OPENING REMARKS

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I want to welcome you all to Brookhaven National Laboratory-East. We plan to annex this exotic site as soon as we can complete the arrangements and get a bill through Congress. You owe a great deal to John Blewett who has been appropriately introduced by Phil Livdahl as the Dean of the Linac Conferences. He and Pierre Grand had a great deal to do with the choice of this site. They worried that people would think there was a boondoggle involved, and so they leaned over backwards by scheduling meetings starting at 8:30 and going throughout the day and most of the night. I think you're going to have your heads worked off. I do have to warn you, however, that this is the hurricane season.

This Conference is number ten in the series started in 1963 by Dean John Blewett at Brookhaven. Those were the days when we were planning a 300 to 1000 GeV accelerator to be built with Soviet help, an accelerator which never materialized, but which had at least one good result--it stimulated this series of conferences to come into being. I hope someday a comprehensive history of the development of accelerators is written and when it is, I hope it includes an adequate discription of machines that were conceived but never built. That would be most interesting.

I see that you have a Brookhaven tour scheduled for Wednesday. I hope as many of you as can will actually come over to the site where we do the work. We do have, as you know, two accelerators under construction: ISABELLE and the National Synchrotron Light Source. All together that involves a total of five synchrotron-type rings and one new linac.

I was reminiscing and recalled that the first linac I ever viewed was at MIT in 1945. I was at the Radiation Laboratory in those days, World War II was beginning to approach its end and people had begun turning their minds to longer range matters because they knew that a lot of the projects then in the Laboratory would never actually be completed before the end of the War. George Collins and, I believe, Ed Purcell and some others, built a curious looking device which kicked around the Laboratory for awhile and consisted of a piece of serpentine X-band waveguide about a meter in overall extent on the top of a little table. This serpentine was pierced down its axis by a circular pipe and electrons were meant to go down the axis and X-band radiation from a magnetron was sent down the waveguide; at the intersection between the serpentine and the pipe, electric fields were supposed to produce acceleration. It was a simple and elegant idea. I don't recall whether the thing ever actually worked or not, but it should have worked--it looked good.

As an outsider, really, to the accelerator field, one who looks in upon it frequently, but not day-to-day, I'm enormously impressed with the progress that has occurred from those primitive days. Back in the time I'm speaking of, accelerators were more or less like the famous dancing bear: the marvel was not how well they worked, but that they worked at all. Now, of course, we do so many tricks--those of you who are in the field day in and day out, perhaps don't quite appreciate the enormous accumulation of skill--we accelerate electrons and positrons and protons and light ions and heavy ions, and even charged dust particles if we want. We do gymnastics wonderful to behold with these particles: We collect, cool, compress, circulate, bend, wiggle, re-inject, transport, focus, transfer, fill, stack, eject, dump. We bump and stuff and hold, strip and kick, store and handle, trim and shave, scrape, polarize and deflect, all in microseconds and with high reliability--most of the time. It reminds one of a circus aerialist act, or the New York subway system. It's done in such a routine way that people in the trade think nothing of it, but one has to be enormously impressed with this virtuosity, this complete technology, which is now in our possession. Of course this has led to practical uses which are growing all the time. You're going to hear more about that from John Blewett in a little while.

I've noticed that your program includes a number of very interesting developments indicating the life that is in the field right now. Such things as rf quadrupole focusing, the production of much higher currents and new schemes for doing that; new permanent magnets which can be applied to the accelerator art and produce fields up to five times as high as we are accustomed to expecting from permanent magnets; injection at lower energies than people used to think possible (Dean John tells me that once he proved that you couldn't inject at such low energies. Well, even the Dean can be wrong). You will hear of superconductivity applied in all kinds of ways and, of course, of interactions with lasers, both in the use of accelerated beams to impinge on laser radiation for various purposes, and the use of lasers to produce acceleration and the use of accelerators to make free electron lasers. All of these things are among the many exciting developments in this very vigorous field.

I am delighted that so many of you found your way out to this remote end of Long Island and I am pleased that you will have a little time to look around and visit the beach and historic Montauk Point and the other sights. You have a busy schedule--I'll not take more of your time except again to say welcome and have a wonderful conference. Thank you.