

Oak Ridge Technical Enterprises Corporation – ORTEC:
The Management Team
(As published in *The Oak Ridger's Historically Speaking* column on December 27, 2011)

Continuing with Hal Schmitt's history of the early years of ORTEC, we pick up at the point where a president and management team is put in place. Hal transitions from early sales growth to the necessary addition of a management team to deal with the rapid growth of the enterprise.

"Sales continued to increase and we were on the road to cumulative sales of \$84,000 by June 30, 1961, the end of our first fiscal year." (Don't you know this tremendous success had Hal and his partners jumping for joy, but at the same time wondering what in the world they were going to do to keep up with the tremendous growth? - Ray)

"During the spring of 1961 the sheer work to be done became simply more than we could do in the arrangement we had set up. So the primary issue became: Should we employ the senior, qualified professionals needed to carry on and continue the growth of the company?

"Having recently decided to employ two technicians together with Don Bates to handle production, we, the board of directors, felt it reasonable to look for and employ the senior professionals we needed. We realized we would have to be careful and deliberate in formulating our own expectations clearly. Then we should be sure to make our help and advice readily available, while giving these professionals the freedom they needed to grow the company in their own ways.

"We made the decision to look first for a president with strong and appropriate managerial experience in business as well as education, training, or experience in engineering or the physical sciences. Our idea was that then, working with us, he would choose the management team that would work with him, and we would employ them as the business could afford.

"I would remain as chairman of the board and was designated to spearhead the search, which I knew would not be easy. Indeed, I made many contacts to try to identify candidates and to find people or organizations that could help us locate good candidates.

"Our biggest assistance in this effort came from an executive search firm in Nashville (whose name I don't remember), that was recommended by a Nashville shareholder. The main partner in that firm, with whom I dealt, took great care and was very thorough in trying to understand our company and to understand as well as he could just the type of person we were looking for, including appropriate abilities and personal characteristics.

"He sent several resumes, probably eight or ten, from which it was fairly easy to select three candidates that we wanted to interview. Two people were from Nashville and one was from Chattanooga – fortunately all nearby, for minimization of travel expense. We invited all three to visit us in Oak Ridge, see the company and the town, and meet the principals in ORTEC. They all three came for one-day visits, on different days of course.

"Among them was Tom Yount, who at that time was managing a Nashville company that manufactured miniature electrolytic capacitors for use in transistor-based consumer electronics. He had a bachelor's degree in mechanical engineering from Vanderbilt University and good training and business/management experience at Westinghouse and in his current company.

"I liked Tom from our first meeting. He was intelligent, very knowledgeable in business, generally knowledgeable about technology, and stimulating to be with. He was roughly our age, and I felt that he would fit in exceptionally well with the rest of our group. When they met Tom, they agreed, though we all wanted to get to know him better. He made a return visit.

"We discussed the possibility of a consulting arrangement so that we could in fact get better acquainted before cementing a long-term relationship. All of us agreed that would be a good idea. And, as they say, the rest is history.

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"Tom began consulting in March, 1961, coming to Oak Ridge one or two days per week. We enjoyed working with him and he enjoyed working with us. Our mutual "comfort level" increased and we established a great collegial relationship. Ultimately constructing a longer-term relationship seemed the natural thing to do.

"We invited Jane, Tom's wife, to come along on one of the trips from Nashville. My wife Jonell and I hosted a gathering of all of the active founders of the company and their wives, eight or nine couples in all, so that the Younts could get acquainted with us, and we with them.

"Of course Tom knew the men by then, and Jane had good people instincts, so the introductions were easy and there was good rapport all around. Not long after that, in May, we forged an agreement under which Tom agreed to join ORTEC as president. He, Jane and their three young daughters moved to Oak Ridge during the summer of 1961.

"Sales per month continued to increase and deliveries were more or less on schedule, although some lagged behind." (Again, the growing pains are obvious. Practical things like meeting delivery schedules is a mundane management task, not likely the type of thing these early entrepreneurs enjoyed dealing with – Ray)

"During this period of time we had come to know Bill Weiss, who was at General Electric in Cincinnati and was working with solid state detectors there. Bill took an interest in ORTEC, and in due course we asked him to join the ORTEC staff as chief engineer to be the in-house detector guru and to lead detector development. He joined the staff on June 1, 1961.

"In the fall of 1961 Bob Dilworth joined ORTEC to take the responsibility for electronic products. Bob had been in the Instrumentation and Controls division at ORNL and was widely regarded as one of I&C's most creative engineers.

"Shortly after that, Harold Carter, until then an independent sales representative for instrumentation products, joined the company to take responsibility for sales and marketing. (This shows the rational thought processes for the practical division of responsibilities and dedicated attention to the details needed to assure the continued growth of the enterprise. – Ray)

"By mid-1962, the growth curve was well underway, and it was clear that the company needed overall technical direction. It was at this point that John Neiler agreed to leave ORNL and come into the company as Vice President and Technical Director.

"John brought to ORTEC an intimate knowledge of the needs of our marketplace and an expertise in nuclear instrumentation that precisely fitted the need in the company for leadership in product strategy together with research and development for future products. He and Tom would work closely together as a team in operating the company and in forming its direction from that point onward.

