

Val Garuts' idea of fun

"We're supposed to build products and make money"

By DON LEIGHTON

(Editor's note: This is the second in a series of interviews with Tek's chief engineers and scientists. The Chief Engineer/Scientist designation represents the highest level in Tek's six-step career path for engineers and scientists.)

"Hey, this is great! It actually works," Val Garuts thought to himself when he turned on the first oscilloscope he ever built. At the time, Val was a 13-year-old Latvian refugee living in Australia who had just recently developed an interest in electronics.

That project was inspired by a Tektronix schematic that he "got ahold of somewhere" and various parts scrounged from surplus stores and elsewhere. "The first thing I ever built as a hobbyist was an oscilloscope," he recalls. And he's been building oscilloscopes that work ever since.

Just as his first oscilloscope made a lasting impression on his professional career, his earlier experience as a refugee has had a continuing influence on his social life.

Val was born in 1939 in Cesis, Latvia, a country occupied during World War II first by Russia, in 1940, and then by Germany, 1941-44. After the Russians made their goal-line stand at Stanlingrad and started heading west, the Garuts family chose to emigrate to what is now West Germany. After the war there was a big emigration of refugees to many parts of the world and in 1949 the Garuts family chose Australia."

"In principle, I don't think it's right for one country or nationality to oppress another, which is what the Russians are doing to the Baltic States (Latvia, Estonia, Lithuania) and many other nations. Other than that, I'm not a political activist. I maintain cultural ties with my background, but not political."

Those cultural ties include speaking Latvian at all possible times with his family (wife Dace, and sons Andis, 22, and Dainis, 15) and other Latvians who've settled in the Portland area. "We correspond with people in Latvia, and visit there when we can, and generally just keep in touch with the heritage."

Besides maintaining a cultural link, Val's other non-work interests include flying, skiing and hiking.

From the time Val built his first scope, he never considered any other career than electronics. He

We have a long history of successes, and we expect to continue with that in the future.

went on to earn a Bachelor of Electrical Engineering degree in 1961 from the University of Queensland, Brisbane, Australia. He stayed at the university as a lab technician and associate professor for two years before making another geographic leap—this time to Toronto, Canada, where he worked for a year before coming to Tek Beaverton in 1964.

In recognition of his achievements at Tektronix and his stature in the industry, Val was named a Tektronix chief engineer in 1981. He is one of only ten people currently holding that title at Tektronix.

Val discusses his professional career further in this *Tekweek* interview:

What can you tell us about what your group in Tek Labs (Advanced Data Acquisition Research) is working on?

We work with high speed analog to digital (A/D) conversion. So confirming that we are working in an area related to our key business shouldn't surprise anyone. In A/D conversion, customers want more speed. Period. What is obviously needed in the market right now and what can reasonably be accomplished technically are miles apart. So whatever we can do to get faster A/D conversion is a shoo-in to be accepted in the marketplace.

Why is high speed A/D conversion so important to Tektronix?

The major market opportunities and technological advances will be in digitizing waveform instruments. What shape all these new products will take, we don't yet know. That's what makes the A/D field interesting and exciting.

Digitizing is an area we must get on with if we intend to stay in the scope business. And that's what our lab is doing.

Is there a future for conventional oscilloscopes?

I don't see conventional oscilloscopes ever going away because they represent years of tremendous technology investment. It's impossible to duplicate what a conventional oscilloscope does by any other means and do it cost effectively.

