

SALT LAKE ROUTE'S HUGE VIADUCT.

IT IS THE AIM and object of the passenger department of every up-to-date railroad to have at least one striking advertising feature on the system which can be reproduced on paper and scattered broadcast throughout the land. Sometimes, in fact generally, the subject depicted is a scrap of striking scenery that can be seen from the car window, while again it is some artificial attraction that has been devised by the hand of man and the brain of the engineer. In the west the Denver & Rio Grande has its Royal Gorge and hanging bridge, that are known the civilized world over; the Union Pacific has its Echo canyon and Fish Springs cut; the Rio Grande Western, the Salt Lake Temple and Castle Gate; the Oregon Short Line, the Bear River canyon and the accompanying steel trestlework; the Southern Pacific, its snow sheds and soon the Ogden-Luch cut-off, and the O. R. & N. the Pillars of Hercules and the Columbia river.

BIGGEST CONCRETE BRIDGE.

Not to be outdone the San Pedro, Los Angeles & Salt Lake, or as it is now called for short, "The Salt Lake Route," proposes to have the biggest concrete bridge in America, if not in the world, as its star attraction. It has already adopted the natural and scenic features, the San Bernardino Arrow, for its trademark. Some Eastern roads would deem that glory enough. Not so the Salt Lake Route. It is going to have the biggest concrete proposition extant and is going to have everyone talking about it. President W. A. Clark and his associates on the directorate are putting in over half a million dollars on that viaduct. As an advertising and a business proposition it will be a "standing ad" that will pay dollar for dollar invested every year. The San Bernardino Arrow and the Santa Ana bridge will be to use a popular phrase, a hot combination.

HANDSOME DEPOTS.

But not only in the direction of expensive viaducts is the San Pedro branching out. All the depots that have been erected in California are along the same lines—neat structures built of concrete and roofed with red tiling. There are no such shacks that grace, or otherwise, such towns as Napa, Milford, and Provo along the western end of the Salt Lake Route. The accompanying illustration of the depot at Pomona gives some idea of what may be expected in Utah when the main line through to California is completed and the Utah division recently acquired from the Oregon Short Line, is overhauled and brought up to date along the lines indicated on the line now building in California.

NEARLY 1,000 FEET IN LENGTH.

While considerable has been printed on the subject few laymen in Utah, or for that matter in California, are aware of the engineering wonders that are under way at various points of the Salt Lake Route. The star feature is the concrete bridge which spans the Santa Ana river at a point about five miles southwest of the town of Riverside, Cal. This arched viaduct which is now practically completed is 984 feet in length. The structure is 17 feet wide and about 55 feet high above low water. There are eight arches of 36 feet span, having a radius of 43½ feet, and a rise of 36 ft. At each end are retaining wall approaches connecting with the abutment piers by means of 38½ feet arches.

OVER A BLOCK IN LENGTH.

To bring this huge affair down to every day Salt Lake objects, perhaps

some idea of the immensity of the work can be arrived at when it is stated that the concrete work, taking into consideration that which is sunk below the bed of the river, and that included in the approaches, goes to make up a huge eight-span viaduct, that would stretch from the McCormick block down to the entrance to the Kenyon hotel, and under each and every arch could be placed the McCormick building, providing the corners were knocked off.

14,000 CUBIC YARDS.
This bridge is being constructed of

One of the Biggest Concrete Bridges in the World Today, Now Rapidly Nearing Completion
On the San Pedro, Los Angeles & Salt Lake Railroad—Something Regarding the Difficulties Encountered and the Work Accomplished—The Handsome Standard Depots to Be Erected at Principal Points Along the Entire Main Line From California to Utah—Model Roadbed and Up-to-Date Methods Instituted on the Clark Road.

concrete and will contain about 14,000 cubic yards of this material, weighing approximately one and one-half tons to the cubic yard. Concrete, like old wine, improves with age. The longer the concrete stands the harder it gets. There will be no painting to be done or frequent repairs, as is the case with steel bridges. The longer the viaduct stands the more substantial it will become. Hence the cost of maintenance will be reduced to that of an ordinary roadbed.

CARE MUST BE TAKEN.
Much care has to be taken in the

construction of a concrete structure built to withstand strain. A careless or drunken foreman can play havoc with several thousand dollars in a few minutes. The concrete has to be mixed to a nicety, with just the same proportion of cement and ingredients as went to make up the former deposits, otherwise there will be trouble.

DIFFICULTIES ENCOUNTERED.

Each pier of this viaduct rests on a 14x28 foot concrete base, which extends down to bedrock itself, thus making the foundation absolutely secure. This whole work would have been finished and, undoubtedly, entrance into Riverside effected long before this time had not greater difficulties been encountered in trying to reach bedrock for the base of the eighth pier.

THE CONSTRUCTION.

