THE DISCOVERY OF A SAN FRANCISCAN.

Frederick H. Johnson the First to Make Nickel Hold Mercury.

The Story of the Building of the Oregon Told in Numbers.

Over Three Million Hours of Labor Expended in Completing the Big Battle-Ship.

For many years it has been the belief that nickel was a metal that would not hold quicksilver, and when Frederick H. Johnson of 23 Stevenson street visited a prominent plater in this City and asked, "Can nickel be coated with quicksilver?" he was at once informed that it could not, and that experiment after experiment had failed to bring about such a result.

Mr. Johnson is a mining engineer, who in his spare time makes experiments with rebellious ores. He took from his pocket a 5-cent nickel, and laying it before the individual he had questioned asked, "What would you call that?"

The man to whom it was presented examined it carefully, held it to the light and continued to examine it for many minutes and at last said: "Why, that's plated with mercury, but if I had not seen it with my own eyes I would not have believed it," as he returned it.

"It was a pure accident," said Mr. Johnson, when asked in regard to the process by which he accomplishes that which it was believed could not be done. "A pure accident. I was making an experiment with a coin in two different solutions, and had dipped it in each without effecting the result I anticipated. As I was taking it from the last one in which I had placed it, it slipped and fell into a solution of mercury. When I picked it out of that, to my great astonishment I discovered that it was plated with mercury, or in other words, that I had stumbled on the process of making nickel hold mercury. Experiments with other pieces of nickel produced the same result as was produced on the coin.

"Being engaged in mining I can only say as to what advantage this discovery can have in mining, and that is in connection with batteries in mills. In each mill there is at the bottom of the battery a large sheet of copper, silver-plated for the purpose of holding the mercury, that is used to catch the gold that comes from the ore that is crushed. In a five-stamp such a plate will cover a space a little more than sixty feet square, and these silvered copper plates have been the only ones that could be used for the purpose. A nickel plate that will hold mercury just as well as the plates now in use can be produced at half the cost, and in mills where there are a number of batteries it will make quite a difference in the cost of construction, seeing that the silvered copper plates cannot be procured under $1 a square foot.

"As I told you, I confine myself to my specialty, and for that reason at this time am unable to say if my discovery will be of value in other branches. That I will leave for others to determine."

The Oregon in Units.

Generally speaking all that the public knows of an immense floating fortress like the United States war vessel Oregon is that she is 348 feet in length and weighs—coal, armament, crew and everything else included—a total of 10,690 tons, and that the contract price to the Government was $3,228,000, but few stop to consider the enormous totals that are involved in the construction of such a monster. The contractors, who have to closely figure on the cost of such a vessel, keep account of every item, however small, and from this data the absolute cost to them can be quickly estimated. From these figures can be acquired an intelligent idea of the immensity of such a job, and an examination of these results, which are called the "units of the Oregon," will prove interesting reading.

First of all is the cost of labor, and a close computation shows that there were 3,288,000 hours spent in building the great ship, and that 328,800 days of ten hours each were consumed in her construction. No less an amount than 10,175,563 pounds of construction steel was used, and in addition 607,100 pounds of brass, 916,960 pounds of wrought-iron and 812,712 pounds of castiron was used. It took 534,500 pounds of rivets to fasten all her plates together and 87,600 pounds of copper pipe was used for her steam conductors. The Oregon is an ironclad, but the large quantity of 680,000 feet of lumber had to be used to finish her flooring and cabins, and incidentally 500,000 feet of common lumber was consumed for scaffolding, blocking, staging, etc.

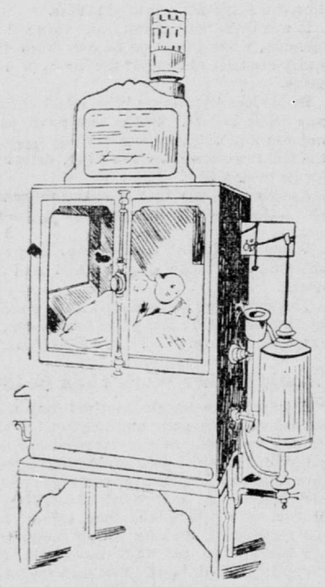
The sides of the Oregon are additionally protected by coffer-dams filled with cellulose, and of this material 126,000 pounds were used. If all of her big guns were fired at one time the shots would weigh, all together, 6800 pounds. Her engines, of which there are 106, develop a power of 11,000 horse, and to rush her through the water at seventeen knots the propeller must make 130 revolutions each minute.

