

# SAN DIEGO ELECTRIC RAILWAY ASSOCIATION



## Trolley Lines

December 2014



## PRIMAL ELECTRIC TRANSIT IN SAN DIEGO

PART TWO

by Richard V. Dodge

### The Henry System

Professor John C. Henry had invented a unique method of conducting direct electric current from an overhead wire to a street car.

It consisted of a metal frame carrying four 3 inch diameter, horizontally placed, grooved brass wheels, two on each side. These were "clamped" to the sides of the hard copper trolley wire by means of steel springs.

**Continued on page 4**

### Editor's note:

In the Last issue, Mr Dodge outlined in great detail the state of the art of electrical transportation around the beginning of the 20th century.

This month we continue with Richard V. Dodge's look at San Diego's early transit history from the operational side. All of the material and photos come from the November 15 1960 issue 34 of the Dispatcher news letter courtesy of the Pacific Southwest Railway Museum.

## PRESIDENT'S MESSAGE

BY TOM CARNES

Exciting times continue at the National City Depot,

Mike Reading received the plans for the car barn and passed them on the City of National City. We have to wait for their approval and then the approval of the Coastal commission which may take awhile. We have paid for the plans and materials and have a little left over for the construction costs. We also hope to have some money left over to start the restoration of Car 54, but we will be needing more funding to complete this project.

Dave Slater borrowed a headlight wing set for the PCC car to replace the one missing on 539. Gene Calman took that to a company that duplicated it in aluminum and had that chrome plated. We also received an addition headlight wing set from the El Paso group, which probably came off a San Diego PCC car which went to El Paso in the late 40s. We now have two sets and are in a position to use one to trade for other parts from MTS since their wing sets are incomplete for their 5 cars.

Mike Reading reported that he is looking into getting some of the track from BNSF as part of their removal of the Wye at Washington Street. If this track is in good condition we can use it for displaying cars in the south lot so that when opportunities present themselves to acquire rail vehicles we can take advantage of these opportunities.

The #1031 aka "Herbie" has been finalized. Two donors from our museum donated \$2k each, and this met the mandate for the grant of 6k to make an even 10k which is what I was asking for.

The only mandate from the 20th Century Electric Railway Foundation other than we raise 4k, and they would grant the rest, is that the car stay at our museum permanently, and it will.

Your's truly spent a delightful, for me, hour talking about San Diego streetcars, and the National City depot at the Paradise Village retirement building. I showed a picture of Marge McGloughlin, many people recognized her since she had lived at the facility. Marge was a motorman and bus driver in San Diego from World War II until her retirement. About 35 people heard the talk and are going to take a bus from Paradise Village to the depot and to ride 529 on the Silver Line.

Tom Carnes



San Diego Electric Railway Association  
DBA San Diego Electric Railway Co. Inc  
922 West 23rd Street  
National City, CA 91950  
(619) 474-4400

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SDERA operates the historic National City Depot museum which is located at 922 West 23rd Street, National City, CA 91950 and is open Saturday and Sunday from 10 a.m. to 4 p.m. Or visit us on the web at: [www.sdera.org](http://www.sdera.org)

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### San Diego Electric Railway Association, Inc

- ❖ Tom Carnes - Interim President
- ❖ Jody Surowiec - Secretary
- ❖ Jeff Trimble - Treasurer
- ❖ Dave Slater - Past president
- ❖ Jim Anderson - Director
- ❖ Mitch Beauchamp - Director
- ❖ Eddie Mc Cann - Director
- ❖ Mike Reneau - Director
- ❖ Mike Reading- Director
- ❖ Chris Higgins - Web Master
- ❖ Sam Judd - Legal Counsel
- ❖ Richard Finch - Editor
- ❖ Jody Surowiec - Editorial Staff
- ❖ Tom Sapien - Librarian
- ❖ Jim Anderson - Curator of Special Collections Gift Shop Manager/ Facilities Director
- ❖ John De Lalla - Special Events/ Docent Coordinator/ Membership Director
- ❖ Bill Steinmetz-Groundskeeper



## A Salute To Our Volunteers!

They are as follows:

Dave Slater  
Tom Carnes  
Chris Higgins  
Jim Anderson  
Jim Price  
Chuck Bencik  
Randy Butler  
Robert Butler  
Mitch Beauchamp  
Jeff Trimble  
Mike Reneau  
Richard Finch  
George Geyer  
Dan Kelly  
Gary Johnson  
Sergio Lopez  
Mike Reading  
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Tim Lewis  
Tom Sapien  
"Pete" Pearson  
Mike Quigg  
Matt Zacharzuk  
Bill Steinmetz  
Conrad Gomez  
Hubert Jansen  
Steve Mitton  
WE COULDN'T  
OPERATE WITHOUT  
YOU!

