

**Oak Ridge Technical Enterprises Corporation – ORTEC:**  
ORNL and the first steps to success  
(As published in *The Oak Ridger's Historically Speaking* column on December 6, 2011)

As we continue Hal Schmitt's amazing story of the formation of the first technology transfer at Oak Ridge to form the ORTEC company, a look is taken at the culture at the Oak Ridge National Laboratory in the 1960's and the details of how the ORTEC company got off the ground.

Hal Schmitt continues:

"There were several noteworthy aspects of the culture among professionals at ORNL, especially among researchers. Some of these became apparent, and applied at personal levels, as we were capitalizing the company. These aspects are worth identifying. (Note: This was long before the idea of technology transfer and commercialization of government-sponsored research was accepted, much less promoted, at the Laboratory.)

"First, there was a kind of underlying attitude that said, in effect, any association by a scientific researcher with the business world was "crass," and, basically, was to be avoided. Of course we bought equipment, devices, and sometimes services from businesses, but the idea of participating in any kind of commercial business was much frowned upon.

"Second, in that connection, business enterprises were looked upon as money-grubbing, only profit-seeking, and not really interested in their customers' well-being. In short, a little "dirty." Therefore making any association with, much less ownership of, a business was a little "dirty." All this was contrary to our primary objective in ORTEC – to serve the nuclear physics community in a high-quality, high-integrity manner. Still, since we were setting up a company, we also wanted to operate it in a business-like manner, with attention to financial soundness and making a profit for shareholders.

"Third, in scientific research at ORNL, a prevalent view of employment was that one belonged to ORNL and the Atomic Energy Commission, body and soul, twenty-four hours per day seven days per week. This view contained the element that even in "off-hours," one should be thinking, consciously or sub-consciously, about one's research, or at least the field in which one was working. This in turn would mean that any outside involvement in anything would be a distraction, although allowance was made for participation in civic, charitable, and cultural organizations and recreational activities.

"Stated a little differently, participation in an outside enterprise could give rise to divided loyalties. The rejoinder, of course, was that participation in an outside business would probably be no more demanding than enthusiastic, attention-demanding participation in recreational, cultural, civic, and other organizations. Nonetheless, the question was asked, should ORNL, or any "parent" organization like ORNL, allow its employees to participate in outside business activities?

"What is interesting about all this is that, at that time, we at ORNL were pretty much insulated from the rest of the world, and in particular from the business world, except that some people had investments and owned stock through the major brokerage houses and stock exchanges. Many researchers seemed to have absolutely *no* concept about the conduct of business in the commercial world – i.e. that a business cannot be successful unless it provides products or services that meet someone's needs and that someone wants to buy.

"In short, it must provide something useful or desirable to someone, something beneficial for that customer. Unfortunately, in many cases this kind of language simply fell on deaf ears. But we treaded lightly and didn't argue the point, feeling that each person had a right to his or her view.

"Also interesting as we talked with people was the degree to which some individuals seemed to have almost a missionary zeal in expressing their opinion that scientists should remain 'pure,' that somehow it might be 'wrong' to be involved with any commercial business. Again, our approach in these cases was not to argue, but simply to accept the viewpoint whatever it might be, and go on about our affairs, keeping in mind that ORTEC's larger contribution might well be to research worldwide.

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"It was in this cultural environment that we were working and planning the capitalization of ORTEC. Fortunately, not all of our colleagues were of that mind, and quite a number were intrigued with the idea of forming and possibly building a company – even enthusiastic about the idea.

"In capitalizing the company, we indeed wanted shareholders who were, as we were, supportive of the idea and maybe a little excited by it. No doubt the possibility of financial gain (though uncertain and of unknown magnitude) added a little spice and was enticing too. Our own uncertainty about the future of the enterprise, however, required that we make clear to prospective investors that this was a spare-time, hobby-type enterprise, highly uncertain and risky. In other words, 'don't invest money you can't afford to lose.'

"In view of our uncertainty that the business would be successful in the long term, considering the risks apparent in making the detectors (variable quality sometimes not understood), and in view of the ever-present risk that research funding might dramatically decrease, we decided to treat this in large measure as an experiment, minimizing everyone's initial risk while at the same time trying to begin the business on a financially sound footing. After a great deal of discussion, we made the decision, perhaps naively in hindsight, that initial investments from all shareholders be equal at \$500 for 10 shares of stock in ORTEC, but that stock options and/or purchase rights would be granted as time went along, for contributions made.

