

California 'Tank' Makes Great Stride With Toys

By RON S. HEINZEL

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SANTA MONICA, Calif. — It doesn't take long for a first-time visitor to Smith Engineering here to realize that this isn't your usual scientific company.

The first clue was when Diane, the receptionist, shot a rubber band at the visitor, stinging him in the fanny. The second was when the caller was escorted in to meet the company's founder, Jay Smith III, and discovered him playing with a child's jump rope.

Smith Engineering, in fact, is a very serious business — a think tank for creating electronic toys and games — but the atmosphere is more Animal House than IBM.

Starting with its president, Jay Smith, the company is staffed with electronics and computer geniuses who create the toys and games and sell them to big-name companies such as Milton Bradley, Aurora and Playskool. Last year the company racked up \$1 million in sales and royalties, double 1978's take.

The profit performance is especially impressive in light of the fact that the operation has about as much discipline as a Marx Brothers movie. Jay Smith not only encourages his geniuses in their craziness, he joins them.

"These are creative people who do not operate well under a 9 to 5 structure," Smith says. "They have to relax and get their minds free. I tell them, 'Now's the time to let your minds wander — give me a library of items.' Out of the play might come a new display technology from one of the guys fiddling with lights, or a new sound from one of the guys punching computer keys."

Smith puts the jump rope aside, commenting that "this is probably the worst designed toy in history." The visitor couldn't disagree — it consisted of an ugly plastic rope capped with two ugly-looking handles that defy description.

Who designed it?

"I did," Smith admits. "But something was lost between the original design and the finished product. It was supposed to make a whirring sound when you twirl it. But the manufacturer tried to cut costs, reduced the noise makers from two to one and changed the design. It was a flop."

Smith set the rope aside and

picked up his most successful invention to date: Microvision, a hand-held minivideo game which he licensed to Milton Bradley. Smith snapped in a cartridge for a game called Blockbuster in which a player knocks down a wall block by block with an electronic blip aimed by a "paddle."

Smith began the game intending to demonstrate it for the visitor but became so engrossed in knocking down the blocks that he lapsed into silence until he won the game.

"Sometimes Jay will start showing a toy, then end up playing with it and playing with it until everybody goes home for the day," a co-worker confides.

While Smith concentrates on the game, the visitor's attention is diverted to sounds of pistol shots, helicopters and sirens coming from somewhere down the hall. Then the whole room begins to vibrate from a racket upstairs that's best described as a cross between a rhinoceros in heat and the Queen Mary in a heavy fog.

"Oh, that's just the guys playing," Smith says. "Let's take a look." Before starting the tour he picks up his productivity prodger, a plastic box about the size of a pack of cigarettes. Smith presses a button to demonstrate the device and a half dozen voices emanate from the box chanting, "Get back to work! Get back to work!" It is not a recording, all the voices are synthesized.

The first stop is reassuring — the building isn't under siege by the SWAT squad after all. The gunshots, helicopters and sirens were produced by staffers playing with the company's latest product on the market — the Sound Gizmo, licensed to Fundimensions, a unit of CPG Products Corp.

The Sound Gizmo is a hand-held synthesizer that can produce innumerable realistic sounds by moving the controls to various settings. The staffers are conducting an audio battle with their Gizmos.

Out of the play might come nothing, or a new sound. It matters not to Smith — he has his own Sound Gizmo that he plays with.

A trip upstairs to the computer room reveals what has set the building to shaking. Seated atop desks and chairs in the room full of computer terminals are four or five staffers playing a "concert" with

some of the strangest musical instruments ever seen.

The instruments are grotesque horns made of various sizes of black plastic sewer pipe glued together, each capable of producing only one note on the scale. One, dubbed "The Alien," resembles an upright tuba whose thyroid gland ran amok. Another, called "the Long Trumpet," is just that — a 14-foot-long straight trumpet with a bell about 18 inches across. Played in unison, the horns produce a sound that has a physical impact on the listeners.

Soloist on the long trumpet is John Ross, a 250-pound bear of a man whose hair nearly reaches his waist. One gets the impression that Ross is the Big Daddy of these wild geniuses. The horns are his inventions.

Ross took up electronics at the age of 4, dropped out of the Massachusetts Institute of Technology after 6 months because he felt the courses weren't challenging enough, and went to work designing missile systems. He prefers toys to rockets.

"I used to design weaponry, but I feel my current work is more important. It's important to design for kids because what we give them (in the electronic toys) is the condensation of what we know. It's important to pass that along to them and then let them take it from there," Ross says.

It would be simple to put down Ross' contribution to future generations as trivial — after all, a toy is just a toy. But this new generation of electronic toys is a marvel; complex, yet simple; capable of speaking, thinking and of having personalities. Today's toy might well be the basis for tomorrow's medical breakthrough.

Ross, for example, has developed a speech synthesizer with a mathematical model of a human throat that "says what the computer tells it to say." He is now working on a project to synthesize objects from electronic blips. Ross is 26 years old.

It's hard to stand out in a building full of weirdos (one staffer hates air conditioning so much he rigged up a fan and plastic tube so he can take a hit of smoggy air at his desk, and another designed a rubber band machine gun that can fire up to 13 of the missiles in rapid order) but Ross' accom-

plishments with the giant plastic horns have set him apart.

Ross has been experimenting with the horns for some time, finetuning them for a performance he hopes will be the ultimate in sound experience.

Beneath Pacific Palisades, where Ross lives, is a huge concrete storm drain that empties into the Pacific. He spends much of his leisure time down in the drain, fiddling with electronic equipment to determine the exact pitch to resonate the 1 1/2-mile-long tunnel ("It's tuned to the D minor Blues scale"). The plastic horns have been designed to produce various notes on that scale.

From time to time, Ross invites up to 18 friends and co-workers to attend clandestine concerts in the drainage system. They assemble in an 18-foot concrete underground chamber leading to the drainage pipe. Ross huffs and puffs on the horns and the whole drain pipe begins to vibrate, sound waves blowing the spectators' clothing about as if they're standing in a stiff breeze.

"The drain system becomes an extension of the horn," Ross says. "Sound waves grab the horn and you can't move it — it's eerie."

He is still fine-tuning the horns, working toward his dream of "floating every manhole cover on my block in the air with the sound from my horns."

There's a practical side to Ross' wildness. "I've learned a lot about resonance and how it behaves from the horns," he says. In fact, he has taken knowledge gathered from his sound dissemination experiments and turned it around into light-gathering technology that is being used in an astounding toy scheduled to hit the market in time for Christmas in 1981. Details of the toy can't be disclosed because toy manufacturers are slightly more secretive than defense contractors and for the same reason — industrial espionage. So the toy is kept under wraps behind locked doors.

Creating state-of-the-art electronic toys and games is a high-pressure job, but Smith, an electronics whiz himself, is wise enough to give his crew a free rein. "The guys have to have an outlet for their creative energy," he says. "You have to turn them loose."