## URGENT REQUEST FOR VOLUNTEER DOCENTS AND CASHIERS

Please consider sharing your interest in railroads and San Diego's historic streetcars with our visitors.

Our dedicated group of docents needs your help to ensure that the Depot is properly staffed. Sunday mornings can especially use your help.

Docents guide our visitors through the depot and the grounds.

Training and support are provided by our docent coordinator and other experienced docents. Reference material is on hand, including talking points for the tour, and general procedures for operating the depot. Shifts are for 3 hours:

10 AM to 1:00 PM, and  
1:00 PM to 4:00 PM.

Please contact John DeLalla at: [docents@sdera.org](mailto:docents@sdera.org) or 858-847-3138 for additional information and to join our group of docents.

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### Saturday Nov. 8th

Mike Reading was elected President.

Dave Slater will continue on the board as a director. Many thanks to Dave for guiding us for the last nine years. He contributed immensely to the progress we have achieved so far and promises to continue on in the team work of future success.

## HELP WANTED!

Currently, The following volunteer positions are available:

### 1. Assistant Treasurer-

working with Treasurer, Jeffrey (Jeff) Trimble. Candidate should have an interest in learning accounting. (I learned the program Quick Books at the depot, and this has allowed me to get a job, which I have now held for almost 2 years.)

### 2. Assistant Web Master-

working with Web Master, Christopher (Chris) Higgins. We have a large website at [www.sdera.org](http://www.sdera.org). Candidate should have this appropriate background.

### 3.Docents/Cashiers-

A very pleasant way to work a 4 hour shift on a rotating basis. Training provided by Docent Coordinator/Trainer, John De Lalla.

### 4.Assistant Librarian-

This candidate works with Librarian, Tom Sapien in our Reference Library at the Depot Museum Library.

### 5. A Welder-

Works with Dave Slater on various projects as needed. This candidate should have their own welder.

Interested parties, please contact Tom Carnes President at : [Roseway@cox.net](mailto:Roseway@cox.net)  
OR (619) 267-8424



*Come visit,  
and enjoy all the improvements  
in your Museum!*



## PRIMAL ELECTRIC TRANSIT IN SAN DIEGO

Continued from page one

This rig was given the name "troller". Once placed on the wire, it was towed along by a flexible conductor attached to the roof of the car.

The trolley wire could be as much as 15 feet off the center of the track. Two wires were required, one for the troller of the outbound car, the other for the inbound.

Professor Henry emphatically stated that the Daft System, with positive and negative trolley wires, as originally used on the line in Los Angeles, was an infringement of his patents.

He had also developed a line of dynamos (electric generators).

Street Railway Journal reported that they were compound wound, but a local newspaper listed them as shunt wound. The dynamos were connected in series to produce a line potential of 250 volts. There was much superstition prevalent in those days in connection with the dangers of electricity.

1,000 volts was considered to be fatal but 500 might kill an invalid. The potential adopted would never exceed 350 volts, considered to be safe.

Henry discovered that the car motors could be reversed by a simple pole-changing switch instead of the prevalent practice of shifting the brushes.

The brush holder could then be set in a fixed position.

The motors were mounted on the car and ran continuously until stopped and reversed. The speed was controlled by a rheostat operated by a small lever. The reversing of the motor was used as a brake. Cars could be stopped in ten feet from full speed. The armatures are of the Pacinotti-Gramme type. The commutators contain grooves into which fit round copper wires. The brushes were probably of brass requiring frequent renewals.

It was specified that the motors should be of 40 horse power rating but the newspaper continued: "although each will develop 25 horse power". This would indicate that there were two motors per car.

The mechanical power from the motors was transmitted to the axles by means of an "excellent" friction clutch and differential gears running in oil. Armature speeds of 1,500 revolutions per minute are "toned down" to a car speed of eight miles per hour.

C.F. Francisco claimed a top speed of 20 miles per hour. The need for feeder circuits had been recognized. On the Kansas City line, one and a half inch cast iron bars, coated with asphaltum and wrapped in burlap, were buried at the foot of the line poles. They were tapped at every pole with a riser to the trolley wires.

