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## letters

bens and E. Nichols<sup>2</sup> had earlier found only small absorption at 24.4 microns for small paths of carbon dioxide and water vapor. Rubens and Aschkinass accordingly suggested that this might be a region of relative transparency in the Earth's atmosphere. They failed, however, to find sunlight in this wavelength region but, repeating the earlier laboratory experiments, confirmed the relative transparency of CO<sub>2</sub> and H<sub>2</sub>O here. They proceeded to test with longer paths and discovered a perceptible absorption by water vapor for a 40-cm cell—one of the earliest findings of the pure rotation spectrum of water. Rubens and Aschkinass then erroneously concluded that the terrestrial atmosphere is "wholly opaque" between 12 and 20 microns and at 24.4 microns. It seems possible that their failure was due to the poor sensitivity of their detectors. Their initial hunch was valid. However, the first direct demonstration of transmission of sunlight in the 20-micron region was made at Lowell Observatory by Arthur Adel.<sup>3</sup> I am happy to acknowledge his priority in the matter, but remain impressed by the near miss of Rubens and Aschkinass.

## References

1. H. Rubens, E. Aschkinass, *Astrophys. J.* **8**, 176 (1898).
2. H. Rubens, E. F. Nichols, *Wiedemann's Annalen* **60**, 418 (1897).
3. A. Adel, *Astrophys. J.* **96**, 239 (1942).

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## Ivory tower dreams?

The recommendations on employment problems in astronomy from the National Academy of Sciences (May, page 70) are certainly based on futile dreams in an ivory tower. Its authors need to realize that: (1) Many apprentices to research are neither temperamentally nor intellectually suited to teaching in junior colleges; (2) Faculties that have no separate astronomy staff seldom have funds or political support to consider new appointments; (3) Replacement of teaching assistants (an endangered species) with more expensive qualified staff is against the current of belt-tightening in all universities.

Astronomers and physicists must stop blaming political leaders for the decline in prestige of our disciplines. As teachers we need to spend enough time with our students to convey not only the excitement of discovery, but also respect for precision in both verbal and numerical concepts. The community can well afford to support scholarly inquiry, but the fruits of new knowledge need to be shared more widely in every-

day language as well as in the exclusive jargon of a privileged club.

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## Reactor safety defended

I have read the letter on the AEC reactor-safety study by Herbert Malamud in the February issue (page 71), and I think that a reply is very much in order.

When the original article by David Burnham appeared in *The New York Times*, I wrote to their editor protesting the misrepresentation implicit in the article. My best answer to Malamud is to quote the text of my 12 November 1974 letter to the *Times*.

"Since I am the 'Mr Smith' identified as one of the participants in the WASH-740 revision featured in David Burnham's article castigating the Atomic Energy Commission (Nov. 10), I feel that I must comment on his serious allegations.

"Mr. Burnham was quite correct in stating that Brookhaven National Laboratory reviewed the question of power reactor safety in 1964-65, and my calculations did indicate that an area the size of Pennsylvania could be involved, *provided* the maximum hypothetical accident were actually to happen. What he ignored completely is that the scientists working on this project considered these calculations as the absolute limit of conceivable results, not as an event that had any likelihood of happening. We were firmly convinced that the probability of any power reactor accident causing serious injury to the public is infinitesimal.

"I might add that most current critiques of reactor safety, by environmentalists, the Environmental Protection Agency and even by the Atomic Energy Commission, are in my opinion ultra-conservative to the point of absurdity. I have been associated with radiation safety problems throughout most of my career, and I see no reason to treat them with yardsticks totally different from those applied to other human activities.

"The point is that neither I, nor any of my former Brookhaven colleagues as far as I am aware, felt that this study revealed any hazard worthy of genuine public concern, and I certainly felt no qualms of conscience when a final report on our work was never completed.

"I trust you will extend the minimum courtesy in publishing this letter since Mr Burnham has been given the front page to accuse the Atomic Energy Commission of sweeping a major safety problem under the rug, and to give the totally erroneous impression that we are all exposed to great danger."

MAYNARD E. SMITH  
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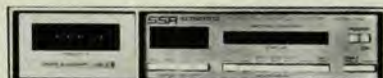
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