In constructing the foundations for the piers sheet piling was first driven and then the sand and gravel excavated by means of suction dredge pumps. Bedrock was encountered at from 10 to 50 feet below water level. All piers are founded on the granite bed rock. At the springing line the piers are 21 feet. Above the springing line of the arch the piers are covered out in the center to save material and weight. The outer spandrel walls are three feet thick and rise 2½ feet above the crown of the arch. Above this height there is a 15-in coping and a three foot parapet wall. The main arches are 42 inches thick at the crown. There are two inner spandrel walls connected by a cross wall, and upon this is laid a 10 inch floor to receive the covering of 3½ feet of ballast.

CONCRETE MIXERS.

A battery of three Ransome concrete mixers was used in mixing the concrete. The mixing plant was located at the west end of the viaduct and the mixed concrete transported in half yard cars out over the viaduct. This work was in the hands of the E. B. & A. L. Stone company of Oakland, Cal.

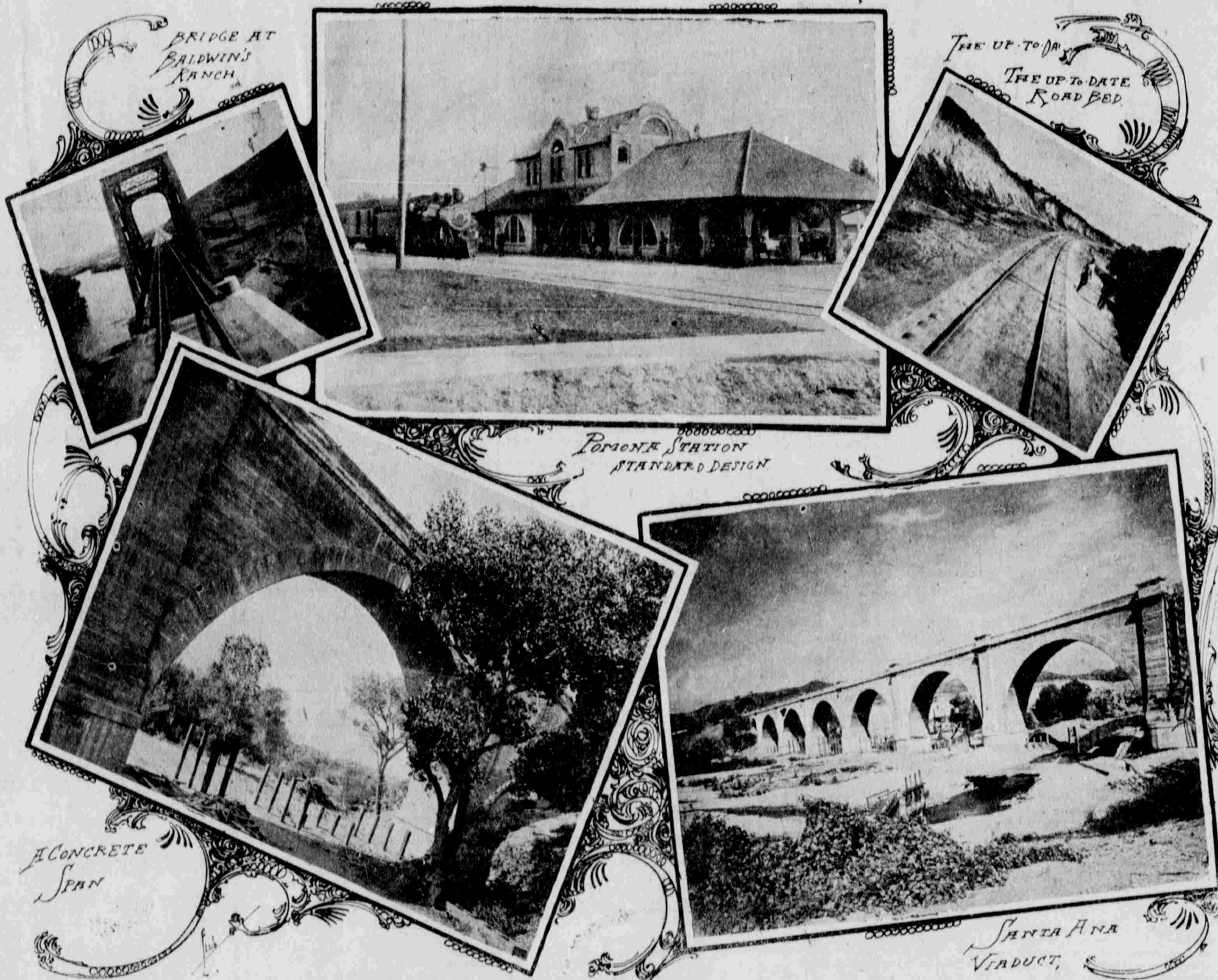
CONTRACTORS DESPAIR.

