



HEADLIGHTS NEWS JOURNAL



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SAN FRANCISCO - While visitors to this city daily wait in line to board cable cars for rides to Fisherman's Wharf and Ghirardelli Square, out in

neighborhoods that tourists rarely see, the rest of San Francisco's rail transit system is being reborn.

It is happening as part of the most ambitious modernization program the San Francisco Municipal Railway, known locally as "the Muni," has ever undertaken. Under this plan, the property's 115 PCC cars will be replaced with 100 LRV's similar to those running in Boston. They will serve Muni's five existing surface lines running along completely renewed track in the outer neighborhoods. But downtown, the LRV's will run in the Muni Metro, a

subway that has already been completed beneath Market Street between the East Portal of the Twin Peaks Tunnel and Embarcadero Station, at the waterfront. Their pantographs will gather current from a completely rehung overhead system. And they may, for the first time in Muni's recent history, run in trains.

In addition, the property's 14 trolley coach routes are now operating with 345 Flyer Industries electric buses. The power supply for both the trolley coaches and the streetcars is being updated, including a massive undergrounding of feeder cables. Two grant applications, in various stages of the bureaucratic process, provide for rebuilding the 25-year-old overhead that serves the trolley coaches—and for a substantial expansion of the existing electric bus route structure. All but two of the Flyers arrived with rollsigns already in place to accommodate electric-powered 24-Divisadero, 55-Sacramento and 45-Greenwich runs. The first two

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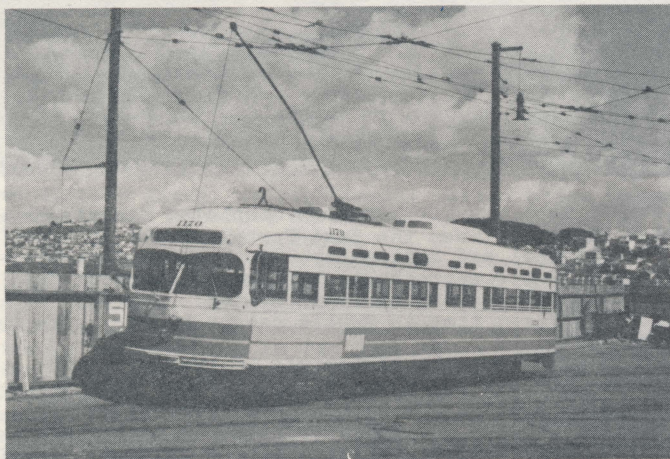
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COVER PHOTO: San Francisco Municipal Railway LRV No. 1221 poses for photographers at Embarcadero Station during a recent trial run.

--San Francisco PUC



San Francisco Municipal Railway PCC No. 1170 is seen here in its new livery of red, orange, white and brown as it is being shifted at Geneva Shops. Only PCC's No. 1134 and 1138 were similarly repainted before funds ran out. The scheme is similar to that used on Muni's LRV's and trolley coaches. --RLF

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of these lines are now heavily patronized diesel coach routes that climb steep hills—often very slowly. Electrification, it's agreed, would cut travel time—the 55 now takes about as long to climb Nob Hill as does the nearby 100-year-old California Street cable car during most of the day—and reduce noise. The 45 is a diesel route that runs beneath other lines' wire for most of its length.

Rail service will be extended, too. The K-Ingle-side, which now terminates at Ocean and Phelan, will operate about a half mile farther east along Ocean Avenue to a new terminal now under construction at the Bay Area Rapid Transit District's Balboa Park Station, also the site of a new carhouse. Similarly, the M-Ocean View, which now ends at a wye at Broad Street and Plymouth Avenue, will continue a block farther east to San Jose Avenue, then turn northeast along San Jose one mile to the BART station, where it will share a terminal with the K line. Less certain is a proposed extension of the J-Church route from 30th and Church Streets via San Jose Avenue to City College. This two-mile addition to the system would carry riders through the Bernal Cut along a route once used by a steam railroad. If built, this line would also allow Muni to get its cars into service on the N-Judah without taking them all the way downtown first. Another possible, if even less certain change would see the L-Taraval add one short block to its 46th Avenue loop, carrying the route closer to the San Francisco Zoo. No changes for the N-Judah have reached the serious discussion stage, although a consultant recommended building a loop near Ninth Avenue and Judah Street to serve riders on the inner portion of that route more effectively. The N-line, busiest of the five streetcar routes, carries such heavy loads during the morning rush that patrons east of Ninth Avenue frequently have to let already jammed cars pass them by.