The Oregon will have four great searchlights, which will make everything visible within a radius of five miles, and each will project a glare equal to 40,000 candlepower. Her keel was laid in November, 1891, but owing to the delay in furnishing the plates the constructors' trial did not take place until August, 1894. The final trial trip occurred in May, 1896. She will be turned over to the Government fully equipped for war on the 6th of July next.

For the Fruit Pickers.

A Massachusetts man, Henry Edgarton, of Shirley, has invented and patented Anat appears to be an easy and useful fruit gatherer. The claim of the inventor is a pole provided in its upper end with a notch, a ring mortised on one side in the notch and projected laterally from the pole at substantially right angles thereto; a flexible chute attached at its upper end to the ring; a picking frame formed of a single length of wire having parallel vertically-disposed terminals arranged at opposite sides of the pole and provided with studs embedded in the pole, the wire being continuously bent from the upper ends of the parallel terminals to form a series of connected V-shaped fingers arranged entirely inside of the ring and projecting a distance above and below it, the portions of the fingers above the ring serving as picking-fingers, and the portions below the ring serving to spread the upper end of the chute; a manually-controlled cutter arranged on the upper end of the pole directly opposite the space between the parallel terminals of the picking frame."

A dynamo engineer at Springfield, Mass., was recently killed by the passage through his body of an arc-light current at a pressure of 2500 volts. The usual methods of resuscitation were used without avail.



The Baby Incubator.

WHEN THE WORLD COMES TO AN END.

It May Happen by an Encounter With a Vagrant Comet.

There May Be Sudden Changes in the Sun's Veil, Which Would Burn Us Up.

But the Most Likely Fate, Says Garrett P. Serviss, Is That of Freezing to Death.

Will the world ever come to an end?

If so, when will its end be and in what manner will it be brought about? Will the earth be destroyed by fire or by frost, or how may it be expected to end?

Garrett P. Serviss answers these questions in an interesting way in the New York World. He says:

We can classify the possible accidents by which the heavens might be caused, in scriptural phrase, to "roll up as a scroll" and the "earth to melt with fervent heat," under three principal heads:

First—Encounters with comets.

Second—Sudden changes in the sun.

Third—Collisions with unknown bodies in space.

As to encounters with comets, it should be said, in the first place, that the chance of such an accident occurring is exceedingly slight, notwithstanding the fact that comets come soaring into the solar system from every possible direction—from above and from below, from the east and from the west—having the most complete independence of those influences which govern the direction or the motions of the planets.

Yet, as a matter of fact, the earth has actually encountered at least two comets, although in neither case was the meeting a direct collision involving the entire mass of the comet.

One of these encounters took place in 1861, when a great comet swished its tail across the earth and the moon and thereby created a brief luminosity of the atmosphere at night without producing any other recognizable effect.

The other instance occurred in 1872, when a part—how large a part we do not know—of Biela's comet met the earth at the crossing point of their orbits, and was burned in the upper air, producing a splendid display of fireballs, but doing no damage.

Another form of calculation has shown that, on the average, an encounter between the earth and a comet cannot occur more than once in 15,000,000 years. Only we have no means of telling when this period of 15,000,000 years began to run.

The next species of accident to be considered concerns what is going on in the sun itself. We know that the sun is a globe of matter, resembling the earth in the nature of its materials, but existing at such a temperature that its entire substance must be in a gaseous state.

That is to say, the sun contains such metals as iron and silver as well as such gases as hydrogen, but, owing to the tremendous heat, the iron and silver, as well as every other substance in the sun, are continually in the form of hot, glowing gases, and are never cool enough to assume the form of solid metallic masses which they take on in the earth.

At the surface of this immense sphere of metallic gases, which constitutes the sun, and which is between 800,000 and 900,000 miles in diameter, there is a partial cooling and the gases are a little condensed and tend to form a vast, glaring shell of heated clouds, inclosing the blazing nucleus of the sun within.

