there is great interest, both scientific and human, in the NASA program, we feel that errors not already evident from the publicly accessible record must be corrected as far as our special knowledge permits us to do so:

▷ Contrary to the unnamed sources at NASA and the White House quoted in the news story, neither of us has ever spoken (or otherwise communicated) with Vice President Dan Quayle about replacing former NASA Administrator Admiral Richard Truly.

▷ Neither of us proposed NASA's present administrator, Dan Goldin, to the Vice President as Admiral Truly's replacement, though both of us did support Goldin's candidacy. The story's representation that we believe that Goldin is eminently well qualified for the post is a correct one.

We were both pleased with Admiral Truly's success in reactivating the space shuttle program. We, along with many of your readers, are most keenly interested in the continuing efforts of NASA to gather information about Earth and to extend the scope of the space program to include a permanent lunar settlement and manned exploration of Mars.

EDWARD TELLER

LOWELL WOOD

5/92 *Livermore, California*

'Brilliant Eyes' Not Part of NASA Asteroid Work

Your news story on NASA's "moment of truth" (April, page 77) misrepresents both concern about the hazard of asteroid impacts and the NASA response to that concern. In recognition of the impact hazard, the US House of Representatives in 1990 asked NASA to conduct two studies, one on detection of Earth-approaching asteroids and one on technologies for dealing with the threat if an object were found on an impact trajectory. The news story characterizes these studies as "two workshops on Brilliant Eyes," but Brilliant Eyes is not conceived as an asteroid survey tool, and the initiative for these studies did not come from the proponents of Brilliant Eyes or any other part of the Strategic Defense Initiative Organization. As the chair of the NASA study on asteroid detection, I assure you that the term Brilliant Eyes was never mentioned within our international team of 24 scientists, most of us astronomers with a lifelong interest in comets and asteroids. Our 50-page report, submitted to Congress early in April, proposes a survey, based on automated ground-based telescopes, that could increase by two orders of magnitude the discovery rate of asteroids whose orbits come close to Earth. Brilliant Eyes did not feature in the study of asteroid interception either, which was concerned primarily with the deflection, not the detection, of threatening objects.

The question of cosmic impacts is a serious one that stimulates widespread interest among the public as well as scientists. Cosmic impacts represent a dramatic example of an extremely rare but potentially global catastrophe, raising in extreme form some of the public policy concerns long faced within the nuclear power industry. The issue deserves better of PHYSICS TODAY than to be confused with Brilliant Eyes or any other particular SDIO proposal.

DAVID MORRISON

NASA Ames Research Center

4/92 *Moffett Field, California*

Superdeformed Nuclei's Nativity

Daniel Kleppner, in his Reference Frame column in the December 1991 issue (page 9), makes the point that nature is rich enough that we are often unable to predict what kinds of phenomena are going to provide the largest surprises in future decades. I agree with his basic point and only want to remind your readers about the history of one new phenomenon, nuclear superdeformation. There has been a resurgence of interest in these unusual nuclei, characterized by roughly a 2:1 major-to-minor-axis ratio, with the discovery in the last decade (mentioned by Kleppner) that nuclei such as dysprosium-152 produced with high spin can become superdeformed.

Superdeformation was actually discovered two decades earlier in the form of spontaneously fissioning isomers (americium-242 was the first such isomer identified).[1] The interpretation of this phenomenon in terms of single-particle (shell structure) corrections to the macroscopic potential energy surface was put forth soon thereafter,[2] and that theory has been successfully used to explain and predict new regions of superdeformation of current interest, such as that mentioned by Kleppner. The superdeformation of one of these spontaneously fissioning isomers was confirmed by observation of its near-perfect rotational band with a large moment of inertia,[3] and the energy difference between the superdeformed state and the normally deformed state was determined by identification of gamma decay through the barrier separating the two states.[4] The only difference between superdeformed nuclei in the two regions is that in the heavier elements the Coulomb force plays a dominant role, while an additional centrifugal force is required to stabilize deformation for the lighter elements ($A \sim 150$).

This example still illustrates Kleppner's basic point—an interesting phenomenon was unanticipated at the time of its discovery.

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