

letters

reference in his field of view during the sighting.

Taylor's objection to my estimate of the "angular resolution of the eye as one second of arc" is correct. The statement should have read "one minute of arc" and a quick calculation proves my intent. It was simply a typing mistake. I chose a value of one minute because it is easy to extrapolate to larger angles. I am aware that four minutes, for example, would have been a more realistic choice. I might point out that the value "one minute" appears in many elementary physics texts.

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Novelty vs. profundity

As a physician who has actively worked in theoretical biophysics for approximately 15 years, I would like to respond to Carlton Frederick's letter (May, page 15). I believe today's physicist is brighter than he has ever been. Both the subject of physics and the total culture, particularly our own, have had an immense increase in complexity since the 1930's, and simply meeting this greater demand has pushed (or pulled) intellectual development further. One has merely to read the influential texts of this earlier period and note their simpler, more pedestrian outlook to see this. What has happened, I agree, is that this complexity has fostered the over-specialization of career and placed the super specialist in a position of excessive influence by rewarding novelty on an equal footing with profundity. Since it is much easier to achieve a result with some novelty than one that is both novel and profound, the novelists proliferate at a far greater rate than the founders.

In the past the physicist of note was almost invariably a man who had mastery of the entire subject, and either a profound innovator or one who had every possibility of being such. These men set the tone and character of physics forty and more years ago and continue to inspire the student of today. The contemporary physicist of this stature, however, may very well be a "profounder profounder," that is to say profounder squared.

ARTHUR GROPPER
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Materials science courses

The fine summary of the Conference on "Tradition and Change in Physics Graduate Education" held on our campus last summer, failed to make one point which is of importance to the academic physics community: The mis-

match in the thesis topics with employment fields was clearly identified. However, not enough attention was paid to the fact that physics faculties must face the issue of defining the optimum course work for undergraduate as well as graduate students. As it turns out now, a typical student in electrical engineering or materials science has a good grasp of the fundamentals of quantum mechanics and solid-state physics, while their colleagues in physics have typically not had a single course in materials science or electrical engineering. Since the materials field (broadly defined) is likely to employ perhaps half the physicists produced in the near future, I believe that the report of the National Academy of Sciences Committee on Materials Science and Technology¹ bears serious consideration by every physics department, when it says:

"We believe that materials science will play an increasingly significant part in the education and work of physical and life scientists, as well as of engineers and technologists."

A 3-6 credit requirement in materials science (or biophysics or geophysics) may be the test of the physics community's commitment to change and the translation into real life of its concern for "applied physics."

References

1. Materials and Man's Needs. Summary Report of the Committee on the Survey of Materials Science and Engineering. N.A.S. Washington, D.C. 1971.

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Predicting earthquakes

Your April issue (page 74) carries a review by Bruce Bolt of *The Jupiter Effect* by Stephen Plagemann and myself in which, following a sound precis of our arguments, he notes that "California records . . . indicate that 1803 or thereabouts was not specially active" in seismic terms, although that was the last occasion of the planetary alignment discussed in our book. This is incorrect; since the book appeared, I have visited the region of the San Andreas just south of San Francisco, and this visit included the mission of San Juan Bautista, which suffered greatly during the 1906 earthquake. The mission records describe a series of major tremors in that area in the early 1800's, and although this proves nothing it is clearly of interest to our hypothesis. Plagemann and I have included a discussion of these records in the paperback edition of the book, which should now be available, and the discussion will also appear in future hardback editions.

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