This cloudlike shell absorbs a portion of the radiation poured out from the interior of the sun and the effects of that absorption are visible as black lines in the spectrum of sunlight. A certain amount of the light and heat of the sun are thus cut off and does not reach the earth and the the other planets, as it would do but for the absorbing shell surrounding the sun. Thus we may say the sun wears a veil which renders its face less dazzling and its gush of heat less intense for us than they would be if the veil were removed.

Now, looking among the other suns of space—the stars—we find some whose veils of metallic vapor are thinner than our sun's and others which wear thicker veils than that which covers the face of our god of day.

One great star, Arcturus, a sun probably hundreds and possibly thousands of times more powerful than ours, is fairly choked by the density of its absorbing envelope, or shell. Others still, like the wonderful variable star Mira, show by their changes that they are still further advanced toward extinction, but that they probably experience periodic outbursts during which, for a short time, they blaze forth with a thousand times the fervor and intensity of heat and light than that they ordinarily exhibit.

The application of all this to our present discussion appears when we consider that the phenomena of sunspots, which at one time increases and at another time decrease in size and number, indicate that our sun, too, is variable, and that although there is no human record of any alteration in the amount of the sun's radiation sufficient to affect life on the earth, yet the example of other stars shows that such an alteration is possible.

To be sure, it is not likely to come about suddenly, yet we cannot be absolutely certain on that point. There is considerable historic evidence in favor of the view which some astronomers have adopted that the great star Sirius has, since the beginning of the Christian era, changed in color from red to white.

Analogy would lead us to believe that such a change must imply an alteration in the spectrum of the star's light, such as would be produced if the vast absorbing veil that covers the face of Arcturus were removed and that great sun permitted to send forth its tremendous radiant energy unimpeded. That thing happening to Arcturus would, I think, result in the destruction of life on every planet circling its rays.

As to the probability of such an occurrence—the chances for and against it—no data exist for making a calculation.

The third form of accident to which the earth might be subjected is collison with some unknown body in space. This case differs from that of an encounter with a comet, because the latter is an interloper wandering into the solar system, and governed principally, when in our neighborhood, by the attraction of the sun, while an encounter with one of the huge invisible bodies which we have reason to think exist, more or less abundantly, in space would be a result of the onward movement of the solar system toward the northern quarter of the heavens.

The movement is one of the most interesting discoveries in modern astronomy, and one of the least understood. Stated broadly, it amounts to this: That the sun, instead of standing still in space while the earth and the other planets revolve about it, is really in very rapid motion from the south toward the north.

The rate of this motion is not known with certainty, but there is good reason for thinking that it cannot be less than four or five hundred million miles in a year. Suppose we call it five hundred million miles; then it follows, since the earth must accompany the sun in its journey and partake of the motion described, that we are being hurried through space toward the north at the rate of more than a million and a quarter miles every day, or about fifteen miles in a second; that is, with seven or eight times the speed of a cannon-shot.

Now, it is important to remember that while an enormous distance separates us from the nearest known star, yet we know very little of the contents of space between us and the stars. But every year we are learning more and more about dark and invisible stars. Those that have been discovered thus far are intimately associated with bright stars, and it is through the effects of their attraction upon the bright stars near them that astronomers have become aware of their existence.

They are frequently gigantic bodies, equal to or greater than the sun. The star called Algol, for instance, consists of such a couple, in which a bright star and a dark one are linked together, and in this case the dark star is about as large as our sun, yet it gives forth not a ray of light, but on the contrary, when it comes between the bright star and our eyes, causes an eclipse of the former.

This is only one instance among many. The most natural conclusion concerning these dark bodies is that they are extinguished suns—suns which have run their course and perished. And, that being so, there is no apparent reason why they should not exist anywhere in space and singly as well as in combination with bright stars.

Such a body, then, invisible with any instrument yet devised, might exist in that part of space toward which we are moving. In fact its attraction might be one cause of the motion of the solar system toward the north, though probably not the sole cause.

A collision with such a body would be a far more serious thing than an encounter with a comet, because it would probably involve the whole earth in its destructive results. Supposing such a renconter to take place, it would probably be the sun, rather than the earth or any planet, that would bear the brunt of the actual collision. But that fact would not save us or help us in the least.

