

## BSRA Entertainment Report for November 1, 2014

### LONG FORM (for historical record) Entertainment Report for November 1, 2014

**November 1, 2014.** Portugal, Land of the Semi-Convertible. Donald Nevin showed us photos from his travels to Portugal in 1961, 1971, and 1973, with a few excursions into 1985. The show started in southern Portugal in 1961, with a Henschel 4 cylinder compound steam locomotive pulling a train of coaches built by Budd, on Portugal's broad gauge system. Portuguese broad gauge is often described as being the same as that of Spain, but is in fact different: Spanish broad gauge was 6 Castilian feet, which corresponds to 1672 mm, or 5 feet + 5+13/16 inches; Portuguese broad gauge was 5 Portuguese feet, which corresponds to 1664 mm, or 5 feet + 5+1/2 inches; Iberian gauge is a compromise between these, at 1668 mm, or 5 feet + 5+21/32 inches; these gauges are close enough for some but not all equipment on each side of the border with Spain to be operable on both sides. Both Portugal and Spain also have meter gauge railroads, and as we saw starting just slightly later in the show, Portugal also has a smattering of other gauges in streetcar systems. Next, further north on Portugal's broad gauge system, we saw a roundhouse in Beira, which featured steam locomotives of vintage as old as 1886, still kept in good condition.

Donald showed us coal fired British-built ferries and Portuguese traditional sailing freight barges, and then transitioned to Lisbon's 900 mm gauge streetcar system, which used early 1900s vintage 2 axle cars built by Brill, often pulling trailers, of which some were larger than these streetcars, having 4 axles; this system also had 4 axle streetcars, but Donald never saw these pulling trailers. The streetcar system was reduced after 1961 as the Lisbon Metro (opened in 1959) took ridership from it, but 5 lines of it still exist today, with more modern streetcars running on one of the lines in the lower city, but the same vintage streetcars that Donald showed us still providing service on the lines that run through steep grades and narrow streets (often on gauntlet track). Lisbon has two major levels, and has funiculars and a giant elevator built by Gustav Eiffel to connect them. This elevator (the Santa Justa Lift, the surviving one of two elevators built at the same time) opened in 1902, initially operating by steam power, but converted to electric operation in 1907. It has two giant elevator cabins having a capacity of 29 passengers each. The vertical separation between parts of the city adjacent to this elevator is 45 meters (148 feet, or 7 stories in the local building style); streetcar lines on the lower level (Lisbon Baixa) exchanged passengers with the base of the elevator, while streetcar lines on the upper level (Largo do Carmo) exchanged passengers with the end of a pedestrian bridge that connected to the top of the elevator. Donald also showed us three funiculars running on tracks in pavement, appearing to be street running, but steep enough that the parts of the sidewalks for passenger boarding had steps. Some of these funiculars also had twin overhead wires, and an interior photo showed controls of appearance similar to streetcar controls of the same vintage, leading to speculation that part of the propulsion mechanism of these cars uses onboard electric motors. After this, Donald showed us Lisbon Harbor, featuring steamboats and a 1500s vintage fortress.

Making a transition from his 1961 trip to his 1971 trip, Donald showed us the lower city streetcar lines and carhouse. Travel agencies arranged streetcar tours of Lisbon, and so we saw a 2 axle tour car, including an interior photo of this car, as well as an interior photo of a streetcar used in regular service. We also saw a bridge carrying an upper city streetcar line over a lower city streetcar line. The same company that operated the streetcars also operated buses, including some double decker buses built by Leyland. We saw an exterior view of the Royal Palace (preserved even though the monarchy was abolished in the 5 October 1910 Revolution), and then Donald took us to the region of Centro (which borders the Lisbon region that includes the city of Lisbon), showing us a meter gauge line running to the beach along rural streets, using open cars pulling closed trailers that used to be coaches of steam-hauled trains that formerly served the route. Getting to this line from Lisbon required travel on a commuter line that we did not see. Going back to the city of Lisbon, Donald gave us a brief excursion to 1985, featuring semi-convertible streetcars still in operation, including an interior photo, and also featuring buses of various vintages, including one old enough to have the schoolbus-style (engine in front) design. Next, Donald took us to Coimbra to show us the streetcar system there. This system was meter gauge; it is now all gone. Donald also showed us a line truck for this system, and some electric trolleybuses; the Coimbra electric trolleybus system is still in operation, and is the only such system still operating in Portugal. Donald showed us the streetcar

carhouse/shop, including the unusual opportunity to photograph a transfer table in operation. One of the lines Donald photographed passed through one of the ancient city walls of Coimbra out into the countryside, and ran through narrow streets and up steep grades.

Next stop was in Porto (sometimes called Oporto) in 1971 to see the standard gauge (1435 mm = 4 feet + 8+1/2 inches) streetcar system there. This system has shrunk to 3 lines with some very short stubs of branches, but still operates using heritage streetcars (a mix of homemade and Siemens built streetcars, also including 2 axle units). Although Porto now also has a metro (actually a light rail system, also standard gauge, and also including a modern funicular) that opened in late 2002, proposals have been made to extend the heritage streetcar system. Donald's father made connections with the general manager of the system, so we got to see carhouse photos. The streetcar system connected to a meter gauge railroad, which has since been electrified and converted into a commuter rail/light rail system (distinct from the aforementioned Porto Metro). Donald also showed us buses and single and double decker electric trolleybuses. Donald took us to Braga, to see steam-hauled trains, including an 1840s vintage 2-2-2 tank steam locomotive, which is now in a museum. We then saw trackless trolleys (including home-built units, but now all gone) and a water/gravity-powered funicular. Electrification of the Portuguese railways was in progress in 1971, but the electric multiple unit trains for this had not yet arrived, so we saw steam-hauled trains running under the overhead wires. We saw streetcar lines using a variety of equipment (now also all gone). Back to Porto, Donald showed us a streetcar line (including an interior photo of a streetcar) from Porto to the seaport of Leixões. The end of this line connected to a bus line, which included double-decker buses. We saw the Boavista repair shop for the narrow gauge railroad (mostly used for commuter rail service), including a 1905 vintage Henschel 4 cylinder compound 0-4-4 steam locomotive. Back in 1961, we saw a broad gauge train in Duro (on the line to Porto) being hauled by a steam locomotive due to its route including a bridge that could not support the weight of diesel locomotives. Jumping again up to 1971, we saw more overhead wires in place for running electric multiple unit trains that had not yet arrived. Donald showed us an interesting rail terminal in Peso da Régua, where broad gauge and meter gauge lines met; this included a dual gauge turntable. Interesting equipment included Cassel 2-4-6-0 Mallet articulated compound locomotives and a steam commuter train going into Porto, and he showed us a photo he took from the footplate of a locomotive looking at an ancient Roman aqueduct crossing the tracks. Donald finished the show with photos of rural lines (since mostly closed) running from here through prosperous farmland (Portugal gets more rain than Spain, although the parts further inland start to resemble Spain in aridity).

#### **SHORT FORM** (for Annual Report) Entertainment Report for November 1, 2014

**November 1, 2014.** Portugal, Land of the Semi-Convertible. From Donald Nevin's travels in 1961, 1971, 1973, and 1985, we saw the still-partly-extant trolley systems of Lisbon and Porto and the now-extinct trolley system of Coimbra. Donald will also show us some trackless trolleys, buses, steam trains, steamboats, funiculars, and a giant elevator designed by Gustav Eiffel.