Such construction was specified for the first line in San Diego. Soon it was discovered that a cable in a conduit could do just as well, then an overhead parallel wire was tried and found to serve satisfactorily.

The Henry Electric Railway Company had contracted to furnish all the electrical equipment and running gear needed. The Professor came out to San Diego to supervise the installations.

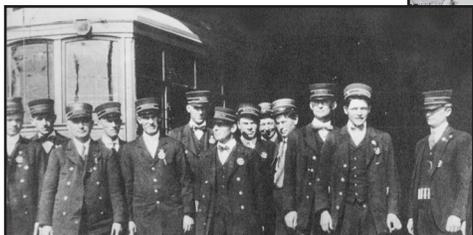
#### THE FIRST FRANCHISES

At the time applications were made for city franchises, the great Land Boom of the 1880's in Southern California was in full swing. Real estate sub-divisions were springing up all over. Steam motor railways were being built, business blocks and dwellings were being constructed in great numbers and freight shipments were blockaded for weeks on the railroads.

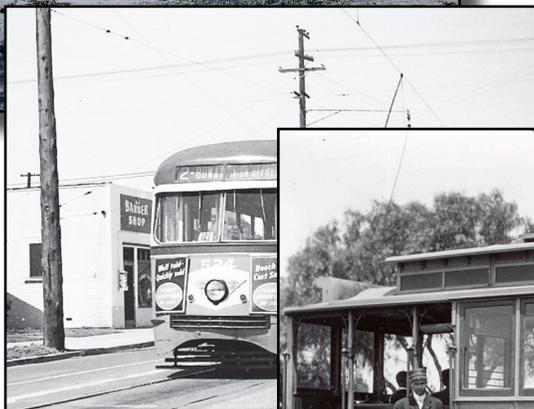
The latter were ordering engines by the hundreds to cope with the situation. Speculative ventures spread rifully. The most appropriate expression applying to the frenetic times is that the people were just running "hog wild". Permits for new rail projects were passed out freely for the asking.

Naturally confusion resulted.

**Continued to page 8**



# 2015



HERE IS A SNEAK PREVIEW OF SOME OF THE PHOTOS THAT WILL BE FEATURED IN THE NEW SDERA CALENDER FOR 2015

This year's Calender contains photographs printed on 11 by 8 1/2 inch heavy weight paper stock suitable for framing. Available After December 1 at SDERA.org

HAPPENING  
AT  
THE  
DEPOT

Richard Finch © 2014

Bill Stienmetz spends a quiet Sunday afternoon operating the large O gauge train layout in the train room at the Depot



It is official, our hours of operation has changed. Should you want to visit the depot at another time, please call to set up an appointment. Thanks to Jim A., Jody S. and Jeff T. for getting the sign hours updated.

Picture by Jeff T.



Richard Finch © 2014

Car number 54 looks a little forlorn in the north yard as we await the city's approval of the new car barn to be built to house car 54 and other exhibits. As you may recall Car 54 was built right here in San Diego using two of the original 1892 Cable cars from the San Diego Cable Railway Company.

More of the car's long history and how it finally made it to the Depot can be found in the June 2012, and April 2014 issues of the news letter available online at: [WWW.SDERA.org](http://WWW.SDERA.org)



# TINGS THE POT

## Paso del Norte Streetcar Preservation Society

Nov. 4, 2014

To: San Diego Electric Railway Association

Gentlemen:

Enclosed find a pair of "wings" from an El Paso PCC (ex-SDER) which, at the request of board member R.L. Thomas, we are willing to provide to you on a long term loan. Although I do not anticipate it, we reserve the right to recall the object with a minimum of a 90 day notice.

We believe these came from car 1510, ex-SDER 510. Although many of the cars were renumbered in El Paso by adding a "1" to the old number, that is not true in all cases. All of the published cross indexes I have seen are incorrect.

It is likely they were renumbered in the 1500's because not all of the 1927 Ft. Bliss line 500s had been disposed of by 1950-1.

Congratulations on your restoration work and we wish you continued success.

