

The Hydrogen Bubble Chamber and the Strange Resonances

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I have been out of high-energy physics for some 20 years and to get myself back into the mood of a particle physicist, I would like to quote some recent remarks by Carlo Rubbia. "Detectors are really the way to express yourself. To say somehow what you have in your guts. In the case of painters, it's painting. In the case of sculptors, it's sculpture. In the case of experimental physicists, it's detectors. The detector is the image of the guy who designed it." I've never heard it expressed so well, but I'd like to add that particle physics has always been done by a triad of equally important professionals — accelerator builders, experimental physicists, and theoretical physicists. I'll have some comments at the end on how I hope the members of the triad will interact in the future. I have been a member of the first two categories, but never of the third.

My ten years in the bubble chamber trenches (discussed also in Peter Galison's chapter in this volume), the most exciting period in my life, started at the 1953 Washington meeting of the APS, when I met Donald Glaser. He showed me his first cosmic-ray tracks in a tiny bubble chamber (1 cm × 2 cm), filled with ether. I had been unsuccessfully racking my brains to find an appropriate detector for the Bevatron, which was about to turn on. It was immediately clear to me that Don's chamber filled the bill exactly — if it could be made to work with liquid hydrogen, and if it would operate in large enough sizes. I wanted one big enough to see the production and decay of the strange particles that had first been observed in cosmic rays by George Rochester and Clifford Butler, in a Wilson cloud chamber (see chapter by Rochester in this volume), and had recently been seen by Ralph Shutt's group at the Brookhaven