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Reference

1. H. H. Barschall, J. R. Arrington, Bull. Am. Phys. Soc. **33**, 1437 (1988).

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2/89

Bubble Chamber Photoomission

In our article "Pions to Quarks: Particle Physics in the 1950s" (November, page 56), through an oversight, we failed to mention that the photographs on page 61 of Donald Glaser's notebooks were taken from Peter Galison's contribution, chapter 14, to the book *Pions to Quarks*, which we edited (Cambridge U. P., New York, to appear in 1989), and from Galison's more extensive treatment, "Bubble Chambers and the Experimental Workplace," in *Observation, Experiment and Hypothesis in Modern Physical Science* (P. Achinstein, O. Hannaway, eds., MIT–Bradford P., Cambridge, Mass., 1985).

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12/88

Gibbs and Mandelbrot at Yale

In his Opinion piece (January, page 71) Benoit Mandelbrot offers a non-Gibbsian approach to the definition of temperature and its fluctuation. He notes that "for small systems the statisticians grant that a fog of uncertainty is simply unavoidable." This limitation creates difficulties for chemistry and all of semiconductor physics, because these sciences and others often deal with single particles in thermal and diffusive contact with an appropriate reservoir. That is why the Gibbs approach is so widely followed.

Josiah Willard Gibbs gave us a brilliant and elegant logical structure suitable for the treatment of single- (and many-) particle problems in statistical mechanics: Here the chemical potential and the temperature make their natural entrance. The