

Oak Ridge Technical Enterprises Corporation – ORTEC:

Growing the business

(As published in *The Oak Ridger's Historically Speaking* column on December 20, 2011)

I have just recently come to know Barry Stanner and Juergen Stein. Barry is the Vice-President, Radiation Detection, Chemical, Biological, Radiological, Nuclear and Explosive Detection (CBRNE) of Forward Looking InfraRed (FLIR) and Juergen is General Manager of the same company. Additionally, Juergen is the owner of "historic ORTEC Building 1" at 100 Midland Road that was the first building built for the historic company Hal is telling us about, Oak Ridge Technical Enterprises Corporation (ORTEC).

Following Hal's history of the early days of ORTEC, I will tell you the amazing story of how Juergen came to purchase this first ORTEC owned building and how he formed the enormously successful companies he has owned and sold leading up to his present business arrangement. His is an amazing story and his love for Oak Ridge and our history is even more amazing...I can hardly wait to tell you his story!

Just a bit of a tickler for what is coming: One of Juergen and Barry's detectors, the "identiFINDER2," was featured on the popular television program "CSI" shown on Wednesday evening, 12/14/11. It was used twice to detect Iodine 131 in cat litter! This helped solve a murder. While the story was fiction, the detector is real and is an amazingly accurate and small hand held instrument.

That instrument is described by Barry by saying, "although the external casing looks almost the same as the original IdentiFINDER, and the measuring electronics are indeed more or less the same, everything else is light years removed in terms of capability and communication capability. He further states that 14,000 customers are presently using this instrument...made right here in Oak Ridge!

Now let's continue with Hal Schmitt's story of ORTEC's history and how the company grew:

"Since the surface barrier detectors were completely new items on the scientific market, there were few obvious benchmarks for pricing. As might be typical, we calculated a price based on reasonable costs (including the paid full-time labor we would eventually need), plus reasonable profit. However we quickly realized that, depending on sales, this would not pay for our investment, much less for further product improvement and development of additional products.

"In our discussions, I proposed that useful benchmarks might be the prices for other types of nuclear radiation detectors, e.g. detectors for gamma rays, beta particles, and even alpha particles, almost all of which were scintillation detectors or ionization chambers of various kinds. Those prices ranged from one hundred to one thousand dollars.

"At about the same time, we learned that three other companies were just beginning to offer diffused-junction detectors, whose function would be mostly similar to that of our detectors. Those companies were RCA Victor of Canada, Hughes Aircraft Company's Nuclear Electronics Laboratory, and Solid State Radiations, Inc.

"Their detectors were all of small size and were priced in the \$100 range. Also, those companies were not testing or guaranteeing their detectors, nor did they furnish an operating manual or instructions. For these reasons we essentially chose to ignore them in forming our strategy, although of course we took note of the ~\$100 prices.

"Given all those factors together, we felt that prices for our detectors ranging from \$40 to \$200, depending on size and alpha-particle energy resolution, should be attractive to researchers. These prices would allow us to select 'good' detectors for shipment, to supply the test spectrum taken with each particular detector with an operating manual, and to guarantee the detectors we shipped.

"Our guarantee was to replace any that were faulty on delivery to the customer. The additional margins, above 'normal' levels, would provide the company funds for product development, working capital for growth, and a very decent profit level as well.

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“For a private company such as ORTEC, one would not expect financial information to become public. Still, for ourselves, we wanted to be on good philosophical ground. Our thinking along this line was that customers, should they happen to learn about the company’s attractive margins in particular, would in the long run appreciate that those margins allowed the product guarantees, the development of product improvements, new products, and new applications important to research.

“At the time the first price list for ORTEC instruments was printed we had not yet determined the high-end prices, though we listed the detector sizes and resolutions we knew we could attain, with a request for inquiries from persons interested in those products.

“Throughout that early period we were working hard to get ready for the IEEE (Institute for Electrical and Electronics Engineers) Conference on Solid State Detectors to be held in Gatlinburg, Tennessee in October 1960. Several manufacturers were to exhibit, and ORTEC was included.

“This was, in fact, the company’s first exposure to the outside world, and indeed the first knowledge the outside world had about ORTEC. The conference was attended by instrumentation specialists as well as nuclear physicists who were users or potential users of solid state detectors and associated equipment.

“We shared our booth with *Tennelec* (Ed Fairstein), who showed the preamplifier and amplifier. [Note: *Tennelec* worked closely with ORTEC to help this young startup company get going – Ray]

“The response was overwhelming, as was the response we received from a direct mailing to some potential customers at about the same time. The direct mailing, being the first from the company, provided information about ORTEC and the detectors and electronic system it could supply.

“To our surprise and delight, these two things, the conference and that direct mailing, accelerated activity in the company and its growth at a rate far greater than we had anticipated.

“Orders in house by November 30, 1960, six weeks after the Gatlinburg symposium, totaled \$4,600; by December 31, \$13,200; by January 31, \$27,100; and by February 28, over \$40,000. These of course were not large numbers by industrial standards, even of that time, but they looked large to us as we were trying to keep up with them in our spare time. This was simultaneously exciting and frightening!

“Although two or three shareholders took some lessons to learn steps in detector fabrication, it was clear early in the game that we would not be able to keep up with the orders. We felt it necessary, therefore, to hire first part-time, then later full-time, technicians for detector fabrication.

“Don Bates, a senior-level technician known to several of us, joined in early as a part-time employee, later becoming full-time. Compensation for his first months in ORTEC was mostly in stock, minimally in cash, but he was enthusiastic about the company and agreed to this whole heartedly.