The effect of the collision would be to cause an outburst of heat from the sun great enough to turn all the oceans into steam, if it did not melt the rocks.

Only a few years ago a most significant thing, bearing upon this very question, happened in the sky. A new star appeared in the constellation Auriga. In a short time it was observed that the light of the new star, when examined with the spectroscope, gave evidence of the existence there of at least two bodies moving in different directions.

One of these bodies was approaching the earth; the other was receding. One of them was so heated that its atmosphere, or whatever the envelope may be called that surrounded it, appeared as if on fire, and glowed with a more intense heat than that which prevailed in the interior.

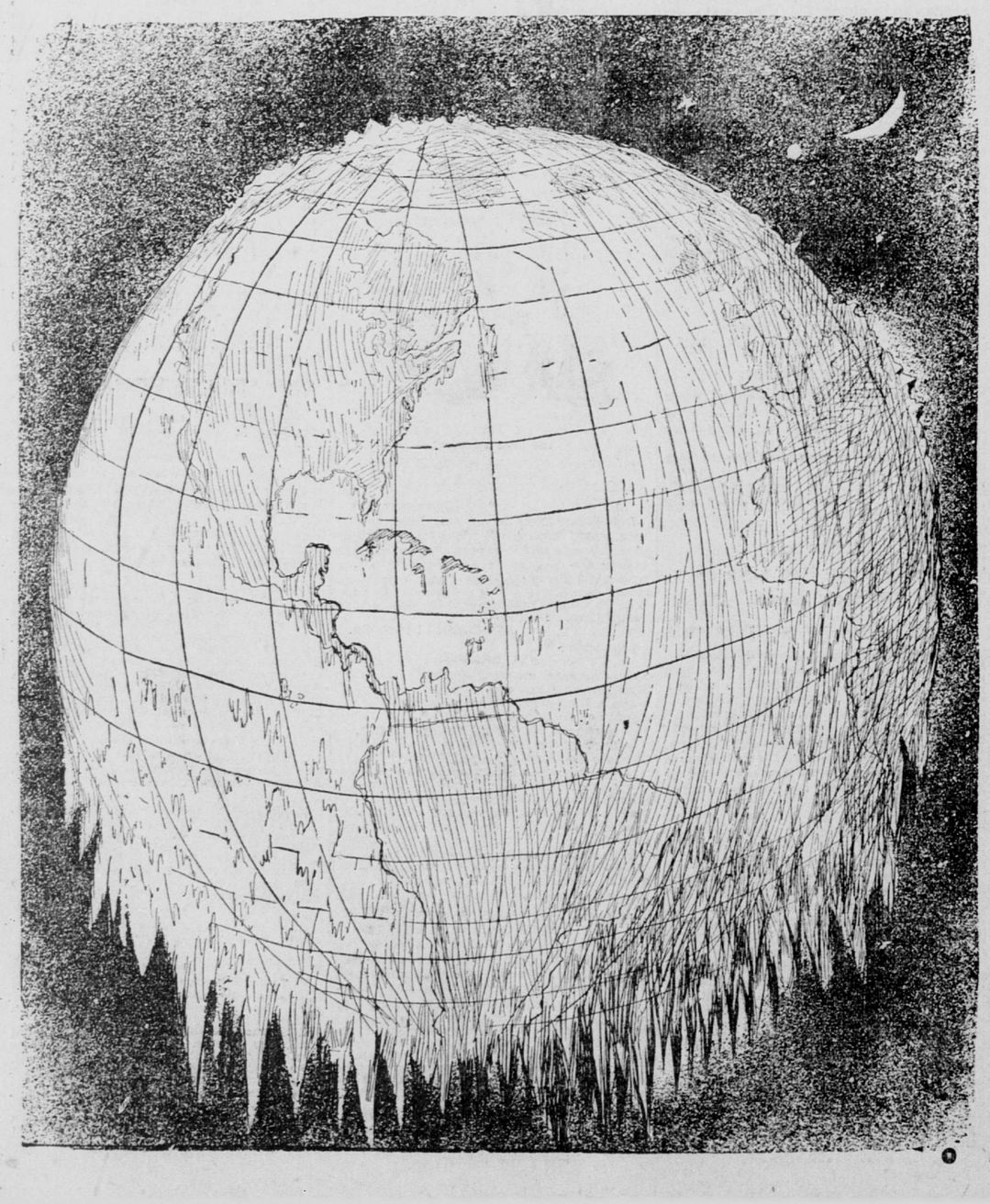
The other showed by its spectrum that while it was blazing with solar heat, yet like our sun it was hotter within than without. It had a shell of absorbing vapors surrounding it.