Val Garuts—

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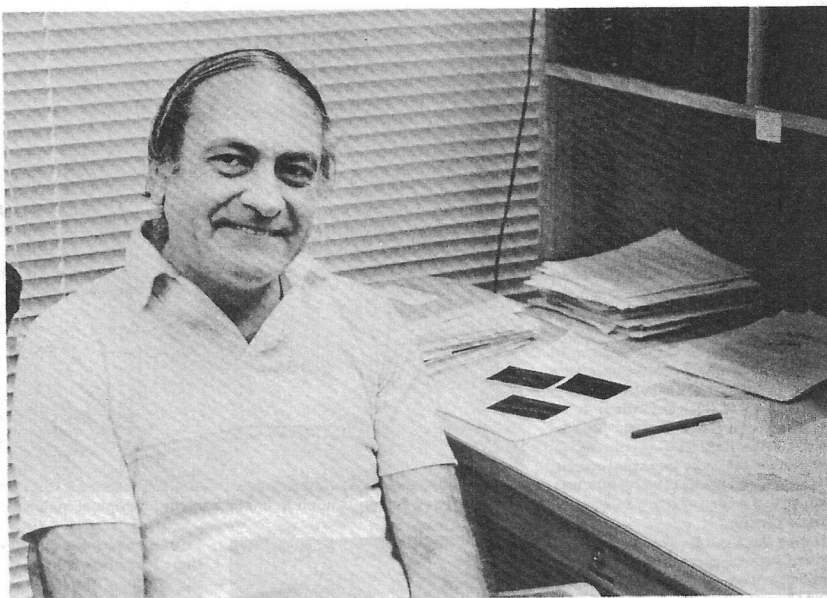
fact be turned on by the technical challenges. I include in that the challenge of doing something which is useful, that somebody will want to buy.

Are we getting a lot of people into engineering who really shouldn't be in it?

When you're choosing a college education, it's not easy to figure out what you want to be doing when you're 40. In one sense, an engineering education is a very liberal education. If done right, it has taught you to think. It has taught you to learn. It has to, otherwise you can't be an engineer, or a technologist of any kind. It has taught you to be rational, to seek new knowledge. So it's a good springboard.

If you come in as an engineer, you might contribute there for a while and then decide that your real skills and opportunities lie elsewhere, in some other branch of technology, or as a manager. And that's OK. Everybody wants to contribute as best they can, so I don't necessarily see people who move into management as defectors. If people are successful at something, that usually means they do it well.

On the other hand, some of us decide that our careers lie with technology so we do whatever it takes to stay with it. I don't see that it's any more difficult to stay current in technology than it is in any other field of endeavor. You just have to spend some time with continuing education, either formal education or on the job.



Val Garuts: "Ultimate high" is designing products that do great things for customers.

The trouble is that anybody can build a 150 MHz scope. So the nature of that business has changed from being technology driven to market/sales/manufacturing driven. We're slugging it out toe to toe, dollar to dollar, feature to feature, and that leads to a high volume, low profit business. Though excellent scopes will still be around, the profitability has gone out of them—at least the kind of profit we're used to having at Tek.

Is your work theoretical, or is it directly product related?

Both. It's easy to crank out concepts and theories about the future. What we have to do is actually demonstrate things, real hardware and real software that works, before we've done our job.

There is a future, however, beyond the present products. So part of our group looks at more speculative things that will have a big payoff if they work out. Those kinds of things are riskier, but it's in our charter to take those risks.

About two-thirds of our efforts, however, are directed at early feasibility engineering. Those projects, if successful, will become parts of products, or they may become the basis for a whole new product.

We don't solve technical challenges just to solve them. We're extremely interested in seeing our solutions in the hands of customers and generating cash for the company.

How do you like managing compared to engineering?

Management has a number of pieces to it. One part is administration which, in general, has nothing to do with the particular work going on. That's an area I don't enjoy one little bit.

But in this job, I'm working with peers, providing

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some technical leadership, contributing technically myself, and doing what administration is required to keep the group functioning. That's fine. I enjoy doing that.

In my previous work at Tek, I tended to be the point man on new product types. I'd take the product through the concept stage to about design completion, when one had been built and it was clear how to build the rest of them. That's the part of the project I really did well at. The administration and crank turning that happens next is really not of much interest to me.

My skills are technical, and I like to contribute my skills to the company, not my weaknesses.

What kind of people did you recruit when you formed the group two years ago?

I wanted to get a core group of very highly qualified people, and you don't get to be highly qualified without a lot of experience. As a result,

You left Tek a couple of times for other jobs. What did you learn from those experiences?

