

# Shooting Frogs at Cumbo



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The recent kerfuffle over steel tariffs brings to mind an incident from 40 years ago.

Chessie had two system maintenance of way shops. They were under the jurisdiction of the Operating Department, not the Mechanical Department, and provided traditional services Chessie preferred to maintain in house.

Barboursville, WV (not far from Huntington in the Ohio River Valley) was the site of the C&O's facility for reclaiming used rail and other track materials (OTM), heavy steel work (as for bridges), maintenance of way equipment repair, and the like.

On the B&O, the system shops were in ancient (1866) shop buildings at Martinsburg, WV, the railroad's original 1842 Division Point almost exactly 100 miles west of Baltimore.

From its very beginnings, the B&O Railroad kept as much work as possible in-house. It became part of the railroad's very DNA to be able to make almost anything it needed, even as it fully participated in the larger railway supply market.

In the late 1970s, the B&O still made many of its own bridges at Martinsburg. It sorted, straightened, and re-kegged track spikes, re-threaded track bolts, and otherwise reclaimed anything work trains could pick up and drag back to the yard.

The system scale shop was there, along with the system track maintenance machinery shop. Martinsburg made signs, had a full carpentry shop, and a blacksmith shop with heavy drop hammer straight out of the late 19<sup>th</sup> century.

The heart of the operation was the Frog & Switch Shop. A few dozen men using a dozen muscular, early 20<sup>th</sup> century specialized

machine tools manufactured new switches, diamonds, special track work, and anything else required to keep railroad wheels where they needed to be.

A shop specialty was a “switch kit.” That was not a new idea—they were commercially available. But Martinsburg could assemble kits faster, at less expense, and with the kinds of custom features the old B&O liked to have. The shop could load a switch kit of the appropriate size and configuration into a gondola car and have it on its way in a day or two if that were necessary. Or it could assemble and stage enough kits for an entire yard rebuild if that was the plan.

In the late 1970s, steel was a bit of a problem. Chessie generally used a “rail bound” frog assembly. The frog is the complex, built-up assembly that allows flanged wheels to cross over rails. The switch points guide the wheels down one path or the other. Guard rails help keep wheels on their proper paths. But the frog is the very heart of the switch, literally and figuratively.

The heart of the frog was a heavy manganese steel casting, to which the switch builders bolted wing rails. Martinsburg shaped and planed regular running rail pieces, heated them in furnaces, then formed the rails into the precise shape to mate with the casting. It was an impressive operation.

Manganese steel exhibits a property called “work hardening.” Basically, every time a wheel rolls over it, the surface of the metal gets a tiny bit harder. The stress of the wheel causes minute changes in the microstructure of the steel, making it slightly more resistant to wear. That principle had been well-understood for decades.

Chessie was an early railroad adopter of a technique known as “explosive surface deformation,” among other terms. Basically, a technician would apply a thin (1/8” to 1/4”) sticky layer of plastic explosive to the surface of the rail or frog to be hardened. The stuff obviously needed to be handled with care, but it was not like nitroglycerin. It was fired by an electrical charge.

There would be a bright flash, a loud bang, and that was it. It was an extremely controlled explosion meant to artificially work harden

the surface wherever the layer of explosive tightly touched the steel. It gave the surface a bit of texture, but most importantly created a layer of harder and more wear resistant steel atop a core casting that remained resilient and more ductile. It was a bit like case hardening.

Chessie was buying cast manganese frog inserts by the hundreds from U.S. suppliers—and having unacceptably high failure rates. When the railroad “shot” the frogs (the casual term for the process), too many of the castings cracked or warped and had to be scrapped. It seemed clear that U.S. mills were not interested in, or capable of, a reasonable level of quality control.

So Chessie looked east.

Beginning in the late 1970s, the castings arriving from foundries in Japan proved to be superior to the domestic versions. I recall hearing discussions about the Japanese inserts having better dimensional control, needing less machining for fit up, and having a far lower rejection rate after being shot. Think about the state of the U.S. steel industry four decades ago.

By that time, the railroad had a routine at Martinsburg. A few miles west were the remains of an early 20<sup>th</sup> century coal interchange yard shared with Pennsy’s Cumberland Valley Railroad. A great deal of coal came east over the B&O, then headed northeast to Philadelphia, New York, and New England via the PRR.