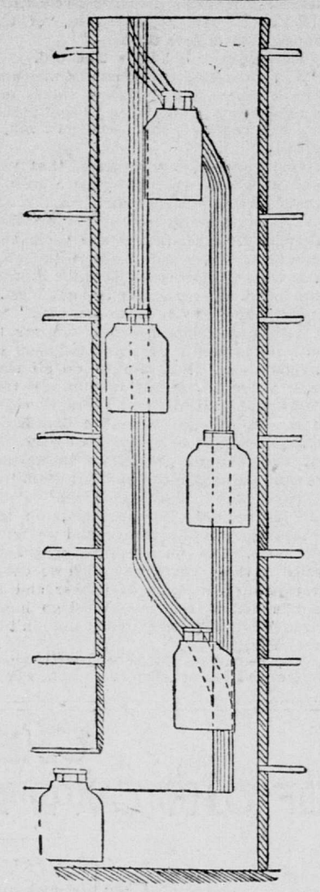
After a few weeks minor outbursts of light suddenly appeared in the new star and then died away again, and one suggested explanation of these was that they were caused by the running down of planets revolving around one of the suns that had been concerned in the original collision, and which planets had escaped the direct consequences of the encounter until the invader, which was darting across their system, met them and trod them down, so to speak, in its career of destruction.

Looking broadly at the whole subject, however, one is led to conclude that the most probable fate that awaits the earth is the fate of freezing. All the methods by which it has been imagined that Nature might perpetuate the existence of the sun are based upon unsound speculations.

The present condition of the solar system is only a passing stage in its history, and it is certain that when the sun ceases to shine, or when it reaches such a stage as that represented by Mira, alternately blazing with fiery intensity and then dying out almost to extinction, the earth as a habitable world must come to an end.

Barring accidents, then, the world has at least 5,000,000, and probably 10,000,000 years of life before it. And if an accident should occur, such as a collision, astronomers have the means of giving warning; and even though a great invisible body should draw near, its attraction would betray it long in advance of an actual meeting.





Shaft for the Corner-Turning Elevator.

AN ELEVATOR THAT TURNS THE CORNER.

Two Tracks in the Well and a String of Cars.

The Lift Takes You Upstairs and Then Down the Hal ways. A New York Device.

Something entirely new in the construction of elevators was recently patented by John R. Hamilton of New York. It comprises a system whereby there is a constant string of elevator cars up and down the same well, if needs be, each one working entirely in harmony with the others. The inventor, in describing his elevator, says:

"My improvement, while of very general application, relates more especially to an organization of passenger lifts for lofty and capacious structures. I provide a pair of vertical trackways, each furnished with a pair of guide-rails and with two pairs of racks. Of these trackways one is used exclusively for up and the other for down travel. The trackways communicate with each other at the top and the bottom, and the arrangement is such that a series of cars ascending in procession along the up track will be turned as they reach the top of the up track and shunted over to the upper part of the down track, while, when they successively reach the bottom, they are returned to the first track. Each car carries its own motor (electric), the gearing of which meshes with the racks in the elevator shafts. The cars are also so arranged and connected that they cannot approach each other near enough for collision, as upon such near approach they are automatically stopped by the making of an electric circuit, and only move again when the interval between them is increased.

Long-Distance Transmission.

The telegraph line from New York to Niagara, which transmitted power for the electrical exposition model, was 465 miles long, with a resistance of 3.3 ohms per mile. With a voltage of 450 volts at the Niagara end a current of 0.156 ampere was received in New York at a pressure of 225 volts, aggregating 65.7 watts.

THE MOST POPULAR INFANT INCUBATOR.

Every Effort Made in France to Perfect Them.

Used for Weakly Babes That Require an Artificial Atmosphere to Save Them.