Regards,

Ron Dawson, Collections Director  
2819 E Eastland St  
Tucson, AZ 85716  
[Upper14@aol.com](mailto:Upper14@aol.com)

R.L. Thomas, Board Member  
PO Box 357,  
Oceanside, CA 92049

(Inset)  
Board member  
Dave Slater  
demonstrating how  
the headlight trim  
pieces will be  
installed on the  
newly finished PCC  
Car #539



**Continued from page 4**

The Electric Rapid Transit reflected the stress and strains of the times in the planning and the wild land grabbing.

C.F. Francisco outlined, in April 1887, that the system will be divided, basically, into three proposed routes:-

1. The Old Town Line, using a steam motor road's track.

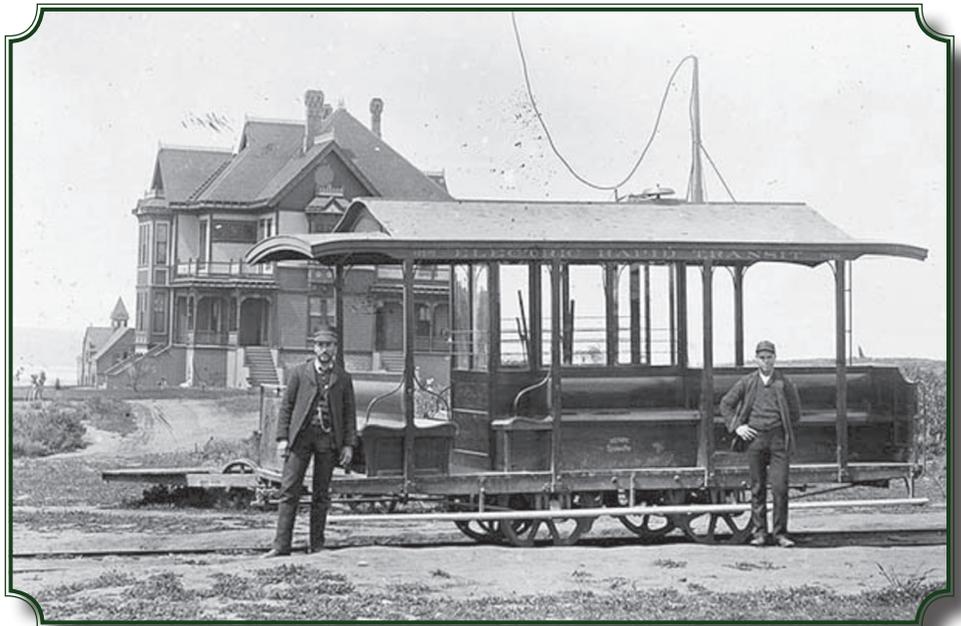
2. The Fourth Street, now Avenue [editor's note: omission in original printing], Line up Third Avenue to A Street; to Fourth Avenue; to Upas Street; to City park, now Balboa Park.

3. The "G" Street Line, from the waterfront to Derby Heights, via G Street to 21st Street; to B Street; and spanning ravines to 34th Street.

The elastic franchise allowed for a total of some 14 miles. Ramifications multiplied rapidly. A permit had already been granted to the National City & Otay steam motor road for a track on Fourth Avenue. The Electric Rapid Transit was accused of having swapped franchises with the N. C. & O., but the Electric Rapid Transit produced a document authorizing a line on that street.

**SHOP FACILITIES**

A site for the shops and the power plant had been acquired at India and "Ivy" Streets, near Rankin's Brick Yard.



San Diego "Electric Rapid Transit" single truck car

A contemporary photograph shows that India Street had been graded, ending abruptly at the top of the south bank of a gully which is now Kalmia Street. Ivy was the last cross-roadway visible.

The location was in the present block bounded by India Street, Kalmia Street, Arctic Street, now Kettner Boulevard, and Laurel Street. Some shop buildings had been erected by April 1887.

**MOTIVE POWER AND ROLLING STOCK**

Mr. Francisco had decided that he would build cars better and cheaper locally. Five cars were soon under construction and, by August 30, these were completed. The intentions were to build 20 cars, "some open, others closed, seats crosswise and

lengthwise to please everybody." "As soon as the machinery arrives you will see the carriages in motion."

The electric motors and drives were mounted on cars bearing a close resemblance to the then familiar dummy of the cable roads. They were single truck, open type, with an enclosure in the center to accommodate the engineer, motoneer or motioneer, as the operator was variously called, and the controls.

The motor cars pulled trains of from one to four trailers.

The San Diego Sun on September 19 announced that six motors had arrived from Kansas City and the "experts are setting them up out on the San Diego & Old Town Railroad Line."

