ized billing schemes over the years rankle at charges that they subsidize special groups and force some customers to pay for a lot of equipment they don't use. Research scientists often end up using more than they think they need, for example, development software, differential scheduling by job size and job urgency, high-quality mathematical software, and a reliable file system.

A scientific computer center in the future will have to offer a variety of services from several kinds of machines, achieving economies by combining newer technology with specialization of function. It is likely that there will continue to be demands from scientists for the service of a large, general-purpose system as well.

Finally, there is an apparently unintended irony in the accompanying article by Robinson (Research News, 6 Aug., p. 471) reporting that the chemists expect to have their cake and eat it too. They are acquiring their own minis, yet they are arranging to have access when needed to what may be the biggest center of them all, the National Resource for Computation in Chemistry.

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Earthquake Light in Focus

In his letter on earthquake lights, J. J. Lloyd (17 Sept., p. 1070) cites obsolete speculation with facetious effect. This is a field of mystifying and elusive observations (only some of which appear to be erroneous or misinterpreted), discussed briefly in my textbook (*1*). Not cited there are observations (*2*) of numerous luminous phenomena ("total or partial illumination of the sky, the ground, the mountains, and lines of electrical connection and transmission; luminous tongues, sparks, falling balls . . . of prevailingly reddish color") for the Rumanian earthquake of 10 November 1940, which originated at a depth of about 100 kilometers. The Chinese, with their current large earthquake program involving many observers, are in a good position for investigation.

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References

1. C. F. Richter, *Elementary Seismology* (Freeman, San Francisco, 1958), pp. 132–134; 581–582.
2. S. L. Solev'ev, in *Zemletryaseniva v SSSR*, E. F. Saverensky, I. E. Gubin, D. A. Kharin, Eds. (Academy of Sciences, U.S.S.R., Moscow, 1961), p. 178.