Meanwhile, the first two Boeing-built LRV's have arrived in town for testing. The cars have not seen—and will not see—revenue service on this trip West. After the test period is over, they return for modifications to Philadelphia. The two, numbered 1220 and 1221, remain Boeing's property. But Muni officials and personnel have ridden them, both in the subway and on the surface. The LRVs' arrival has also served to put an end to what one Muni official once called "the best kept secret in San Francisco"—the fact that Muni is going to have a subway of its own, separate and distinct from the BART system. A recent press party saw some 200 reporters, camera operators, Muni officials and others interested in Muni gather at Embarcadero Station for coffee, donuts, political speeches and a ride on one of the new cars. Following the trip, those aboard agreed that the ride was smooth and fast—once an inexperienced operator, San Francisco Mayor George Moscone, got the hang of things. It took eight minutes to go from Embarcadero to Castro, a trip that takes thirty minutes on the surface.

With all of the progress toward physical renewal of Muni's electric-powered lines, several problems remain. Boston's experience thus far in keeping the LRV's running is well known. But, unlike Boston, Muni won't be able simply to substitute a PCC car for an ailing LRV. This is because the PCC's can't load in the Muni Metro stations built by BART for the railway. Although during the promotion of the BART bond issue the Market Street line was referred to as a "streetcar subway" and an artist's rendering showed a PCC loading at a side platform at Powell Street Station, one level above a BART train, the Muni Metro stations, as built, turned out to have high-level, island platforms. Moreover, a loop at the foot of Market Street for turning around Muni streetcars has yet to be built.

The reasons for the difference between artist's conception and physical reality are complex. Five years after the passage, in 1962, of the BART bond issue in San Francisco, Alameda and Contra Costa counties, a consultant's report surfaced recommending additional subways for the City, including a

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route beneath Geary Boulevard, where Muni's busiest single transit route operates. Under the proposal, the additional subways—the Market Street line was already included in the BART bond issue—and that under construction would be built to heavy rail standards. The surface portions of the streetcar lines would be scrapped, and the Market Street line would run as a subway to San Francisco State University, following the M-Ocean View route.

Despite criticism of the report, city officials put a bond issue on the ballot to extend the subway system and buy high-platform cars. The bond issue lost. But subway construction by then was underway in San Francisco to accommodate these cars and it moved inexorably forward. The LRV's will be able to use the subway only because they have high/low steps in them that can be raised to car floor height.

Whether running streetcars in a subway for which they weren't designed turns out to be practical operationally is anybody's guess. What is certain is that whenever the continually receding opening date turns out to be firm, the Muni Metro will not handle all the streetcar lines until a loop is built. This is because, without a loop or train operation, the subway doesn't have the capacity. Current Muni schedules call for 90 streetcars to pass through the East Bay Terminal loop during the peak hour, an average headway of 40 seconds. Given the larger capacity of the LRV's (two LRV's equal three PCC's in carrying capacity) existing ridership could, at least in theory, be accommodated on

a one minute combined headway. But estimates are that it will take drivers between two and two and a half minutes to change ends at Embarcadero Station. Thus the effective capacity of the subway is one vehicular movement (car or train) every two and a half minutes.

The commitment at Muni now is to build the loop. But its opening date is years away. In the meantime, residents and visitors alike will probably see streetcars running along the surface of Market Street both before and after the Metro opens.

--Charles Rozema



LRV No. 1220 and PCC's No. 1027 and 1020 are seen here at Muni's new Metro Center, built on the site of the former Elkton Shops. --San Francisco PUC

The Tramways of Portugal



A Lisbon double-truck tram is about to take the switch to the Amara car-barn. This type tram originally had a deck roof. --Bruce Russell

ways. Prior to departure from the Amara barn we were given a tour of the maintenance shed where complete overhauls were still being done on a regular basis at the rate of two trams per week. The guide explained that this number will be increased as funds become available to hire and train additional workers.