By July 5, 1887 a brick building was nearing completion “to accommodate the machinery”. It was 28 feet by 42 feet with an “L” 28 feet by 40 feet.

On that date, a reciprocating steam engine arrived on the steamer “Queen” from the Pacific Iron Works in San Francisco, later identified as a Buckeye of 125 horse power, with a Hazelton 100 horse power boiler.

The apparatus was being placed on the tenth.

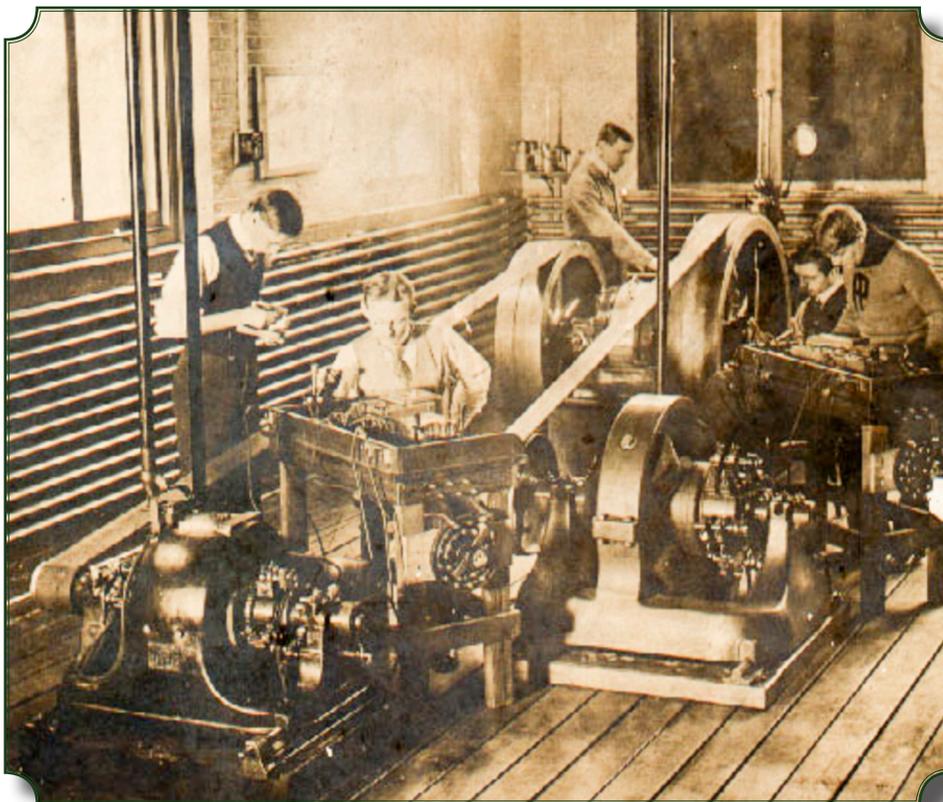
Delays were experienced in the delivery of the Henry dynamos.

Four generators arrived on September 19. A later newspaper

article mentioned that they were connected in series to deliver 100 amperes at 250 volts.

It was explained that the same machinery will furnish power for the Old Town line, the Fourth Avenue Line and other extensions.

Five more dynamos were received on January 4, 1888, making a total of nine. The transmission line from the power plant to Fourth Avenue consisted of four overhead wires - number one Brown and Sharpe gauge.



Here is a view of students learning the technology of the early 1900s, Steam-Electric Power Generation.

## THE OLD TOWN LINE

A franchise had been granted to George Neal, James McCoy, R. A. Thomas, George B. Hensley and others to build and operate a standard gauge steam dummy line from San Diego to Old Town. The San Diego & Old Town Street Railway Company was incorporated about August 1886, with a capital of \$50,000.

A meeting of the stockholders was held in mid-October and preliminary surveys were ordered.

The route selected started at D Street, now Broadway, and ran out Kettner Boulevard, through Middletown, to Chalmers Street; to California Street; to Moore Street; to San Diego Avenue; to the Plaza in Old Town, the original San Diego de Alcalá.

At the end of the same month, another meeting was called to discuss the feasibility of the construction of an electric railway to Old Town.

A sort of agreement was then drawn up between the San Diego & Old Town Street Railway and the Electric Rapid Transit Company whereby the latter would erect overhead and operate its motors on the former's tracks as soon as they were completed, more or less on an experimental basis.