"At this point, all of the operating functions and jobs that we as founders had done or overseen during the company's early stages had been taken in-house, as planned. We could then act as consultants and board members with John and Tom, bringing ideas and working with them, consulting on specific project, product and market ideas, responding to questions and requests, and generally helping form the overall direction of the company,

"Sales and earnings continued to grow, year over year. A table of sales for the first four years of ORTEC is as follows:

FY 1961	\$ 84,000
FY 1962,	\$ 424,000
FY 1963	\$1,102,000
FY 1964	\$1,507,000

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“And of course sales continued to grow after 1964, with the further addition of product lines and businesses:

FY 1965	\$2,129,000
FY 1966,	\$3,805,000
FY 1967	\$4,700,000

“It is not an exaggeration to say that, after 1962, the growth and ultimate success of ORTEC was a result of the contributions, hard work, and diligence of Tom Yount and John Neiler – contributions that were innovative and of highest integrity and honor.

“Very early after the formation of ORTEC, Charles Moak, Bill Good, and Jim Johnson, all of whom were in the ORNL Physics division and were original investors (Jim was one of the six founders), had the idea to make and sell ion sources for Van de Graaff accelerators. They regarded ORTEC as the ideal vehicle and promoted doing this business activity in parallel with the surface barrier detector work.

“A case could be made for it, as it was a unique product. It was invented and developed at ORNL, different people would carry the responsibility, and not much money would be required. The board, not wanting to say “no,” approved the business in July, 1960, and the budget of August 6 included an ion source production item.

“A bureaucratic snag that had to be overcome was that we were required to purchase the drawings from the Atomic Energy Commission, even though the people involved had been the developers and knew the design completely. The reason for this requirement, said the AEC, was that the design was proprietary to the AEC.

“They added, however, that once we bought the drawings we would be free to do what we wished with them, including making and selling the units. It turned out that the purchase was easy enough, as was setting up this little business.

“Not many units were sold, but in the early days of the company we made a little profit on them, and it was good to have Charlie Moak and Bill Good involved along with Jim Johnson.

“Jim had designed a needle valve with special features that allowed very precise control of gas flow. This design was in the public domain and we offered the needle valves as an accessory product.

Soon after the company began fabricating detectors Dick Murray, a friend and investor, brought forward the idea that the company could use surface barriers in neutron detection, and perhaps in neutron spectrometry. Neutrons incident on a thin layer of ^6Li produce alpha particles and tritons, which would produce pulses in the surface barrier detectors. Pulse heights are related to particle energies, and in turn to the incident neutron energy.

“The neutron detector could be made simply by fabricating a metal plate or foil with a ^6Li deposit on one face and mounting it above the sensitive area of a surface barrier detector. Overall, it was a simple adaptation and an additional product for ORTEC.

“New product ideas in electronics included, for example, a precision pulse generator for calibrating the detectors, a single-channel analyzer or discriminator, timing circuits and others. At this stage in the field, NIM electronics had not been instituted yet, and units were largely self standing. (An interesting fact: According to Fermilab’s web site, NIM originally stood for Nuclear Instrumentation Method in 1964, later the acronym came to stand for Nuclear Instrumentation Module and now I find that most references use NIM Standard without attempting to define the acronym – Ray)

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"In ORTEC we began a line of electronics early, beginning with the preamplifier, amplifier, and continuing with a steady stream of related electronic units that would aid in use of the detectors. But the real proliferation of electronics began later when NIM standards were instituted.

I realize I began the series on ORTEC's early history with this summary, but I want to repeat it here to emphasize the success of the enterprise as we conclude Hal Schmitt's excellent history of the early years of ORTEC.

Hal ends his history with, "To conclude this phase of development, let's summarize ORTEC's accomplishments, from its formation and through the first few years of its existence:

1. It made the then-new silicon surface barrier detectors reliably available commercially.
2. It made the low-noise, charge-sensitive preamplifier and associated amplifier reliably available commercially, along with other new products and product variations.
3. Its products enabled new and significant research to be carried out in laboratories throughout the world, leading to important advances in nuclear physics.
4. It introduced new standards of high integrity into the nuclear instrumentation market, testing and guaranteeing every unit sold, and replacing any unit that was faulty on delivery to the customer. It provided scientifically written operating manuals. Note: These practices and standards were wholeheartedly embraced by the marketplace and were eventually adopted by the industry.
5. It established an internal culture for the company, which called for excellence, enthusiasm, diligence, intelligence, honesty, respect, and trust matched with trustworthiness. This culture, as far as I could tell, endured throughout the life of the company and helped make ORTEC a good place to work."

What a great treat it has been for me to publish Hal Schmitt's history of ORTEC's early years. I also want to express my sincere appreciation for the many phone calls and emails I have received regarding this series. I believe it is truly a seminal event and of utmost importance to understanding the long term history of what has happened here in Oak Ridge, and I might add, continues to happen TODAY!

We focus on the Manhattan Project history, and rightly so, but the history of what has happened here since 1945 is important to putting Oak Ridge history in proper perspective. ORTEC is an example of that more recent history that MUST be captured and appreciated. Thanks Hal!

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ORTEC Building 1, the first location owned by the ORTEC and the building that caused Juergen Stein's to want to own THE FIRST building where historic Oak Ridge instruments now recognized worldwide as leading the radiation detection market were first developed