

The Great Colorado Snowstorm December 1-5, 1913

Jessica R. Smith
Hollings Student
National Weather Service
Boulder, CO



Key Questions

- * What happened in the atmosphere that week?
- * Why did it happen?
- * What is important about this particular storm?
- * What were the impacts?
- * Could it happen again?



Top 10 Snowstorms in Denver

1880-2021



Date	Denver Totals
Dec 1-5, 1913	45.7"
Mar 17-19, 2003	31.8"
Nov 2-4, 1946	30.4"
Mar 13-14, 2021	27.1"
Dec 24, 1982	23.8"
Apr 21-23, 1885	23.0"
Oct 20-23, 1906	22.7"
Oct 24-25, 1997	21.9"
Nov 26-27, 1983	21.5"
Dec 20-21, 2006	20.7"



1913 At a Glance

- * Winter started early; first snowfall occurred September 11.
- * October continued the trend, and was also quite cold.
- * November saw warmer than average temperatures.
- * Concern was developing for the lack of moisture; not much snow, only a little rain.



September



October



November



December

Forecasting the Storm

- * Meteorologists relied on surface maps to predict where the storm would travel (upper level maps of the atmosphere didn't exist).
- * Many forecasts for the first week of December were of “mixed accuracy.”
- * End of the week storm was not foreseen.



Newspaper Weather Forecast

THE BAZAAR

Ri-Co-Muffler - - - 35c
All colors

Knit Caps - - - 35c
Mittens All Prices

Take a chance on that
Thanksgiving Turkey
and Oven

THE BAZAAR

FOR PRICES



Be Merciful to Your Horse

and don't compel him to travel over the rough roads barefooted. Have him shod. We shoe horses, mules, jacks or any old animal and make them comfortable. We also repair wagons, buggies, carts, drays, sleighs, cutters or any old thing that runs on wheels or runners, and make them serviceable. We invite all the readers of "The Little Hummer" to call and see us at the popular Blacksmith and Carriage shop—217 Hyman avenue.

Block and Slab Wood

\$2.50 Per Load

Containing 1 and 1-4 Cords

Phone Pitkin 89--The H. K. Trading Co., Aspen Block;
Orders Received At The Kay Stores Co.

ABOUT THE CITY

Harry Wood arrived today from Salt Lake City.

Amos Bourquin returned yesterday from Colorado Springs where he enjoyed Thanksgiving with his family.

The 7-year-old boy of Mr. and Mrs. Costello was quite badly injured Saturday by falling off a pile of logs at the Kelsey sawmill.

Mr. and Mrs. James Morrison are now comfortably located in the cottage formerly occupied by Mrs. Bastian, East Hopkins avenue.

Mrs. Beulah Cobb boarded the outgoing Midland last evening for her home at Denver, after a pleasant week's visit with her friend Miss Dorothy Koch.

Jeremiah Gerhart came up on this morning's Midland to attend the December meeting of the board of county commissioners now in session.

Miss Alice Scanlan was an arrival on the Midland yesterday from Norrie where she has been visiting her parents the past week.

WEATHER REPORT

Snow tonight and Tuesday.
Temperature 26, 27.

METAL QUOTATIONS

Silver \$.56 1/2
Lead \$ 4.15

Special discount made on all rugs at Rice's great removal sale.

Turkey shoot and raffle Sunday, December 14, 1913, at Axel Bourq's, Woody creek.

Salesmen Wanted--Earn \$100.00 monthly; expenses. Advertise or sell cigars. Woodlorn Co., New York City, N. Y.

ABOUT THE CITY

Miss Phillips arrived today on the Grande from Glenwood.

The Pattee family was released from quarantine today.

Mr. and Mrs. Asa Simpson left last evening for Hotchkiss.

EDISON TALKING PICTURES AT DREAMLAND THEATER

The seemingly impossible has at last been accomplished--moving pictures that talk and laugh and shout. Thomas A. Edison, the wizard, has at last made this possible and these wonderful talking pictures will be seen at Dreamland theatre next Wednesday evening and if you don't want to miss one of the scientific wonders of the century, you should be there and hear the pictures talk and act like real live people.

It is so wonderful that one hardly realizes that the flares on the screen are not alive.

Be sure and go.

Be sure and go. It is an opportunity of a life-time and the management of the Dreamland is to be congratulated upon securing this wonder of the age.

Epworth League Entertainment and Social at the M. E. church, Friday night. Admission 5c.

Best winter drink at Cal Wheeler's

Get your rugs while they are cheap at Rice's removal sale.

