

Those computer gadgets a salesman's dream

By Lynde McCormick
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LOS ANGELES — "This is probably how Frankenstein got started," speculates Gary Niles to the four or five people clustered around the small device. They chuckle at the thought, but just a bit uneasily.

This device is most peculiar. About 10 inches long and 6 inches high, roughly the size of a child's toy truck, and mounted on four toy truck tires, the "thing" consists of a gaggle of electronic circuit boards jammed together in tiers. A spaghetti dinner of multicolored wires connects the device to an assortment of large electronic instruments — oscilloscopes, a computer, others.

Perched atop this electronic tangle are two little black eyes. Every now and then they rotate 360 degrees, and when someone walks by they follow his movement. John Ross puts his hands in front of the things eyes and moves it back and forth; the eyes follow.

Our little group is suitably impressed, delighted, and a shade dumbfounded, even those among us who know John Ross and his creation. This is state-of-the-art, high technology electronics — with a twist. Ross used to apply his considerable talents to missile systems, but now the key word in his career is "toys."

This little device with the mysterious black eyes is a toy, one that is probably a year or so away from the toy store shelves, one that will be expensive — probably between \$50 and \$100 — if it ever goes into production. If it does, though, the Ross robot will be able to roll along the floor and pick its way through whatever obstacles confront it. Or it might follow its owner anywhere he or she decides to walk. Or it might respond to voice commands. Or it might do all of the above. Or it may never go any further than Ross's workbench.

No matter. He's having a good time trying to program his creation, putting "intelligence into an inanimate object," as he explains it, and having fun is all in a day's work at Smith Engineering.

Ross is one of about 15 people at Smith Engineering who design electronic toys, the kind that were heaped under thousands of Christmas trees this December. It is a huge industry worth half a billion dollars last year, and the boom is just beginning to gather momentum. It brought \$1 million to Smith Engineering in sales and royalties in 1979, double the take of 1978. Even though toy design represents only about half of the company's high technology electronics business, it is important enough that everything else is referred to as "nontoy" sales.

Smith Engineering is the brain child of Jay Smith, a man who often approaches a problem by playing a quick game of electronic football. Like Ross, he used to work on missile systems — his career started with a job at TRW, Inc, the California electronics giant, designing guidance systems for the Titan and Minuteman missiles and analyzing some crucial elements of the lunar excursion module.

The most popular of Smith Engineering's products is Microvision, a hand-held video computer game manufactured by Milton Bradley. Another, Sound Gizzmo, went on the market just recently and promises



Jay Smith with some of his computerized gizmos

to be equally successful. It is a hand-held blue box that allows the user to synthesize a variety of sound effects: helicopter, space ships, laser guns (a la "Star Wars"), speeding cars, explosions.

"That particular toy came about when we built a sound box to demonstrate the potential of a TI (Texas Instruments) sound chip. A "chip" is a trade term for a microprocessor, the tiny electronic "brains" of practically every electronic device. People always wanted to play with it, so finally this one company said, 'Can you make it for us for under X amount of dollars?'" recalls Smith.

His staff does not actually make toys. Staffers just think them up, design them, and build a prototype for someone else to produce. Occasionally, staff members originate a toy idea, but the majority of their work comes when a company — Milton Bradley, Playskool, Aurora, to name a few — presents them with a problem, such as "Design us a computer sports game for kids 10 to 14." The staff — computer and electronics whizzes, modelmakers and "circuit heads" (the guys who translate the designs into electronic circuit boards) — gather around the conference table to brainstorm. Then they head off for their respective work areas to design and build the toy.

Now, if this were your typical toy factory, a writer

might be tempted to say something like, "This is a place where the business of making toys is taken seriously." The only problem, though, is that nothing at Smith Engineering is taken seriously. For example, the style of brainstorming would get most of us fired for goofing off. It is not a place where the form and symbols of a traditional workday receive a whole lot of respect. If a time clock were to appear at the front door, it would be rewired within an hour to shriek with laughter every time the boss made a telephone call. If someone decides a problem can be studied better at home, no one blinks an eye if he or she walks out the door.

"When somebody says they'll think about it over the weekend, chances are pretty good they will do just that and come back with a solution," says Smith. "I don't know how I can quantify the results that this approach brings, but I don't know how this sort of work could be done any other way."

The people at Smith are pretty much nuts, and they have a fine example in the boss. On at least one occasion, just before a TV crew's appearance, someone brought in a machine that makes cobwebs and covered every corner with the stuff. Mr. Smith, giving the TV crew a tour of the shop, just brushed the cobwebs aside as he went, as if it were an everyday occurrence.

His philosophy is that if someone is going to have fun

playing with his toys, his people have to have fun making them. Besides, if he tires of the antics of his staff, he can always retreat to his office where he has toys and games of his own.

The uniqueness of the place becomes quickly apparent by the hundreds of rubber bands covering the carpet. No sooner have the words "Look at all the rubber bands" left one's mouth than another one goes whizzing by the ear, followed in close order by another that twangs directly into the back of same ear. Rubber band fights are an integral part of the daily regimen.

"We've found that No. 19 rubber bands work the best," says general manager Gary Niles. "We go through about 1,000 a week. A rubber band fight can break out any minute, and the air becomes filled with flying rubber bands. And these guys are really good. Most of them can hit a styrofoam cup at 30 feet." Between official projects, Smith staffers work on various forms of rubber-band guns. One fires a broadside of 30 No. 19s at once. Let's not forget that these are the same people who worked on some of the key missile defense systems for the United States.

"The craziness is important," says Smith. "If we have a group of people looking within a system for the solution to a problem, then the craziness might prompt one of them to look outside the system, to look in an illogical place for the answer. That is frequently where you find it.... You have to set up a situation that will open up the floodgates and let the creativity come rolling out."

Ross's creativity comes flooding out in other ways, too. One of his "hobbies" is producing strange noises on stranger instruments, one of which looks like a tuba tied into a double-half-cross-over-inside-out-knot. Most of them are made out of black plastic pipe, and all were made of precise, more or less, dimensions to achieve a certain resonance and pitch. When Ross and a few cohorts get together for their version of chamber music, the building shakes, and neighbors start asking about the Richter scale.

Every so often, most of the company troops over to an enormous drainage ditch that carries a stream under a nearby neighborhood. Ross sets up his instruments in exactly the right place, and he blows. He has figured out the exact key of the tunnel (D minor) and his instruments are tuned to that pitch. The sound sets up tremendous vibration in the tunnel "that just sort of holds onto you. Your clothes start fluttering," Ross explains, his eyes lighting up at the thought.

Like most of the programmers, technicians, designers, and assorted tinkers at Smith Engineering, Ross has been "this way" since childhood.

"I started designing robots when I was four years old," he says. "All these guys are the sort who have been building computers since they could talk," comments Mr. Niles. "You know the sort I mean. There was always one science nut in everybody's school, and all the real zany ones ended up here."

Since kids frequently are better at electronic games than adults, Smith sometimes takes the games home to his son, 11-year-old Spencer, for a road test.