“The first order for detectors was from Rice University and arrived on October 14, 1960. A few weeks later saw the delivery of the first few detectors, and we were receiving genuinely enthusiastic responses from the researchers who had purchased them.

“In addition we were beginning to receive orders for the preamplifier-amplifier system. As John Neiler and Tom Emmer had worked out, *Infabco* fabricated the units; Ed Fairstein checked them out and certified them. [Note: See the helping hand – Ray]

“It is perhaps interesting to look at the list of ORTEC’s very first customers. These were, during the first month: Rice University, Iowa State University, General Electric at San Jose, Texas Christian University, Phillips Petroleum Co., Argonne National Laboratory, Livermore Laboratory, and General Electric at Idaho Falls.

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"Over the next few months our list of customers included laboratories, companies and institutions over the entire United States, and the number was growing. Exciting times!

"We, the ORTEC founders, never did seek publicity in the press. Given a choice, we would rather avoid it. However, the activity of company participants, and probably the local excitement about the company, eventually caught the attention of the local newspaper.

"The article in the September 12, 1960, issue of the Oak Ridger, constituted more or less the first announcement to the public that the company had been formed. Of course the 'H' added to the name ORTEC was incorrect, but for the most part the article was okay in its story. We noted with appreciation the little encouraging comment in 'Editorial Sideglances' two days later..

"*Nucleonics Week*, a national news magazine for the nuclear industry, learned about ORTEC through the Gatlinburg conference and published a small notice on their 'Radiation News' page, October 27, 1960. This notice was the first national publicity the company had, other than our own mailings to potential customers.

"By mid-to-late January, 1961, we realized that the exciting growth curve we were seeing was almost certainly real. We would have to decide whether to hire full-time personnel to see to the operation of the business, or slow down our responses and service to customers to a level at which we could handle the business on a part-time and/or extracurricular basis.

"We had only two meetings on this subject, and fairly quickly decided to hire full-time personnel whom we could teach the processes and procedures and supervise as necessary in off-hours. These would be technicians and would put the company on a professional footing.

"We left open the possibility that a senior-level technical person (engineer or physicist) might be employed if one came on the scene. If the business continued to grow, we realized we would have to fill the usual full-time management positions to keep it going, i.e. president, vice presidents for sales, production, finance, research and development, etc.

"But that would be a later decision – or so we thought. Actually, we would have to make this decision within two to three months!

"A brief anecdote concerns the unforgettable hiring of our first two technicians. The month was January 1961, a very cold period in mid-winter less than a month after the Christmas season. We had placed a help-wanted ad in the Oak Ridger (local newspaper), suggesting that interested people call to set an appointment time on a Saturday, the day we designated as interview day.

"The day, expected to run from about 8:30 AM to 5:00 PM, with about 30 minutes for lunch, was quickly booked up with about three appointments per hour. Kurt Kraus, a senior researcher in the chemistry division and a shareholder, and I would do the interviews and essentially select the employees. Neiler and Walter would approve them.

"When that Saturday morning came, the roads were iced over and three inches of snow covered the landscape. Kurt and I nevertheless slogged into the office-lab at 901 Turnpike and got ready for the interviews.

"We agreed that applicants' just showing up would be a test of their desires to work. It would have been easy for them to call to request a postponement. But I don't remember any such calls, and we had every bit the busy day we had expected.

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"Kurt and I had talked quite a lot beforehand about the characteristics and traits we would look for in a technician. At this level and in a new area, technical expertise was less important than strong interest and some aptitude.

"Genuine (not superficial) enthusiasm, drive, and the ability to work independently but very responsibly would be important characteristics. Finally, we wanted the new employees to recognize, and be excited by, the potential growth of the company, but also recognize that as a startup enterprise it might not make it.

"They should be comfortable with that risk. Elimination from consideration was easy where there were indications that employment security ranked high among the applicant's priorities. The challenge for Kurt and me was to assess all these things without asking direct questions that would lead applicants to give responses we wanted to hear.

"We had twenty-two interviews that Saturday. Afterwards our short list contained only four or five persons as I recall, and we invited them back for a second interview. After that and after checking references, we selected two young men – some might say unlikely candidates. But they appeared to both of us to have the right traits and attitudes, and we felt they would be excellent in their jobs.

"Bob Boshart was employed by Samuel's, the men's store in Jackson Square, as primarily a shoe salesman. He was intelligent, and he was keeping track of technical activities in Oak Ridge through the newspaper and word of mouth. He deeply wanted to work for an entrepreneurial company in a technical field.

"Archie Lee was a technician, black, intelligent, and employed in a laboratory at Oak Ridge Institute for Nuclear Studies. He felt somewhat trapped and limited. In a nutshell, he felt he had advanced as far as he could and he sincerely wanted to work in one of the technical companies in Oak Ridge.

"Both of these young men came into the ORTEC enterprise and took hold enthusiastically, learning with attention to quality and detail, just the way we wanted. They worked well with John Walter and John Neiler, and their efforts contributed in major fashion to the growth of ORTEC.

"Both Kurt and I were very pleased, in later years, to see that both of those young men performed exceptionally well in ORTEC. As it grew, they became leaders in their work and were highly regarded all around. Both became supervisors, and Archie Lee much later went on to accept employment in a very responsible supervisory position at the Hughes Research Laboratory in Malibu, CA.

Next we will see the tremendous growth continue and conclude Hal's early history of ORTEC. Then I want to focus on the recent history of historic "ORTEC Building 1" and its current owner, Juergen Stein,

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ORTEC begins construction on its first real home in 1963, a new building at 100 Midland Road and fronting on South Illinois Avenue