Bazaar, tea and dance will be given Saturday, Dec. 6, at Hotel Jerome, by the Bazaar Girls for the Domestic Science department of the A. H. S. Bazaar and tea from 2 to 6, dancing at 9 o'clock p. m.

Torpid liver, constipated bowels and disordered stomach are the causes of these headaches. Take Dr. King's New Life pills you will be surprised how quickly you will get relief. They stimulate the different organs to do their work properly. No better regulator for liver and bowels. Take 25c and invest in a box today. All druggists or by mail H. E. Bucklen & Co., Philadelphia and St. Louis.

THINGS for THANKSGIVING!

LIKE CUTLERY, &c.



THE DAY OF THE BIG EATS*

Roast your Turkey in a Libb's enameled steel, self-basting Roaster--it saves 20 per cent of any roast and makes the toughest meat tender and nutritious. It also bakes bread most beautifully. We are closing out one style of Roaster to cost--\$1.00. Get one before they are all gone.

L. H. TOMKINS HARDWARE.

Puritan Purity in Groceries



PURE groceries in this store mean groceries that are right. Just plain, old time standards of value and quality go here--and nothing else.

Just remember this when you are planning Thanksgiving Dinner for those you love, and whose well being is in your care.

We Have Just the Right Things

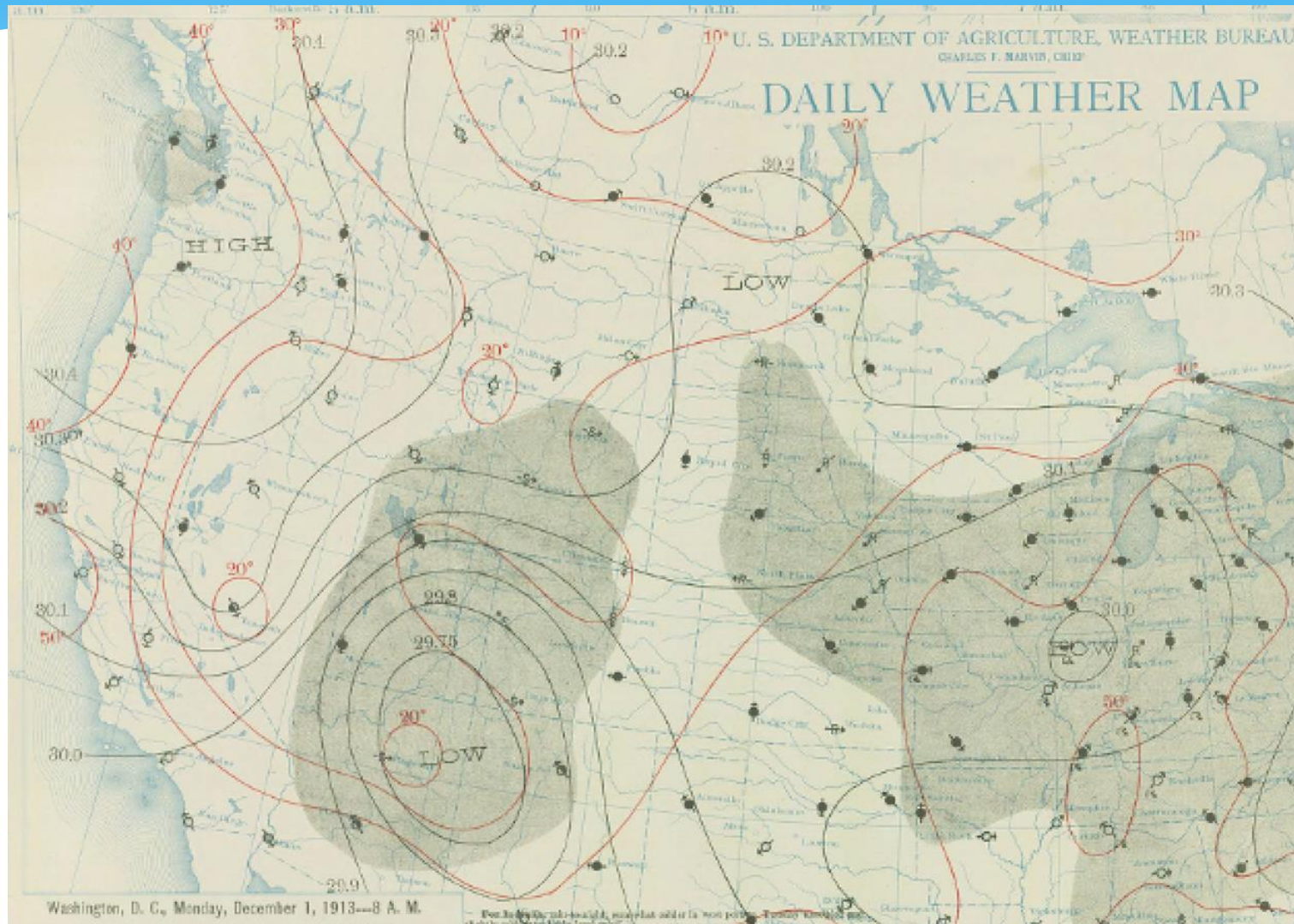
for Thanksgiving that will give to your meal the zest and completeness you desire, and make it the success your efforts deserve.