This whole work would have been finished a couple of months ago but for the difficulties encountered in trying to reach bedrock for the base of the eighth pier. It seems that at the position of the first pier bedrock was encountered at 12 feet below the surface, as work progressed towards the east, for each successive pier, bedrock was found at a greater depth until No. 8 had to be sunk 35 feet for a firm foundation. On one occasion it was thought that bottom had been reached and work was commenced, but it proved to be a huge boulder which gave way and sank as soon as operations were fairly underway. Ultimately at the depth of 35 feet the contractors had to admit that they were beaten. Water and gravel settled back in the hole as fast as it could be taken out.

FINISHED THIS MONTH.

The work of completing the viaduct was then undertaken by the Empire Construction company. As there was no way of getting the water and gravel out satisfactorily the workers determined to grout it. Grouting consists of cutting enough pumps to keep all surplus water out of the way and forcing with other pumps sufficient cement down into the gravel to change it into a substantial concrete. Six, eight and ten inch Worthington pumps are now placed and the work is progressing with the result that it will be ready for traffic this month. When finished the roadway over the bridge will be ballasted with the same decomposed granite that is being used over the entire west end of the line, making it impossible for one to determine, unless looking from the window of the car, whether he is on the bridge or on terra firma.

It is anticipated that trains will be running into Riverside over the concrete viaduct by the first of the year.



Time Table

In Effect May 1, 1903.

ARRIVE.	
From Ogden, Portland, Butte, San Francisco and Omaha.....	8:30 a.m.
From Ogden and intermediate points.....	9:10 a.m.
From Ogden, Cache Valley, Chicago, St. Louis, Omaha, Denver and intermediate points.....	12:01 p.m.
From Ogden, Chicago, St. Louis, Kansas City, Omaha, Denver and San Francisco.....	4:05 p.m.
From Ogden, Cache Valley, Butte, Portland, San Francisco.....	8:10 p.m.
DEPART.	
For Ogden, Omaha, Chicago, Denver, Kansas City and St. Louis.....	7:00 a.m.
For Ogden, Portland, Butte, Helena, San Francisco and intermediate points.....	9:45 a.m.
For Ogden, Omaha, Chicago, Denver, Kansas City, St. Louis and San Francisco.....	12:50 p.m.
For Ogden, Cache Valley, Denver, Kansas City, Omaha, St. Louis and Chicago.....	5:45 p.m.
For Ogden, Cache Valley, Butte, Helena, Portland, San Francisco and intermediate points.....	12:30 a.m.
T. M. SCHUMACHER, Traf. Mgr.	
D. E. BURLEY, G. P. & T. A.	
D. S. SPENCER, A. G. P. & T. A.	
City Ticket Office, 201 Main St. Telephone 250.	

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TO ST. LOUIS.
Through car Salt Lake City to St. Louis and Kansas City. Only one change to New York, Buffalo and principal points east—low rates for summer travel.
Special attention to ladies and children.
Tourist sleepers through to Chicago, Boston and other points, without change.

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Inquire at ticket office, 103 Dooly Block, Salt Lake City. Any information cheerfully given.
H. C. TOWNSEND,
G. P. & T. A. Missouri Pacific Ry., St. Louis, Mo.
C. A. TRIPP,
G. P. & T. A. Missouri Pacific Ry., Salt Lake City, Utah.

Burlington Route
A Good Way East.
Tourist cars to Chicago through scenic Colorado and over the Burlington from Denver every day.
Rate per berth, Salt Lake City to Chicago, \$4.00; Denver to Chicago, \$2.50.
These are Pullman tourist-cars—wide vestibules, rattan upholstery, comfortable clean linen and bedding, smoking, clean linen and bedding, comfortable clean linen and bedding, end, brilliantly lighted—very comfortable cars.
If you are going east, I can tell you the best and cheapest way to make the trip. See me, or write me.
Tickets
79 W. Second South St.
R. F. NESLEN, Gen. Agent,
SALT LAKE CITY.

There's no Better Service
Than that via the
FRISCO SYSTEM
From Kansas City, Saint Louis and Memphis to points in the South, Southeast and Southwest.
The Southeastern Limited
Leaving Kansas City at 6:30 P. M. daily, will take you to Springfield, Memphis, Birmingham, Atlanta, Jacksonville and all points in the Southeast.
For detailed information apply to
G. W. MARTIN
GENERAL WESTERN AGENT
1106, 17TH ST.
DENVER, COLO.

