The Marion Model 91

by Lynne Belluscio

We just received notice that the Town has been awarded a grant for a historic marker for the steam shovel on the Gulf Road. This grant is provided by the William Pomeroy Foundation in Syracuse, which has championed historic markers throughout the state. This includes markers or plaques for those sites that are on the National Register. And just a note – several people have suggested that the shovel should be moved to a place where it is more visible.

First of all, it was eligible for the National Register because it was on the site of the quarry where it was used. It would lose its designation if it were moved. And because it is on the historic site, it stands as a testament to the men, who for two hundred years have quarried LeRoy's limestone. In the meantime, I have been in contact with the engineering department at a National Historic site in Pennsylvania which can provide advice for stabilizing the machine.

A lot is known about the shovel. It is a Model 91 Marion and is one of 131 built in Ohio between 1902 and 1920. It is believed to be the only surviving Model 91 in the world. Sixteen of these shovels were shipped to Panama to help dig the canal. On May 12, 1912, a Marion Model 91 set the world's record at the Barrow pit at the Gatun Dam for moving 554 cubic yards of earth at the Canal. General Crushed Stone Company supposedly bought one shovel from Panama, but they also bought one directly from the Marion Company in Ohio. Since the registration plate on the shovel was removed many years ago, there is no way of proving whether this shovel, or the other shovel that was in LeRoy, came from Panama.

The shovel weighs over 100 tons. It has three engines, powered by a large boiler. The largest engine is located inside the engine house and it propelled the machine forward or backward by chains connected to the axles. (About 50 feet of this chain was removed after it was driven out of the quarry.) This engine has a 12-inch bore and a 16 inch stroke. Originally the shovel moved on railroad wheels. Track had to be laid in the quarry to the rock face where the shovel was used. Sometime around 1924, the wheels were replaced with tractors.

The second engine is called the swing engine and has an 8-inch bore. It manipulates the boom from one side to the other. The third engine is the boom engine – sometimes called the crowd engine and is mounted on the boom. It also has an 8-inch bore and was used to raise or lower the bucket. This engine, unlike the other two, has been exposed to the weather for over 100 years, and is in very serious condition. Amazingly, the shovel has its original boiler.

By Daniel Case (Own work).

The importance of having huge shovels like the Marion 91, was an indication of the change in the limestone industry. Originally, limestone in LeRoy was quarried for building material. As you look around LeRoy, you will notice many buildings, foundations, and bridges constructed of local limestone. When railroads were at their peak, stone from LeRoy was used to build culverts and bridges. But crushed stone was necessary for ballast along the railroad tracks. It's hard to believe, but a lot of that stone was broken by manual labor and it was moved by horse-drawn carts.

With the introduction of the automobile and paved roads it was necessary to develop mechanical crushing machines. Between 1901 and 1909, the quarry in LeRoy boasted that it had the largest crusher in the world. The traditional method of moving rock from the quarry face to the crusher could no longer be handled with horse carts and manual labor. The stage was set for the development of a stronger excavating steam shovel.

The LeRoy Gazette included a lot of details about the shovel. "It is known as a 5-yard dipper, and every time it is dipped down into the stone, it will lift enough of it to fill one of the cars. This is a great improvement over the old way and will greatly increase in output of the plant with less labor." The question is whether the shovel with the 5-yard dipper is the one on the Gulf Road, because it has only a 2 ½ yard dipper.

In published material about these steam shovels, it is mentioned that they were rarely equipped with the large 5-yard dipper when working with heavy limestone. So either the "other" steam shovel had a 5-yard dipper or it was changed out and equipped with the smaller dipper. In 1906, the output of crushed stone from the LeRoy quarry was 2,000 tons a day. Most of that was shipped 175 miles south to Sayre, Pennsylvania for the Lehigh Railroad.

In any event, it is believed that the LeRoy shovel is the only remaining Model 91 Marion shovel in the world. Not only does it represent the limestone industry in LeRoy, but it is a tribute to these grand machines that helped build the Panama Canal.

Last year I was contacted by a museum that was doing an exhibit on the Panama Canal, and they wanted to borrow the dipper for their exhibit. After I explained that it would be impossible to remove the dipper without doing damage to the boom, and there was no guarantee that it could be put back, the conversation ended. But it did impress upon me how important the steam shovel is, and how lucky we are that it wasn't scrapped during World War II. --- And yes, the story about Mike Mulligan and his steam shovel Mary Ann is based on a shovel made by the Marion Steam Shovel Company.