his family have resided nearby in Bishop for several years. The concerns he has developed while living in and interacting with the people of the Owens Valley have caused him to apply his talents in new directions, and I personally look forward to his success and to the encouragement that would thereby be given to other physical scientists to make the attempt. This type of person is sorely needed on the Washington scene.

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Permanent job exchanges

In all of the discussions pertaining to the bleak academic employment situation, one class of unfortunate individuals seems to have been neglected. These are people who have tenure but, for one reason or another, find themselves quagmired in what they consider to be untenable dead-end positions. Perhaps such an individual has achieved a reasonable amount of success, but he finds that the only openings available now are for those in the superstar category on the one hand, and untenured openings intended for fledglings on the other. The latter predominate because of the exploitative "hireable only if fireable" policy of most universities. Frustrated in his immobilization, such a person's morale inevitably erodes, his productivity may decline, and, only if exceptionally durable, will he avoid psychosomatic illnesses, such as ulcers, and so on. Indeed, departments exist in which the majority falls in this category. And departments of this kind, outwardly resembling a collection of fossils embalmed in amber, can be seized upon by hostile administrators as paradigms of the failure of tenure.

But hark! A simple solution exists, in principle, that may save many such individuals, revitalize stagnant departments, and perhaps indirectly strengthen tenure. Although particle–hole reaction channels may now be largely closed off, exchange reactions can still occur. What I am proposing are *permanent* academic exchanges of tenured faculty members, tenure being conserved, of course. Since "one man's poison is another man's meat," and the "grass is greener . . . ," such exchanges could be mutually satisfying. As a simple hypothetical example, A might be an isolated high-energy theorist at a department with no high-energy program. He is frustrated at having no one to talk to and no graduate students. His department has an interest in hiring a solid-state experimentalist, but is forbidden to create a new opening. Somewhere, there is a solid-state experimentalist B, disgruntled by what he considers a low salary. His department chairman dislikes and would gladly dismiss him if he were untenured. Their high-energy experimental group would love to have a "house theorist" to talk to, but again, the size of the faculty has been limited. Clearly, the exchange $A \rightleftarrows B$ might prove beneficial to all. One can envision more complex exchanges and write down all the appropriate Feynman diagrams. The possible ramifications are too numerous to discuss here.

Academic exchanges on a temporary basis are nothing new and, perhaps, can be used as a prelude, like trial marriages. What is needed, obviously is an agency to bring interested parties together, somewhat like computer dating. But the problem is more complicated if complex exchanges are considered. Such an agency should only serve the purpose of bringing together the individuals, who then would have to negotiate with their departments. In the case of exchange of physicists, the APS should consider providing such a service. In contrast to the employment registry, information should be kept confidential (unless the individual desires otherwise).

EUGENE R. MARSHALEK
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Light flashes in the sky

Jack Epstein suggested (March, page 15) that "some of the phenomena that have been designated as 'flying saucers' could possibly be sightings of small specks of antimatter in the process of annihilation in the earth's atmosphere." On two occasions the past year, I have observed a series of random but localized light flashes that one might attribute to annihilation process. The observations of what I call the "random flash-bulb effect" were made by continuously scanning the twilight sky with 10 × 35 binoculars. The color and duration of each flash was similar to that of a xenon bulb.

The explanation given by Epstein had occurred to me because no material objects could be discerned as the sources of these lights. The first observation was a series of localized light flashes in a clear, blue sky, estimated to be less than 10 miles away. Following this 3–4 second display, an off-white light "switched on" and proceeded slowly across the sky. Apparently it traveled a straight path at an altitude less than 10 000 feet. When viewed through binoculars, the latter light appeared as a single, spherical shape unattached to a material object. Assuming that the angular resolution