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Continued from page 9

The San Diego & Old Town Railway had already ordered a steam dummy similar to those being operated by the Pacific Coast Steamship Company on its wharf railway at the foot of Fifth Street but claimed that it would be three times as powerful. (?) [editor's note: question mark in original text.]

In the spring of 1887, grading and track laying were progressing and a small depot was being built on Kettner Boulevard near Broadway.

Already Mr Francisco had concocted more elaborate ideas and was examining the practicability of extending

the electric line from Old Town to the Mussel beds (Ocean Beach).

On July 28, it had been decided that the Old Town electric motors should not terminate at Broadway, but would continue uptown via Kettner Boulevard to E Street; to First Avenue; to F Street; to Sixth or Seventh Avenue.

Soon they wanted a franchise on Kettner Blvd. to H, now Market, Street; to Atlantic Street, now Pacific Highway; and out the Santa Fe Wharf to the Coronado Ferry Landing, a route already being operated by the San Diego Street Car Company's horse cars.

#### TESTING THE TRACK

By mid-August, the track laying had advanced to the point that they felt that an operating test was desirable.

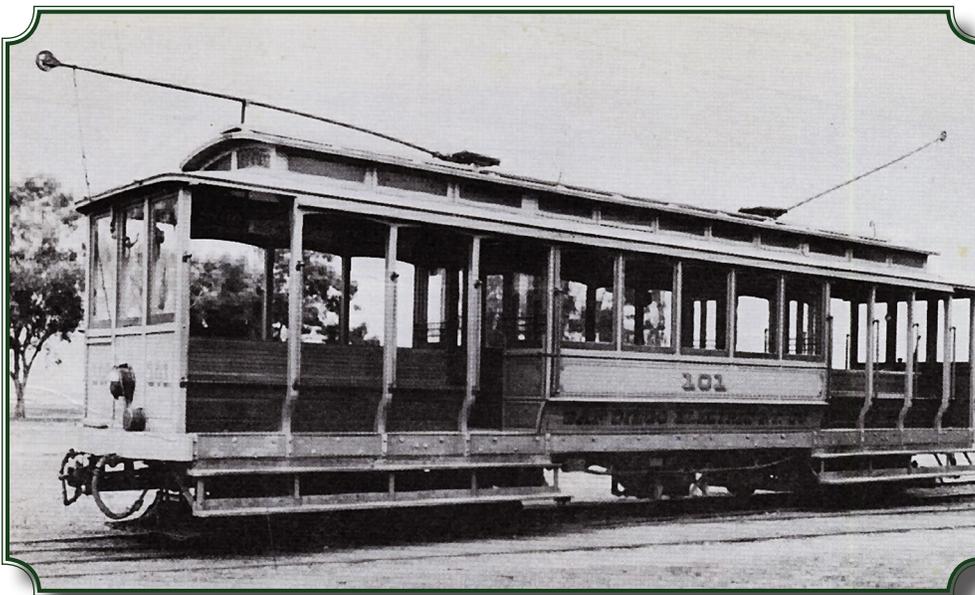
Arrangements were made with the Pacific Coast Steamship Company to furnish a steam dummy and it hauled one open car "with a swarm of boys thereon" up Fifth Avenue, down Broadway and out Kettner Blvd. to the rail front.

All was pronounced O. K. The track was completed to the Plaza in Old Town on September 4, 1887.

Wire and other materials had arrived. Erection of the overhead was underway in September. The greater part of the line in open country used single poles with side-arms to carry the two trolley wires and stiffened with angle braces.

The "town" section consisted of two poles set opposite each other and the trolley wires were suspended from copper span wires. The feeder was an underground cable in an insulating tube with taps and risers at intervals until an overhead wire was tried out.

At this time came the surprising announcement that the San Diego & Old Town Railway will extend its tracks to Pacific Beach, 4 1/2 miles, and that a deal had been made with Mr. Messrs.



San Diego Electric railway Co. # 101 at Coronado. Car was equipped to pull trailers and did so in Coronado service. It is a wood "California" type car (open-closed-open) . Most cars of this type were converted to one man and sides were enclosed. Built by SDER in May 1910. Double truck. 40', 34,100 pound, 2B-27G, 2GE-202 and K-11 (changed to 2GE-219 and KE.) , seats 44 .

(Southwest Rly. Library - R.V . Dodge collection).

