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## The Legacy of Josef Schwarzli, World-Renowned Vending Machine Designer



NEWMARKET, ON, Canada -- When Josef Schwarzli arrived in Canada after World War II, it was only supposed to be for a short time. His goal was to make it to Milwaukee, where his father had worked for Pabst Brewing Co. at the turn of the century. And America, of course, was the setting for those cowboy movies Schwarzli had seen back in Europe. Canada, as far as he was concerned, was just a stop on his way to the U.S.

The problem was that Schwarzli was, literally, a man without a country. Having grown up in a centuries-old German-speaking community of what is now Croatia, he and his family became refugees just before the end of the war and were relocated to Germany. After the war there was no possibility of returning. "We were stateless, and there was a two-year wait to get to the

U.S.," Schwarzli recalled. "So the idea was to go to Canada and use it as a springboard."

Schwarzli landed in Canada with little more than an education in mechanical engineering. He had spent the war years studying that subject in Germany, and his training there had been rigorous. It included both practical and theoretical work, and encompassed everything from basic engineering to metallurgy.

"I was actually trained as a machine builder," Schwarzli explained. "For that you didn't get a university degree, but you got the same grounding in engineering and science that an engineer has because you need to make calculations. It was hard work, but I'm glad for it now."

Those were the days before computer-aided design systems. Students sat at drafting tables with T-squares, drawing with mechanical pencils. Calculations were performed on slide rules, not graphing calculators.

"The master was actually a Prussian, very smart and aggressive. You had to do a perfect job. If you were shown twice and it wasn't right, then you got physically kicked," Schwarzli recalled. "They were much more aggressive than they are today. Today it seems that we are trying to make

it easy for students. In the old days that was not the case. They were tough."

### **THE AMERICAN DREAM IN CANADA**

Landing in Canada had its own challenges: the language barrier and the fact that the measuring and weight systems were not metric.

"My first job in a tool room resolved some of that. It was there I became a tool and die maker. It was later, at a foundry and die casting shop, that I became proficient in steel mold-making," he remembered. "A successful vending operator client had his aluminum vending machine parts cast there. When this client decided to produce his own machines, I was asked to join him, and eventually I designed new vending machines for him. In the early 1960s, as he was expanding his operation, I was to oversee the installation and proper functioning of the gumball-making machinery he bought."

It was around this time the hollow gumball hit the market. Earlier gumballs had been solid. The big problem with making a hollow gumball was that it was not perfectly round and became lopsided during the production process. To help correct this, gum manufacturers resorted to "panning" with a heavier external coating which was costly in time and material.

"To rectify this problem, I developed a new ball-making machine and a drastic change in the extrusion process," Schwarzli explained. "It has now become a standard in the gumball-making industry."

More work in the bulk vending field followed, and he eventually went out on his own to found Machine-O-Matic Ltd. in 1963; it became Beaver Machine Corp. in 2000. Not only did Schwarzli cast his own parts, but he designed the casting machines, as well as melting furnaces and other specialty machinery, from the ground up. These achievements drew customers from outside the vending industry. Crouse Hinds, a major manufacturer of industrial lighting systems, was an early customer. Philips Electronics was another major client. Machine-O-Matic cast all the major components,

including the chassis and frame, for a very early microcomputer in the 1970s.

There also were some detours along the way. In the '70s, a friend was confronted by a difficult manufacturing problem. As a major supplier of 8-track tape cartridges, he had found the number of defective cartridges unacceptable. This wasn't surprising, since his production facility consisted of long tables with rows of ladies on each side, inserting components into the injection-molded shells.

Schwarzli was called in to see if he could solve the problem. For days, he simply watched the production process. "I sat at the end of one table for eight hours a day for a week," he remembered. "I smoked then, so I smoked and drank coffee, just watching what they were doing. The idea was to build a machine that could duplicate all the motions their fingers were doing."

By the time he had finished, the machine he designed had one person feeding the 8-track shells into one end and another putting the finished product into a box at the other.

Even with these detours, Schwarzli was able to release a steady stream of bulk vending firsts. Beaver was the first manufacturer to use shatter-proof polycarbonate rather than glass for its globes, in the 1970s; the first to employ powder coating instead of wet spraying, in the 1980s; the first to employ a bidirectional clutch handle without springs -- and, with the New Generation coin mech introduced in the '80s, the first to market a mech that measures two coins individually. In all, Schwarzli holds a total of 148 patents for everything from coin mechs and machine shapes to the now-classic J Stand that came to market in the late '70s.



**Photo | J STANDS DELIVER:** Beaver's revolutionary J Stand (left) combines functionality and beauty in a single unit. Often copied, the J Stand's compact footprint and smooth design have opened the doors to bulk equipment at chain restaurants and upscale taverns, while offering enough heads and selectivity to make those locations profitable. The triple chrome-plated tubes offer long-lasting durability in both indoor and outside sites.



**Photo:** The J Stand's expandability and modularity allowed operators to offer high head counts and multiple head types in a small footprint and a wide range of configurations. Locations such as shopping malls and "front of store" sites, such as supermarkets, welcomed the look, while operators praised its flexibility.

The J Stand inspired imitators, and this led to one of Beaver's most innovative designs, the Tri Towers. "When our J Stand was copied, I said, 'Okay, I'm going to show them I don't need a stand.' And the Tri Towers was my answer," Schwarzli recalled. Introduced nearly two decades ago, the Tri Towers unit is comprised of

three elongated bulk venders joined together to form a high-rise kiosk. It has found wide acceptance among operators in malls and other upscale locations. The first of its kind, the Tri Towers helped move bulk vending from the vestibule to the location's interior. Its success prompted Beaver to expand the concept with a line that includes the Single, Double Decker and Triple Decker Towers.



**Photo | GLOBAL INNOVATION:** The Meridian (right), introduced in 2000, boasts a retro design inspired by the classic globe and stand that once adorned private libraries. But the machine's real beauty and originality are found in the component assembly behind the coin mech. Components are not only easily accessed, but also can be disassembled simply by removing a single pin. For the operator, this means service calls that require fewer tools and less time.

One of Schwarzli's most interesting innovations is the Meridian bulk vender. Introduced in 2000, the machine has a distinctive "retro" look, with its display chamber shaped like an actual globe. The real breakthrough innovation is inside, unseen by the customer. Once accessed through the front panel, the entire housing can be disassembled by removing a single pin. The components fit together smoothly and hold together firmly. It is what engineers like to call "an elegant design."

"With the Meridian, my aim was that the servicemen would not need to carry a big toolbox to service the machine," explained Schwarzli. "What I would have to do, and how I would do it, was not clear at the beginning. But I had a goal and attacked each component by itself, building it up. I know one has to be able to dream."

It is the power of that kind of dreaming that has transformed an industry.