

# Letters

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## The Valkyries Ride Again

Maybe the rest of the world didn't know why the Houston Control Center played "The Ride of the Valkyries"—at full volume—to wake up the Apollo 17 crew on December 11, but no one at Caltech had any doubt. It's the traditional way to wake a student during final exam week at Caltech, and that was certainly the week it was, for Tech students and for astronaut and alumnus Jack Schmitt (BS '57).

It all came about after Mission Control at NASA's Manned Spacecraft Center in Houston tried to wake the Apollo crew on December 9 with the University of Kansas fight song, "I'm a Jay, Jay, Jayhawk." (Astronaut Ron Evans is a Kansas alumnus.) It got no rise from Evans or his somnolent fellow travelers, Schmitt and Eugene Cernan. Two Caltech undergraduates easily convinced Albert Hibbs, a JPL senior scientist and alumnus (BS '45, PhD '55), that Caltech could do better than that. Hibbs relayed the idea to NASA's Administrator James Fletcher (PhD '48). Fletcher carried through to a bravura Wagnerian finish.

## Science for Mankind

Caltech's five-year Science for Mankind fund-raising campaign, launched in November 1967, has now been successfully concluded—exceeding its \$70.4 million goal by over half a million dollars.

The drive was instigated to provide additional support for endowing faculty salaries, for new buildings and renovations, and to cover increased operating costs of academic programs and the physical plant. During the campaign, seven new buildings were added and two more were started. Seven named professorships were established, most of them supported by endowments.

More than half of the campaign funds came from individual gifts, including \$12 million in bequests. More than a quarter of the total came from corporations. Caltech alumni contributed more than \$2 million, and the remainder came from foundations, societies, and other organizations.

### EDITOR:

On Pages 17-18 of the October 1972 issue of *E&S* you reported to your readers that Drs. Chapman and Ingersoll [Andrew Ingersoll, associate professor of planetary science at Caltech] published evidence in *The Astrophysical Journal* (v. 175, pp. 819-835) to indicate that the Dicke-Goldenberg measurements of solar oblateness can be explained in terms of bright faculae in the sun's equatorial region and do not leave evidence for a rapidly rotating core. You did not mention that the Chapman-Ingersoll paper was followed in the same issue of the *Journal* by a rebuttal by Dr. Dicke who said that neither the original Dicke measurements of faculae nor those of Chapman and Ingersoll show a significant enough contribution to cast doubt on the original interpretation of solar oblateness given by Dicke. The referee and editor of the *Journal* felt that the problem had not yet been resolved and that both statistical analyses should be published side by side.

Helmut A. Abt, PhD '52  
Managing Editor  
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### Dr. Ingersoll replies:

An obvious controversy does exist and the issue is still far from settled. This fact should have been much clearer in my remarks in the *E&S* article. In view of this controversy the last sentence was misleading in stating that the sun "must be oblate by a much smaller amount than Dicke originally claimed." However, in his rebuttal Dicke presented a statistical analysis indicating that faculae contribute only a small part (10 percent) of the excess solar oblateness measured at Princeton in 1966. Chapman and I argue that the facular contribution may be much larger and have submitted a paper replying to Dr. Dicke.

### EDITOR:

I was more than usually interested in the neat explanation of the application of scientific theory and principles to the nature of the universe in James Gunn's "The Shape of Space" in your issue back in May. I have often wondered why scientists seem collectively to accept the expanding universe proposition which depends so heavily on the observed "red shift." I wonder why we can be sure there is not some tendency for light waves to slow down in frequency, or to straighten out, when they travel over enormous distances? How do we know they don't suffer from some slight diminution of energy on their long curved path through space that would explain the relationship between distance and "redshift" as readily as the convenient analogy with the Doppler observations?

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### Dr. Gunn replies:

The acceptance of the expansion of the universe as an explanation of the redshift is not done lightly, or indeed, without much dissension among workers in the field. The whole aim of cosmology is to understand the universe in the large in terms of known physical theory. The various "tired light" ideas for the redshift are not consistent with present physical theory. This does not say, of course, that next year someone will not invent a theory that is consistent with all known laboratory data and which predicts a spontaneous degradation of the frequency of light over large distances, but no such framework exists today. One could simply postulate, out of any context, that the phenomenon occurs, but one in so doing removes any possibility of understanding the universe in terms of known and verified physical laws.