"Actually, though not equitable at first (because of the large amount of work by early participants and the importance of those contributions), this process worked out to everyone's satisfaction over the following year or two. We had structurally left open the possibility of future contributions and consequent "rewards" via stock options. (The chuckle among us was: By working very hard you could earn the opportunity to put more of your hard-earned money into this dubious venture.)

"Naturally, participation was first offered to those closest to the research involving the detectors. At this point, we hit our first *major* glitch. We had been discussing detector-making and setting up our laboratory with Jim Blankenship, who was in the research group of the Instrumentation and Controls division and to whom we were looking to be our chief guru on detectors. He had helped us plan and budget the facility.

"He said he'd be glad to participate, also making an investment, but would have to talk with his division director, Borkowski. Blankenship returned after his conversation with Borkowski, saying that Borkowski told Blankenship, in no uncertain terms, not only not to participate further but also not to invest.

"According to Blankenship, Borkowski issued vague threats to Blankenship's employment if he participated or invested in ORTEC. Blankenship enjoyed the research he was doing and did not want to anger his boss, much less risk losing his employment. As a result, he essentially bowed out of the endeavor.

"So --- Shift gears! John Walter's work with detectors was going extremely well, and he and John Dabbs had an excellent handle on all aspects of detector fabrication and operation. In fact, Walter had provided great help to Dave Peach and me in our work at the Laboratory. We asked Walter to join in and be the detector guru for the enterprise, and we asked Dabbs to support the effort and join in as well.

"They agreed. (They were our good friends and we were going to invite them to join in the enterprise anyway.) We went over the facility budget with John Walter and he agreed that it should work. I was particularly appreciative of their involvement; in my opinion that aspect of the operation could not have worked out better.

"Walter and Neiler did oversee and carry out the design and assembly of the detector production facility. Dabbs subsequently wrote the first ORTEC instruction manual for the surface barrier detectors, an absolutely invaluable aid to any user of these detectors.

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"Now back on track with the capitalization, we offered investment participation to our colleagues in the physics division, including division director Joe Fowler, then to researchers in other parts of the Laboratory. We had a few friends in other places who had heard about our endeavor and wanted to participate; so we offered them stock as well.

'Our idea was that all shareholders would have the potential to contribute something (product ideas, a talent, work of some kind, etc.) to the company if they wished. Fowler elected not to invest because he felt that a potential conflict of interest could arise by virtue of his position as division director.

"However, he left any investment decision to each individual in his division. Some elected to invest and some did not. For example, E. O. Wollan, associate director of the Physics Division, elected to invest, and several years later was invited to participate as a board member, which he did.

"Ultimately 14 members of the Physics Division invested, along with five persons from other ORNL divisions and ten persons from other institutions and locations. At \$500 per investor, the total investment was \$14,500, enough for the budgeted setup and initial operation of the facility. [The ORTEC stock bought for \$500 in this initial capitalization of the company turned into about a \$150,000 value when the company was sold to EG&G in 1967, seven years later.]

"A final aside on the Instrumentation and Controls division: I learned, many years later from Alvin Weinberg, ORNL Director at that time, that Cas Borkowski was genuinely concerned about his division being split, i.e. that controversy might arise because some division members would have, and some not have, an association or investment with ORTEC. This, according to Weinberg, was Borkowski's reason for simply not allowing such an association by any of his division members.

"After Blankenship withdrew, we did offer stock to two or three others in the I&C division whose participation we would like to have had, but only then realized that Borkowski was effecting his 'blanket ban' on any such affiliation for his division members.

"During all this initial activity, we were also searching for a location for the planned facility. After looking at a number of available locations in Oak Ridge, almost all of which were unsatisfactory for one reason or another, we decided to locate in two adjacent rooms in the 901 Turnpike building, owned at the time by Ken Thurmond, insurance man and realtor in Oak Ridge.

"The rooms needed painting and 'fixing up' quite a bit, so we negotiated with Ken as to how much of that work he would do or fund, and how much we would do or fund.

"At any rate, on July 7, 1960 we signed a one-year lease at \$75 per month, to include payments for needed plumbing additions, with an option to renew at \$57.50 per month.

"We were now off and running - well, except for those final ORNL approvals that came in August.

Whew, what an intriguing story. Did you ever imagine we had such an excellent example of entrepreneurship in our midst? The atmosphere in which Hal and his coworkers existed in the 1960's was one of first-of-a-kind initiatives and would set the stage for others to follow in the ensuing years.

We will continue Hal's marvelous story next week.

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The Tunnell Building, at the time of the ORTEC startup was owned by a tenant's group with Ken Thurmond serving as president