The special streetcar covered the three longest routes on the system, which offer spectacular views of the city. Our tour included the Graca Circle line which features steep grades and single-truck cars operating through narrow alleys in the city's Alfama district. It was clear that a route such as this would be an unlikely candidate for replacement by a bus, even one equipped with four-wheel steering and four-wheel drive. Each motorman on the line must be a professional with a knowledge of when and where to use sand and apply brakes.

Upon our return to Amara depot, we met with Madame Sanchez, the public relations director of the tramway company. On her wall was a color photograph of one of the Lisbon single-truck cars operating along Washington Boulevard in Detroit. She explained that Lisbon was able to part with several of its cars because a surplus had existed since the closure of a major route along the Avenida de Libertad in 1971. She could not give a definite answer to the question of the system's future plans, but she did state that negotiations were underway with Swiss authorities to design a modern tram for service on the longer routes such as the line to Belem, which features private right-of-way in many sections. She also stated that it was the desire of the company to keep the Graca Circle in operation exclusively using the older cars with the traditional Brill design as a tourist attraction similar to San Francisco's cable cars. Madame Sanchez was proud to tell us that in 1977 a record number of groups chartered the two tourist trolleys and that her company's ability to provide this special type of accommodation was a major accomplishment. With this last statement we were all in agreement.

The following morning we boarded a train for Coimbra at the Santa Appolonia station. The express was hauled by a French-built electric locomotive and made the trip in about two hours. Upon our exit from the ornate station in Coimbra, we were

(PORTUGAL continues on Page 4)

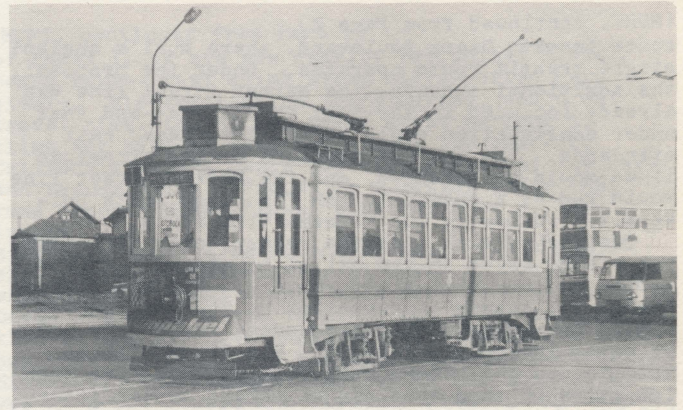
In an effort to provide some insight into the status of the tramways of Portugal, we present the following report by Bruce Russell on his participation in a recent tour of the remaining Portuguese tram systems:

Lisbon was the first city our group visited, and the tramway network appeared to be still functioning smoothly with a vast number of routes radiating in all directions from the Plaza de Comercio, the city's main square facing Tagus River. Since my last visit to Lisbon in 1971 I could discern few changes in either the extent or frequency of the services. While exterior maintenance on the fleet of yellow single and double-truck cars had declined, a motorman who spoke English explained that this was due to a shortage of funds to pay for an adequate shop force. The major emphasis, he explained, was on keeping as many cars as possible in operation so that service would not have to be suspended on any routes. At the time of my visit both classic Brill-type cars, and the rather boxy vehicles built in the 1940s and 1950s were running. Trailer operation was still in evidence although there appeared to be less of it than in 1971.

Our group chartered one of the two single-truck tourist trolleys which have been magnificently restored to a Victorian opulence complete with plush velvet seats and lace window curtains. The cost of renting the car for the day was forty dollars, which the members of our party gladly split twelve



One of Coimbra's well maintained single-track trams is seen here on Route 4. About 20 cars comprise the fleet. --Both photos, Bruce Russell



A double-track tram of the Porto tramways in November, 1977. These cars continue to receive superb maintenance and are the backbone of the fleet.

greeted by the sight of a yellow single-track tram making a loop through the downtown part of the city. There were also trackless trolleys of two vintages using sets of wires adjacent to those of the trams.