Baby incubators are a feature of a good many hospitals. They are an invention for the benefit of weakly infants or for those imprudent young people who, having been in too great haste to appear in this vale of tears, require an artificial atmosphere to keep them alive. In France, where, apart from every other consideration, it is very important in the interest of the community that all possible means should be taken for preserving the lives of every baby citizen, many efforts have been made to perfect the "couveuse pour enfants." Our illustration shows one of the latest of these efforts. It certainly looks as if the young person were having a tolerably good time in the glass house which it shares only with our friend the thermometer, and periodically with a bottle of something good to drink.

A Wave Power Prophecy.

It would be safe to make a stupendous prophecy for the people of 1950 to realize. It is that the tides of the ocean on both sides of this continent will be used to transform power into electricity and send it half over the country to be utilized in manufacturing. Mechanicians have many a time remarked that if the power produced by the rise and fall of the tides and the currents of rivers could only be utilized there would be enough to run all the factories in North America, with enough to spare to send a balloon to Mars if there was any way of steering it there. Now scientific men have seriously set about experimenting with a view to getting hold of that power. Certainly machinery can be invented in this age of mechanics that will turn wheels alike when the water of the tides rises and when it falls. It is only a question of time, and not so very long a time either, when this will be done.

NEW TO-DAY.

Every package of this popular dentifrice contains: A large bottle of liquid Sozodont; A box of Sozodont Powder; A sample cake of Sozoderma Soap, for the skin

Sozodont FOR THE TEETH AND BREATH.

Use liquid Sozodont daily; the powder twice a week. A sample of liquid Sozodont by mail, provided you menion this publication and send three cents for postage. Address HALL & RUCKEL, New York City, Proprietors of Sozodont, Sozoderma Soap, Spalding's Glue and other well-known preparations.

RAILROAD TRAVEL.

BIG REDUCTION IN RATES BY RAIL ....TO.... PORTLAND, OR.

MONDAY.....JUNE 22,
And Every Fifth Day Thereafter.
Leave from S. P. Co.'s Ferry landing, foot of Market st., at 8 P. M.
$5.00—Including Berth in Pullman Tourist Sleeper.
....ALSO....
First-class tickets, including berth in Pullman Standard Sleeper. $10.00
SPECIAL NOTICE.
This train will not stop to deliver or take on passengers at intermediate stations, nor will tickets be sold or baggage checked to such points.
☞ Through Tickets for Puget Sound Points on Sale at Reduced Rates.
For further information apply at 613 MARKET STREET (Grand Hotel Ticket Office), San Francisco.
RICHARD GRAY, Gen. Traffic Mgr. T. H. GOODMAN, Gen. Pass. Agt.

SOUTHERN PACIFIC COMPANY. (PACIFIC SYSTEM.)
Trains leave and are due to arrive at SAN FRANCISCO.

