

After I graduated (BS MEE '73) and went to work for Art Few (1973-1982), my lab was adjacent to where Al Heath was working on the gamma ray/balloon payloads. The double doors between our labs were always open, and this led to frequent conversations. As a green electrical engineer, I was very interested in Al's approach to instrumentation- here was a guy building instruments that flew up into the stratosphere. While a lot of engineering effort is directed at being cost effective, i.e., a compromise between performance and cost, Al would always talk about designing "Ace circuits", making the electronics work as good as you could get it to. This turned out to be hugely formative for me, as it instilled a drive to push the limits of instrument performance: what are the limiting factors, how can you mitigate the effects of the environment, how can it be made more reliable, and what do you do when confronted with the limitations of test instruments? Fortunately those early years in the Space Physics Dept allowed me the time to improve my capabilities. Since then, the ground, balloon, aircraft, and space-based atmospheric electricity instruments I have worked on have always had the goal to achieve an "Ace circuit".

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