SALT LAKE ROUTE
TIME TABLE.
San Pedro, Los Angeles and Salt Lake R. Co.
DEPART.
From Oregon Short Line Depot, Salt Lake City:
For Provo, Lehi, Fairfield and Mercur, connecting at Neph for Mant and intermediate points on San Pedro Valley Railway.....7:30 a.m.
For Garfield Beach, Tonole, stockton, Mammoth, Eureka and Silver City (via Leamington cut-off).....8:00 a.m.
For Provo, American Fork, Lehi, Juab, Milford, Panguitch, Caliente and intermediate points.....6:05 p.m.
ARRIVE.
From Provo, American Fork, Lehi, Juab, Milford, Panguitch, Caliente and intermediate points.....9:35 a.m.
From Provo, Lehi, Fairfield, Mercur and San Pedro Valley Ry. points.....5:35 p.m.
From Silver City, Mammoth, Eureka, Stockton, Tonole and Garfield Beach.....5:35 p.m.
Daily.
Daily Pullman Buffet Sleeping Car Service between Salt Lake City and Milford, Modena and Caliente.
Direct stage connections for all mining districts in southern Utah and Nevada.
City Ticket Office, 201 Main St. Telephone 250.
J. L. MOORE, Commercial Agent.
For particulars call on or address agents, Salt Lake Route, or E. W. Gillett, General Passenger Agent.

Santa Fe
Atchison, Topeka & Santa Fe.
'Santa Fe Route.'
Direct Line from Utah to Kansas City, St. Joseph, Chicago, Galveston, El Paso, and the Mining Camps of New Mexico and Arizona.
3 Trains Daily 3.
For particulars, about REDUCED RATES EAST this summer, apply to
C. F. WARREN, Gen'l Agent,
411 Dooly Block,
Salt Lake City, Utah.

THE DENVER & RIO GRANDE AND THE RIO GRANDE WESTERN
Current Time Table.
In effect June 21st, 1903.
LEAVE SALT LAKE CITY.
No. 1—From Grand Junction, Denver and points east.....5:30 a.m.
No. 2—For Provo, Grand Junction and points east.....5:15 p.m.
No. 3—For Provo, Grand Junction and points east.....5:30 p.m.
No. 4—For Bingham, Heber, Lehi, Provo, Mant, Marysville and intermediate points.....6:00 a.m.
No. 5—For Provo, Bingham, Eureka and intermediate points.....5:00 p.m.
No. 6—For Ogden and all intermediate points.....6:10 p.m.
No. 7—For Ogden and the west.....11:55 p.m.
No. 8—For Ogden and the west.....1:45 p.m.
No. 9—For Ogden and the west.....9:50 a.m.
No. 10—For Park City and all intermediate points.....8:15 a.m.
ARRIVE SALT LAKE CITY:
No. 12—From Ogden and all intermediate points.....9:05 a.m.
No. 13—From Provo, Grand Junction and the east.....9:40 a.m.
No. 14—From Provo, Grand Junction and the east.....11:45 p.m.
No. 15—From Provo, Bingham, Heber, Marysville and intermediate points.....6:00 p.m.
No. 16—From Ogden and the west.....8:20 a.m.
No. 17—From Ogden and the west.....3:15 p.m.
No. 18—From Ogden and the west.....8:10 p.m.
No. 19—From Eureka, Payson, Provo and intermediate points.....10:00 a.m.
No. 20—From Park City.....5:15 p.m.
Perfect Dining Car Service.
Ticket Office, 103 W. Second South St., Postoffice Corner. Phone 250.
A. RENTON, Gen. Agt. Pass. Dept.

Rock Island System
Tickets good via Omaha, Kansas City or St. Joseph. "Rocky Mountain Limited"—one night to Chicago. Leaves Denver 11:35 a. m.; "Night Express" leaves Denver 10:35 p. m.; Kansas City and St. Joseph train leaves at 8:45 p. m. Dining cars for all meals; midday luncheon fifty cents.
HAL S. RAY, General Agent, Denver, Colo.

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A Profitable Place to Live.
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Famous Places Which Everyone wants to see.
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Mountain, Valley, Rivers, Lakes and Ocean reached by the
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For descriptive and illustrative literature call at No. 201 Main Street, Salt Lake City.
D. R. GRAY, General Agent.
OSTEOPATHY.
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A. P. Hibbs, 225 Deseret News Bldg., McDowell & Carpenter, 204-5-6 D. F. Walker Bldg.
Beaven & Murry, 303 Auerbach Bldg.
W. S. Ramer, over Walker's Store.
Wilma F. Hoefling, 225 Deseret News Building.
L. J. Goodrich, Logan, Utah.
Hibbs & McCoy, Eccles Bldg., Ogden, Utah.

Denver and Colo. Spgs.
—To—
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and
Return
NOV. 28, 29 and 30.
E. DRAKE, Dist. Pass. Agent,
C. A. BIBLE, Trav. Pass. Agent,
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THE NORTH WESTERN LINE
When going East you have choice of three through trains, via the Union Pacific and Northwestern Line?
Leave Salt Lake
7 a.m., 12:50 p.m., 5:45 p.m.