LEAVE — FROM JUNE 7, 1896. —	ARRIVE
*6:00A Niles, San Jose and Way Stations	8:45A
7:00A Atlantic Express, Ogden and East	8:45P
7:00A Benicia, Vacaville, Rumsey, Sacramento, Oroville and Redding via Davis	6:45P
7:00A Martinez, San Ramon, Napa, Calistoga and Santa Rosa	6:15P
8:30A Niles, San Jose, Stockton, Ione, Sacramento, Marysville and Red Bluff	4:15P
*8:30A Peters and Milton	*7:15P
9:00A Los Angeles Express, Fresno, Santa Barbara and Los Angeles	4:45P
9:00A Martinez and Stockton	11:45A
9:00A Vallejo	6:15P
1:00P Niles, San Jose and Livermore	8:45A
*1:00P Sacramento River Steamers	*9:00P
‡1:30P Port Costa and Way Stations	‡7:45P
4:00P Martinez, San Ramon, Vallejo, Napa, Calistoga, El Verano and Santa Rosa	9:15A
4:00P Benicia, Vacaville, Woodland, Knights Landing, Marysville, Oroville and Sacramento	10:45A
4:30P Niles, San Jose, Livermore and Stockton	7:15P
4:30P Merced, Berenda, Raymond (for Yosemite) and Fresno	11:45A
5:00P New Orleans Express, Fresno, Bakersfield, Santa Barbara, Los Angeles, Deming, El Paso, New Orleans and East	10:15A
5:00P Santa Fe Route, Atlantic Express for Mojave and East	10:15A
5:00P Vallejo	11:45A
6:00P European Mail, Ogden and East	9:45A
6:00P Haywards, Niles and San Jose	7:45A
‡7:00P Vallejo	‡7:45P
7:00P Oregon Express, Sacramento, Marysville, Redding, Portland, Puget Sound and East	10:45A
SANTA CRUZ DIVISION (Narrow Gauge).	
‡7:45A Santa Cruz Excursion, Santa Cruz and Principal Way Stations	‡8:05P
8:15A Newark, Centerville, San Jose, Felton, Boulder Creek, Santa Cruz and Way Stations	5:50P
*2:15P Newark, Centerville, San Jose, New Almaden, Felton, Boulder Creek, Santa Cruz and Principal Way Stations	*11:20A
§4:15P Newark, San Jose and Los Gatos	¶9:50A
COAST DIVISION (Third & Townsend Sts.)	
*6:45A San Jose and Way Stations (New Almaden Wednesdays only)	9:47A
‡7:30A Sunday Excursion for San Jose, Santa Cruz, Pacific Grove, and Principal Way Stations	‡8:35P
8:15A San Jose, Tres Pinos, Santa Cruz, Pacific Grove, Paso Robles, San Luis Obispo, Guadalupe and Principal Way Stations	7:05P
‡9:47A Palo Alto and Way Stations	‡1:30P
‡10:40A San Jose and Way Stations	5:00P
‡11:30A Palo Alto and Way Stations	3:30P
*2:30P San Mateo, Menlo Park, San Jose, Gilroy, Tres Pinos, Santa Cruz, Salinas, Monterey and Pacific Grove	*10:40A
*3:30P San Jose, Pacific Grove and Way Stations	*1:30P
*4:30P San Jose and Way Stations	*8:06A
5:30P San Jose and Principal Way Stations	*8:18A
6:30P San Jose and Way Stations	6:35A
‡11:45P San Jose and Way Stations	‡7:45P
SAN LEANDRO AND HAYWARDS LOCAL.	
‡*6:00A Melrose, Seminary Park, Fitchburg, San Leandro and Haywards.	7:15A
8:00A	‡9:45A
9:00A	10:45A
10.00A	11:45A
‡‡11:00A	12:45P
2:00P	‡1:45P
3:00P	4:45P
4:00P	5:45P
5:00P	6:15P
5:30P	7:45P
7:00P	8:45P
8:30P	9:45P
9:00P ‡ Runs through to Niles. ‡ From Niles.	10:50P
‡‡11:15P	‡‡12:00P

CREEK ROUTE FERRY.
From SAN FRANCISCO—Foot of Market Street (Slip 8)—
*7:15 9:00 11:00A.M. ‡1:00 *3:00 ‡3:00
*4:00 ‡5:00 *6:00P.M.
From OAKLAND—Foot of Broadway.—
10:00A.M. ‡12:00 *1:00 ‡2:00 *3:00 ‡4:00
*5:00P.M.

A for Morning. P for Afternoon.
* Sundays excepted. † Saturdays only
‡ Sundays only.
†† Monday, Thursday and Saturday nights only.
§ Saturdays and Sundays for Santa Cruz.
¶ Sundays and Mondays from Santa Cruz.

RAILROAD TRAVEL.

SAN FRANCISCO & NORTH PACIFIC RAILWAY CO.
Tiburon Ferry—Foot of Market St.
San Francisco to San Rafael.
WEEK DAYS—7:30, 9:00, 11:00 A.M.; 12:35, 3:30, 5:10, 6:30 P.M. Thursdays—Extra trip at 11:30 P.M. Saturdays—Extra trips at 1:50 and 11:30 P.M.
SUNDAYS—7:30, 9:30, 11:00 A.M.; 1:30, 3:30, 5:00, 6:20 P.M.
San Rafael to San Francisco.
WEEK DAYS—6:15, 7:50, 9:10, 11:10 A.M.; 12:45, 3:40, 5:10 P.M. Saturdays—Extra trips at 1:55 P.M. and 6:35 P.M.
SUNDAYS—7:35, 9:35, 11:10 A.M.; 1:40, 3:40, 5:00, 6:25 P.M.
Between San Francisco and Schuetzen Park same schedule as above.