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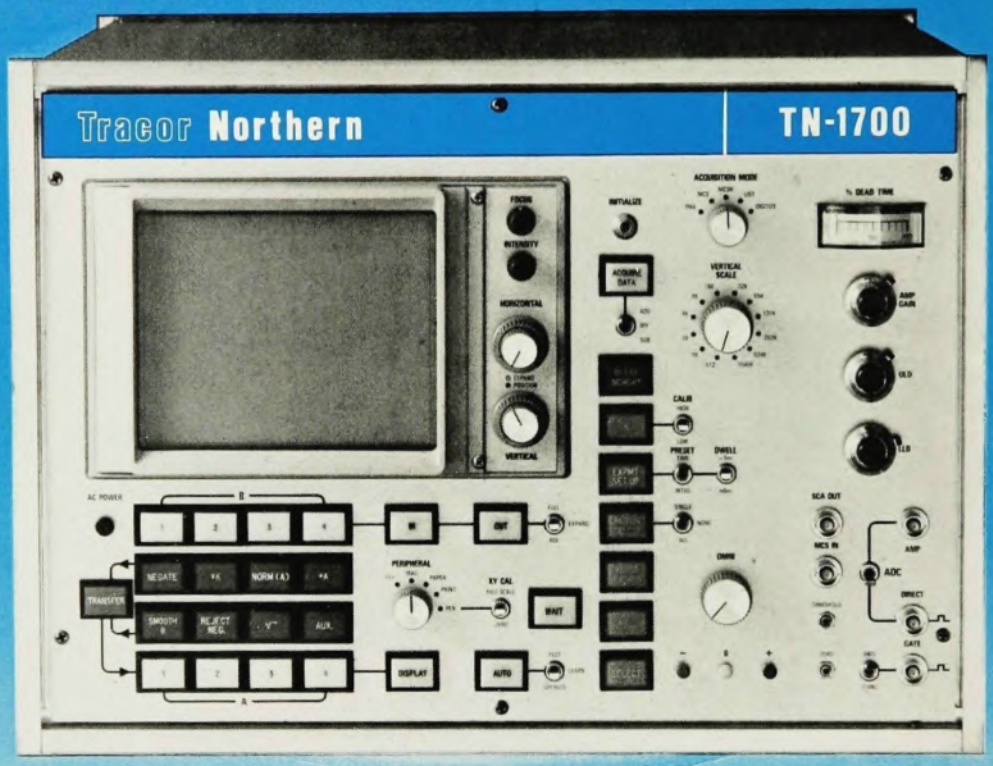

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of the eye is one second of arc, a solid object greater than about two feet in its largest dimensions would be resolved in the binocular field, assuming a distance of 10 miles between the observer and the object.

The second observation was of an off-white light that "switched on" above a long, narrow cloud. The intensity of the light varied at a rate of about one "blink" per second. Within a few seconds, this was accompanied by the transient "random flash-bulb effect," all visible in the seven-degree binocular field. Upon depressing the microphone switch of a 37.1 MHz radio, the blinking light extinguished. No other strange events occurred during the evening, although three viewing stations, two of which were separated by 22 miles, were in operation until 2:00 a.m.

The fact that the off-white lights were observed in conjunction with the flash-bulb effect and the fact that the phenomena was observed at relatively low altitude seem to preclude annihilation as a plausible explanation. Two other members of the research team have witnessed the "random flash-bulb effect" independently and on more than one occasion. After personally recording some 100 anomalous events, it is my contention that there is no simple, physical explanation for the variety of phenomena observed.

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Earthquake noises

I wish to call attention to Cecil A. Nanney's contribution to earthquake prediction; his work was not cited in Carl Kisslinger's March article on that subject (page 36).

Nanney's article, "Possible Correlations Between Earthquake and Microseisms." *Nature* **181** 802 (1958) presumably lays a foundation for the prediction of some earthquakes.

In a letter to me before his death in October 1973, Nanney wrote, "It is now well known from material researchers, that solids under strain emit acoustic noises prior to fracture. In fact these noises increase up to the moment of fracture just like microseisms, and decrease after the fracture. This is all I was saying (and the microseisms showed) about the earthquakes except on the scale of the earth.

"I read in the newspapers ... that 'the heartbeat of the moon has been observed,' in an apparent reference to continuous oscillations like microseisms, and that this had been observed prior to the largest moon quake. Of course there is a simple explanation in that light of the earthquake–microseism correlation."

As Nanney's chief activity and notable achievement at Bell Telephone Research Laboratories was in solid-state physics, he was able to give little subsequent effort to the problem of earthquakes.

I hope this reference to Nanney's previously overlooked work will be of value to investigators of earthquake prediction.

FRED H. GREENBERG
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Volcanoes in repose

Why limit the distinction of "only active volcano in the 'lower 48 states'" to Mount Lassen, California (caption of cover photo, March, page 5)?

If being "active" is based on the presence of fumarole and thermal-spring activity such as that depicted in the cover photo of Bumpass Hell, it should be noted that Mounts Baker, Rainier and Hood have well known fumarole fields of comparable area and vigor as any thermal zone near Mount Lassen. Within the past few years thermal activity has also been documented at Glacier Peak, and Mounts St. Helens, Adams and Shasta.

Also, if an "active" state is based on the recent time of the last eruptions (1914–17 for Mount Lassen), it should further be noted that eruptive products have been dated to the mid-1800's for some of the above-mentioned volcanoes, while historical observations of additional eruptive activity—dubious or otherwise—permeates 19th-century Pacific Northwest literature. Of what importance is 100 years here or there when the state of a volcano is in question?

It is possibly better to discard the terms "active" or "inactive" and instead consider Mount Lassen, as well as most of the other Quaternary stratovolcanoes of the Cascade Range, as merely in the state of repose, with fumaroles, warm ground and thermal springs common to quiescent volcanoes.

DAVID FRANK
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Fear of creativity

If I might be permitted to make some polemical remarks concerning the present cultural state of the profession of theoretical physics, I would say the following: Theoretical physics, like most of the archaic institutional forms of the western world, is rushing toward a fatal disaster for which few establishment physicists have dared to take responsibility. The only way to avoid this is through a mutation in our professional