the construction of Pleistocene time scales until firmer data are available upon to which to base such a chronology.

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## Observatories in the Southern Hemisphere

I should like to correct or clarify some statements made by V. K. McElheny in his article on "Large new telescopes for the Southern Hemisphere" (6 Nov. 1964, p. 755).

The Lick Observatory has not had a station in Chile since 1929. Previously it operated a 0.94-meter (37-inch) reflector on Cerro San Cristóbal, Santiago. This was sold more than 30 years ago to a private individual, who donated it to the Catholic University in Santiago, which has since maintained and operated it.

La Silla, the site selected for the European Southern Observatory, was not among those tested during the site-survey expedition that I conducted for AURA (Association of Universities for Research in Astronomy). However, because of its nearness to Cerro Tololo, the site chosen by AURA, and because it has a similar elevation, La Silla is expected to be a good site.

McElheny says that "the project of the European Southern Observatory (ESO) organization is most advanced." ESO only recently purchased a large tract of land around its future observatory site, and has also only recently acquired a tract of land in Santiago for a future headquarters; no construction has started yet on La Silla nor on an access road to the summit. The first ESO telescope for Chile, a 1-meter reflector, has been completed in Holland and is scheduled to be delivered in Chile later in 1965. The AURA construction program, on the other hand, was started more than 20 months ago, after a 3-year program of site surveys. The headquarters in La Serena, including an administration building and three residences, are completed. An access road to Cerro Tololo, 38 kilometers long, was completed more than a year ago. All sites for the entire building program on the mountain have been leveled and prepared for construction. The first two permanent buildings on the summit are under construction now. The water-supply system, which will bring water to the peak from a spring 1000 meters below, is nearly installed, and so is much of the system for the distribution of electrical power. A large generator has been operating on the mountain for a year. Of the four telescopes in the present plans of AURA, one has been operating on Cerro Tololo for 3½ years. An identical telescope, a 40-centimeter reflector, will be delivered to Chile soon. Two other reflectors (1.5 and 0.9 meters) are under construction and will be delivered near the end of 1965. The optical components for these three telescopes are being made at the optical shop of the Kitt Peak National Observatory in Tucson, and will be finished well before the telescopes. The U.S. Air Force is providing funds for the 1.5-meter telescope, the National Science Foundation for the others and for all construction and operations.

The main reason for using fused quartz for large mirrors, instead of pyrex, is not its greater rigidity, as McElheny suggests, but its lower coefficient of thermal expansion, because of which the effect of atmospheric temperature changes on telescopic images will be negligible.

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(An article on Cerro Tololo by Stock appears on p. 1054 of this issue.)

Stock's remarks are a welcome clarification of an article written from a European vantage point. The statement about the Lick Observatory derived from misunderstanding of a public source. The fact that the European organization relied strongly on Stock's investigations of a nearby site led to inexact wording which made it seem as if he had actually surveyed the site chosen by the Europeans after they decided against accepting the American offer of part of their large site. In saying that the European project was most advanced, I was speaking only of plans to build a telescope of nearly the resolution of Palomar. Although AURA hopes for a 3.5-meter telescope at the Chilean site, presumably of design

similar to the one to be completed at Kitt Peak, funding had not been requested at the time of writing. Design of the European telescope, which continues to benefit from generous cooperation from AURA, is well advanced, to the point where a choice can be made of the supplier of the blank, and the money has been pledged for its construction. In describing the advantages of a fused silica block, spokesmen of the European organization spoke often of the lower coefficient of thermal expansion of quartz, and had not used an imprecise word like "rigidity."


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## Oral Reports

The effectiveness of the "short" paper (10 to 15 minutes) at major scientific meetings might be considerably enhanced if speakers would abandon the classic format of the printed article and, instead, use the following order: (i) background information (if needed); (ii) conclusions of present report; (iii) methods; (iv) results; (v) discussion (if needed); (vi) conclusions repeated.

Conclusions cannot be evaluated properly without consideration of the methods used to collect the data. The reader of a printed paper has the chance to flip back and forth among the pages; the listener at a meeting must depend on his memory. If the listener were to be told first the use that was made of the data, he then could evaluate the methods in this light. I believe that papers delivered orally according to this format would be more interesting and informative and, further, would provoke more useful questions and discussion.


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## NIH Career Awards

Before I state my profound disapproval of the attitude expressed by I. D. J. Bross in his letter on NIH Career Awards (19 Mar., p. 1395), I want to establish my credentials. First, I am an active researcher. Although I am an administrator (chairman of a large department) and teacher (43 class hours this April), I manage to spend about half my time in my laboratory. I have published three papers in the last 12 months, and I have two in press. On all I am first or sole author, because I did most of the work described. Second, I am grateful for NIH-NSF support of research, not only because it has multiplied resources but because it has given a healthy independence to every scientist competent to command such support. No man or woman in my department need say "Yes, sir" to me in order to be able to work.

The job of a university administrator is to create an atmosphere in which good people can do good teaching and research, and the job of a university faculty member is to teach, to do research, and to carry some of the administrative burden according to his interests and abilities. Teaching at all levels, undergraduate, professional, and graduate, is a job worth doing and doing well.

There has grown up since the war a new generation of faculty members, nursed on NIH-NSF support, which regards its own research productivity as its only valid contribution to society. To members of this group, research alone is a positive good, and administration and teaching, because they interfere with research, are evils. A man who holds such views may have his home most appropriately in a research institute; he does not belong on a university faculty. Since universities, imperfect though they may be, are still our chief means of accumulating, preserving, and transmitting knowledge, scientists and supporting agencies should seek to strengthen universities in all their functions. I believe NIH, NSF, and other granting agencies do understand this obligation, and I am sure that most faculty members cheerfully accept it as well. Any scheme of outside support which allows a faculty member flatly to refuse to accept his just share of teaching and administration is destructive of the best interests of both the university and its faculty, and a scientist who accepts such support without accepting his university obligations is a parasite.


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. . . The scientist is right in asking for the privilege of doing as he pleases as soon as he has credentials, but the judgment should come from his super-