Leave San Francisco. Week Days.	Leave San Francisco. Sundays.	In effect April 2, 1896. Destination.	Arrive San Francisco. Sundays.	Arrive San Francisco. Week Days.
7:30 AM	7:30 AM	Novato,	10:40 AM	8:40 AM
3:30 PM	9:30 AM	Petaluma,	6:05 PM	10:10 AM
5:10 PM	5:00 PM	Santa Rosa.	7:30 PM	6:15 PM
7:30 AM		Fulton, Windsor, Healdsburg, Geyserville, Cloverdale.		10:10 AM
3:30 PM	7:30 AM		7:30 PM	6:15 PM
7:30 AM		Pieta, Hopland & Ukiah.		10:10 AM
3:30 PM	7:30 AM		7:30 PM	6:15 PM
7:30 AM		Guerneville.		10:10 AM
3:30 PM			7:30 PM	6:15 PM
7:30 AM	7:30 AM	Sonoma and Glen Ellen.	10:40 AM	8:40 AM
5:10 PM	5:00 PM		6:05 PM	6:15 PM
7:30 AM	7:30 AM	Sebastopol.	10:40 AM	10:10 AM
3:30 PM	5:00 PM		6:05 PM	6:15 PM

Stages connect at Santa Rosa for Mark West Springs; at Geyserville for Skaggs Springs; at Cloverdale for the Geysers; at Pieta for Highland Springs, Kelseyville, Soda Bay and Lakeport; at Hopland for Lakeport and Bartlett Springs; at Ukiah for Vichy Springs, Saratoga Springs, Blue Lakes, Laurel Dell Lake, Upper Lake, Pomo, Potter Valley, John Day's, Riverside, Lierley's, Bucknell's, Sanhedrin Heights, Hullville, Booneville, Greenwood, Orr's Hot Springs, Mendocino City, Fort Bragg, Westport, Usal, Willets, Cahto, Covelo, Laytonville, Harris, Scotia and Eureka.
Saturday to Monday round-trip tickets at reduced rates.
On Sundays round-trip tickets to all points beyond San Rafael at half rates.
Ticket Offices, 650 Market st., Chronicle building.
H. C. WHITING, Gen. Manager. R. X. RYAN, Gen. Pass. Agent.

Atlantic AND Pacific RAILROAD
Trains leave from and arrive at Market-Street Ferry.
SANTA FE ROUTE
SANTA FE EXPRESS
To Chicago via A. & P. Direct Line
Leaves every day at 5 P.M., carrying Pullman Palace Sleepers and Tourist Sleepers to Chicago via Kansas City without change. Annex cars for Denver and St. Louis.
The Popular SANTA FE ROUTE EXCURSIONS leave every WEDNESDAY for BOSTON with the very latest up-to-date upholstered tourist sleepers, in charge of experienced agents, running through to destination.
The best railway from California to the East. New rails, new ties; no dust; interesting scenery; and good meals in Harvey's dining-rooms.
Ticket Office—644 Market Street, Chronicle Building.

NORTH PACIFIC COAST RAILROAD
(Via Sausalito Ferry).
From San Francisco, Commencing June 15, 1896.
WEEKDAYS.
For Mill Valley and San Rafael—7:00, *8:00 *9:15 10:15, 11:45, A.M.; *1:45, 3:20, 4:15, 5:15, *6:00, 6:35 P.M.
Extra trips for San Rafael on Mondays, Wednesdays and Saturdays at 11:30 P.M.
SUNDAYS.
For Mill Valley and San Rafael—*8:00, *9:00, *10:00, 11:30 A.M.; **12:30, *1:30, *2:15, *4:00, 5:30, 6:45, 8:30 P.M. Extra trip to Sausalito at 11:00 A.M.
Trains marked * run to San Quentin. **12:30 P.M. does not run to Mill Valley.
THROUGH TRAINS.
For Point Reyes and way stations—8:00 A.M. Saturdays; 9 A.M. Sundays; 5:15 P.M. weekdays.
For Point Reyes, Cazadero and way stations—8:00 A.M. Sundays; 1:45 P.M. weekdays.

NOTARY PUBLIC.
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