At a company in Houston, I was the entire engineering department, and I discovered I don't like to operate that way. Quite unknowingly I'd grown into the rich, supportive engineering/technical community at Tek. I hadn't realized until I left Tek to what extent that environment supported me and enabled me to function.

In addition, I can better appreciate what Tek is, and of course what it isn't. At least I have a context in which to judge the environment. If things sometimes seem bad around here, I can always tell myself, "Yeah, but it's worse outside."

Tektronix and I are apparently inextricably tied together. It's impossible for me to visualize working for another company for any length of time.

Is there any project or idea that stands out as one you're especially proud of?

I'd pick the 7854 concept and product. The 7854

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is basically a 7000 Series mainframe with a waveform digitizer and a waveform calculator attached to it and a digitally stored data display on the CRT. In a sense it is the grandfather of the new generation being built in lab scopes. It was the conjunction of oscilloscope technology with waveform digitizing and computational data analysis.

The earlier things I did (7904, 7104 systems) were primarily performance extensions of existing product types, a faster scope, a more accurate plugin, etc.

most of the core group is about my age.

A big influence on recruiting is that this is an analog group and analog experts are few and far between. The U.S. educational machinery didn't turn out many analog people in the years between '72 and '80 because the emphasis was on micro-processors, digital, VLSI, all the glamour things. As a result, it's difficult to find analog professionals in their mid 30's or early 30's. That has started turning around in the last couple of years, though.

What do you look for in people you interview?

Intelligence and adaptability seem to be the key words in analog engineering. Analog is much broader than digital. Therefore, one needs so many skills that it's impossible to be expert in all of them. Generally I look for good depth of basic understanding—basic math, basic physics. Those don't change. They need a solid theoretical and technical background to build on, plus the ability to build on it. So in interviewing, I'll ask about things they will not have seen before. I don't grill them for an hour

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that way, but they should be able to think through something they haven't seen before.

When you interview people, what do they want to know about Tektronix?

That varies tremendously, but lately people have been asking considerably more business type questions than they used to. Why have Tek stock prices been going down, or up? How do you work among the various divisions? How do you cooperate? What's the infrastructure that you have to wiggle under to get anything done? What will be expected of me? What are advancement and promotion possibilities? Where is the company headed? What are you doing about the Japanese competition?

People looking for a career ask about the technical side. In a lot of companies, the theory seems to be that if you're an old engineer, you're over the hill, that you must not be any good or you'd have made it into management. All the people I've interviewed show a concern for that. They want to know whether there is a future for them at Tektronix if they stay technical.

What do you tell them about Tektronix?

I tell them, first off, that we are a large company, that we have a long history of successes, and that we expect to continue with that in the future. In other words, that this will be a stable, ongoing environment to work in.

Beyond that, I try to sell them on the technical challenge and excitement of working in my group. I use that as a screening process. I deliberately don't want people who are looking for stepping stones to a management position. I want people who will in

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But the 7854 was a departure from the types of products Tek had built before so we couldn't just copy the previous architecture. That made it technically exciting.

Do you think of your work as fun?

Yes. Absolutely.

Why is it fun?

For me, fun is accomplishing something that isn't

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obvious, that I didn't know how to do before, that maybe others haven't done before. Doing new things that weren't obvious is a lot of fun to me. I guess it's success in the task that I set for myself. I suppose success is fun in its own right.

Does designing products that will do great things for customers out there somewhere enter your thinking?

Yes. That is the ultimate high. For me, just solving a technical problem for its own sake is not relevant. I have to see a clear path to making a profit for Tektronix out of that solution. That's one reason the 7854 was so exciting, so much fun, if you like. It was not only new and different, but it quite obviously succeeded. I don't find any fun in coming up with nifty new things that nobody will want to buy.

This is a product company, and we're supposed to be building products and making money from them. I'm a tool maker, and if my tool users don't like my tools, I'm neither contributing nor having any fun, especially at Tektronix. □