# SAN DIEGO ELECTRIC RAILWAY ASSOCIATION



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922 WEST 23RD STREET, NATIONAL CITY, CA 91950

Gochenauer and Francisco was to equip and operate electric cars over it. The 0-4-0, coal-burning steam dummy, for the Old Town Line was delivered on October 10. It was fired up and tested immediately. It was then decided to begin service at once, using the cars built by the Electric Rapid Transit for a few weeks “ until the electric apparatus is working.” Regular trips started the next day.

On August 31, it had been sanguinely predicted that the electric cars will be running by November 1, ten miles, to Pacific Beach and in six months to Ocean Beach.

***Here ends part 2, in a four part series of Mr Dodge’s detailed look back at the pioneering days of electric rail transit in San Diego***



## FROM THE DESK OF THE EDITOR



Winter is the time for comfort, for good food and warmth, for the touch of a friendly hand and for a talk beside the fire: it is the time for home.  
Edith Sitwell (1887 – 1964)

As the days grow shorter and activities slow, winter is also a time of reflection. A time to rest.

Looking back it has been a very eventful year. First with the acquisition of car #54, and later it’s move to the Depot. Clearing all of the equipment from the north yard to make way for the new car barn. Receiving PCC car #539, and months of scraping, painting and body work to restore her to her former glory. Replacing the doors on the Birney car #336. All the school field trips lead by our volunteers. Yes it has been a busy year.

On my last visit to the depot there was no heavy equipment moving cars and track. No sanders or grinders at work, no saws, no hammers. Just the faint locomotive whistle of the O gauge trains as they make their rounds in the train room. The chatter of the regulars sitting on the benches on the loading dock.

Yes, winter has come to the Depot. A time to relax and rest up for what looks to be another busy year in 2015.



San Diego Electric Railway Association  
d.b.a. San Diego Electric Railway  
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off I-5 at Mile of Cars Way - take Bay Marina  
Dr. west, right on Cleveland, go one block and  
left on W. 23rd St and straight into the Depot  
Open Saturday and Sunday, 10AM — 4 PM.  
Depot phone: call (619) 474-4400

**To submit items to the Newsletter, contact : Richard Finch via e-mail ([editor@sdera.org](mailto:editor@sdera.org))**  
**Items need to be submitted by the 10th of the month prior to publication. -- Next issue in February**  
**Please send all photos in the largest size as possible. 2 or 3 meg file ( about 1000 pixels on the longest side)**  
**also include the names from left to right of people in the photos.**

Attention Members: Please look carefully at the mailing label. If your membership has expired, or will expire soon, and you wish to renew your membership, or become a new member, we offer the following levels: Life, (for a single member) \$400; Family, \$35 (please include names); Regular (or Individual) \$25; Senior age 60 and up, \$15; Junior for ages 17 and below, \$15.

Checks can be made out to, SDERA and mailed to  
SDERA, 922 West 23rd Street, National City, CA 91950

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## Upcoming Events

Monthly meetings are normally held at 7:30 PM  
on the 2nd Saturday at the National City Depot.  
Optional no host dinner at The Barbecue Pit  
Restaurant - 920 E. Plaza Blvd, National City at  
5:30PM about 1 block east of Highland Ave.  
and Plaza Blvd.

Plan to arrive at 7PM to see the Gift Shop, chat,  
and buy raffle tickets. The raffle starts at 7:15 PM.

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**December 2014:** No meeting. Best wishes for  
the Holiday Season and New Year.

**January 10, 2015.**

Reena Deutsch, Ph.D., author of San Diego  
& Arizona Railway - The Impossible Railroad,  
will present a program of photographs on the  
SD&A that focuses on the audience's prefer-  
ences. Dr. Deutsch will distribute a list of all  
of the dozens of topics for which she has fold-  
ers of images. The audience will then takes  
turns in saying which topic they would like to  
see photos of.

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### **Pacific Southwest Railway museum December 14. Santa's Toddler Train**

On a cozy daytime ride, Santa will board the  
train at the Campo Depot along with the  
passengers. Santa will have time during the trip  
to visit with all of the children aboard the train  
for pictures and wish list deliveries.

Santa's Toddler Train is scheduled to depart the  
Campo Depot at 1:00PM on Sunday, December  
14. Reservations can be made online through  
our Excursion Calendar. Questions or concerns?  
Please email Santa at [santa@psrm.org](mailto:santa@psrm.org).