The season's best--at their best--and prices the lowest

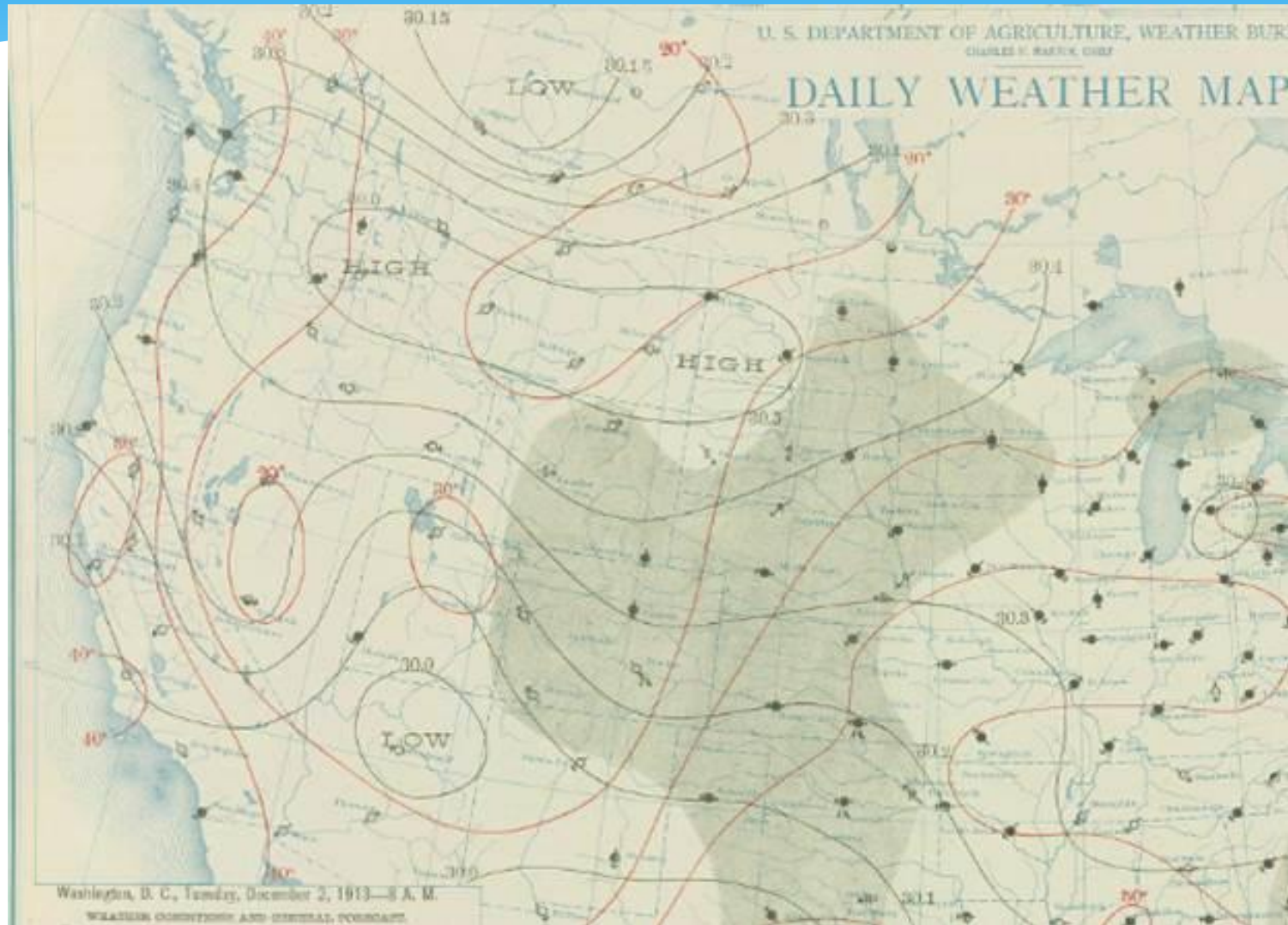
Turkey 25c; Geese 25c; Chicken 22c; all prices by the pound.
Sweet potatoes, 6c per lb.; Cranberries two quarts for 25c; Celery three bunches for 25c; Parsley 5c per bunch; Sweet Cider 50c per gallon; Fresh Dates the per package; Fresh Pigs 12 1/2c per package; Canned Pineapple Cherries, and Figs and Fruit Cakes 30c per pound; Emperor Grapes 80c per basket; Leaf and Head Lettuce and Endive.