The place was called Cumbo and once had a small engine house, turntable, bunkhouse, and water facilities. There was a substantial two story Yard Office building with massive concrete foundations. In the early 20<sup>th</sup> century, concrete was a relatively new and exotic building material. In railroad thinking, if an eighteen inch thick foundation wall was good, a two foot thick wall was that much better.

The yard office was long gone. But that stout, deep foundation made an excellent site for a firm bed of sand and safe place to shoot frogs. A Burro crane with an electromagnet would swing both bare castings and finished frogs into position within the walls, where they would get wired up. It only took a relatively few

minutes to shoot them, load them back into the gon, and get underway back to Martinsburg.

So there was a lot of talk about shooting frogs among local railroaders that Summer—1978, maybe 1979. I don't recall exactly. Apparently, there was also a great deal of local discussion about Tuscarora Creek.

The B&O built its first real shops at Martinsburg in 1849. A lazy bend in Tuscarora Creek defined the shop and yard on three sides, and for the next 130 years the Creek served as something of an open sewer running through the middle of town. In addition to whatever got loose from the B&O, there was effluent from a few small factories, a coal yard, some mills, the usual street runoff, and a steady accumulation of the crap and corruption that flows downstream.

Martinsburg was trying hard in those days to gain better control of the creek and begin a serious clean up. The so-called environmental movement was relatively new, and what today we regard as ordinary and responsible stewardship of a natural creek was somewhat contentious. In some quarters, feelings were running high.

You might see where this is all going.

Gradually, the partly-heard conversations and small misunderstandings coalesced into the kind of story small-time newspaper editors lunge after. Chessie System—the big, mean, polluting railroad (that also happened to be one of the economic pillars of Berkeley County) was engaging in unspeakable acts. It was surreptitiously loading harmless amphibians—no doubt cute little frogs from Tuscarora Creek—into railroad cars, carrying them west to a secluded, abandoned railroad yard, and mercilessly slaughtering them. It seemed utterly depraved.

That was the story beginning to break in the local newspaper when my desk phone rang at the B&O Museum one weekday morning. It wasn't my Boss on the line—it was THE boss, Howard Skidmore in Cleveland. The conversation was brief.

What did I know about the railroad shooting frogs at Martinsburg? I knew a fair bit.

Did I know anyone at the shop out there? I knew a number of folks.

How soon could I get out there? I knew at that point things were serious, and that I shouldn't ask for the Company helicopter. I said I could be there by lunchtime.

Mr. Skidmore explained that the editor of The Journal, the local newspaper, had rung into Cleveland to ask if Chessie wished to comment on the main article the paper was preparing to print exposing the railroad's abhorrent conduct. As you might imagine, the folks on the 41st Floor of Terminal Tower in Cleveland initially had no idea what this fellow was talking about.

I hopped in the car and motored west, wondering if I could claim as an expense the fine for speeding that I was surely going to get. I roared into the dirt parking lot, hustled to the shop office in the Bridge Shop, and found Ed Hull, one of the Shop Superintendents.

Ed was a very nice man. I had known him for a while, and he patiently listened to my dilemma (and my orders from Cleveland—figure out what the Hell was going on, and fix it). Of course he would help.

Then it was a short hop to the offices of the Journal downtown, not three blocks from the shops themselves. They were expecting me. The folks in Cleveland had promised that a railroad representative would be calling on them that very afternoon. Serious accusations required a sincere response.

In certain circumstances, even in those days, an errant small-town newspaper could cause outsize mischief. That was especially true if there seemed to be legitimate outrage and the story somehow got legs. Slaughtering innocent frogs had that potential.

I began with a straightforward explanation, which the editor and reporter met with some skepticism. Then we went across the tracks to the Switch and Frog Shop, where they saw frogs in various states of assembly and chatted with some of the guys. By that time, they understood what a frog was and why it needed to be shot.

To bring home the point, we went out to Cumbo to the spot where we allegedly butchered the wee creatures. We saw the sand pit, bits of wire, and maybe a few other artifacts of the process. There were no frog carcasses or evidence of green slime coating the walls.

By the time we got back to the newspaper office, everyone agreed that it had been an unfortunate misunderstanding, and that Cumbo was, indeed, a good and safe place to shoot frogs (the Chessie way).

I called Cleveland on a company WATS line at the shop office and reported the problem fixed. I vaguely remember heading home the back way with a supper stop at the Cindy-Dee Diner just above the main line at Sandy Hook near Harpers Ferry. After that kind of a day, the railroad at least owed me a pleasant meal.