I rode a tram on Route 4 which proceeded through the business quarter until it branched off and traveled for about two miles through a hilly residential district. I discovered that this line was a single-track loop with service provided in one direction only. At a point near the university, Route 3 joined Route 4 and we headed back toward the railway station where I had boarded. The two Coimbra tram routes formed a figure eight, and the fleet numbered about twenty single-track cars. Both lines were short in length, but extremely well maintained and it appeared that new concrete poles had recently been installed to replace aged or deteriorated ones. All of the trolleys were in mint condition and had no difficulty negotiating the steep hills and sharp curves.

The following morning we went to the Boavista carhouse in Porto. This is one of the two remaining depots in use by the standard-gauge tramways of Portugal's second largest city. Arrangements had been made to charter a single truck, clerestory-roof Brill-type trolley for a trip over most of the remaining routes. Our car was freshly painted and in pristine condition with new window shades and fresh leather seats. At first blush I found it hard to accept the fact that a trolley such as this could be operating anywhere in the world in regular service, but Boavista carhouse was filled with no less than fifty identical cars preparing to begin their morning runs.

As we pulled out of the carhouse area, I heard the familiar snap and saw sparks as the trolley pole negotiated the complex labyrinth of wires leading away from the barn. Our special car then proceeded down a broad boulevard for about one mile and then swung onto a private right-of-way median strip section and began a rapid acceleration. As we clipped along, we continually passed other trams going in the opposite direction at the rate of at least one every two minutes.

After running on private right-of-way for at least six miles through a very attractive residential district, the Atlantic Ocean became visible. Upon our arrival at the beach, the median ended and tracks branched out in two directions along the waterfront. We first covered the northern line to Matosinhos, and then reversed ends and headed south. This section was worked almost exclusively by double-track trolleys. These cars are, without doubt, the gems of the system and turned back the clock at least 45 years. Although their overall dimensions were smaller than the American trolleys, these cars with their rounded ends and deck roofs were virtually identical to the double-track Brills that ran on so many American systems prior to the introduction of the PCC car. In addition to these cars, Porto tramways continue to use a double-track car which appears to be a home-built species. Al-

though rather awkward in appearance, they do provide variety and a contrast to the Brill-type cars.

Our special car continued south for several miles through the picturesque seaside district known as Foz, passing a work car enroute. The frequency of service on the line was heavy, and it appeared that concrete trolley poles had only recently been installed over the entire route. We left the waterfront area and began to climb up a series of severe hills which demanded a maximum output from our traction motors. We made it to the summit and continued along another avenue before returning to the Boavista carhouse.

A carbarn and shop tour had been arranged and we observed complete overhauls still being done on the trolleys. A number of them were in the process of being rebuilt from the frame up, while others were receiving new roofs, wheels, seats, or a paint job. I was impressed mostly by the fact that this shop was fully equipped to do all of these operations. There was even a metal casting section which made many of the fittings used on the frames and running gear. The shop force was also doing heavy overhauls on three double-deck trolley-buses which had recently been brought out of retirement.

In one section of the shop were four single-track deck roof cars in various stages of rebuilding. The superintendent informed us that two of the cars had been purchased by a party in Buenos Aires, and would be shipped there sometime in March. The remaining two had been sold to the United States, one being destined for Detroit and the other for Toledo. We were further advised that the sale of these four cars had been negotiated in 1973, and the company was fulfilling its obligation to ship them by 1978 in as good a condition as possible.

Another official of the company told us that back in 1973 it was assumed that 1975 would see the entire system abandoned. However, both the revolution and the energy crisis have caused a change in thinking. The current plan is to retain about thirty percent of the system as it existed in 1965, with emphasis on retention of the sections having private right-of-way and those lines running along the waterfront. Furthermore, where practical abandoned lines were to be left intact with their rails in place in the event the system might someday expand using new tramcars. The wires are remaining regardless because in almost every instance trolley-buses had been used to replace the trams.

The company has also adopted a policy restricting the sale of streetcars to those parties who had made formal requests prior to 1975. Under no circumstances will the company part with any of its double-track deck-roof cars, because it was felt that these were part of the city's image. During 1976 and 1977 several requests for these cars from American trolley museums were politely turned down. It would therefore appear that the authorities in Porto have as a permanent goal the operation of a Victorian era trolley system in addition to a modern trolley-bus network.