FRANKLIN & WATSON

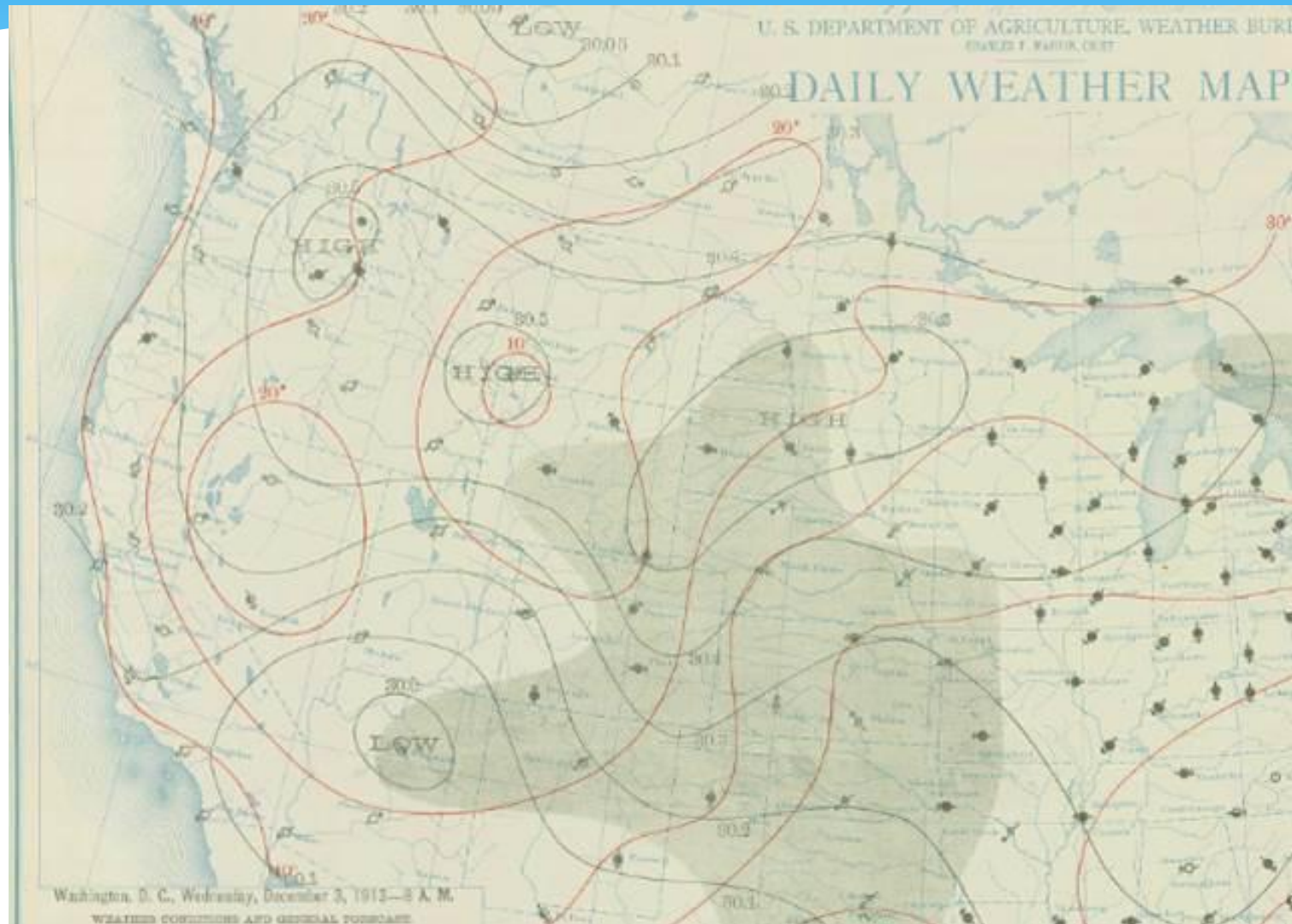
December 1, 1913



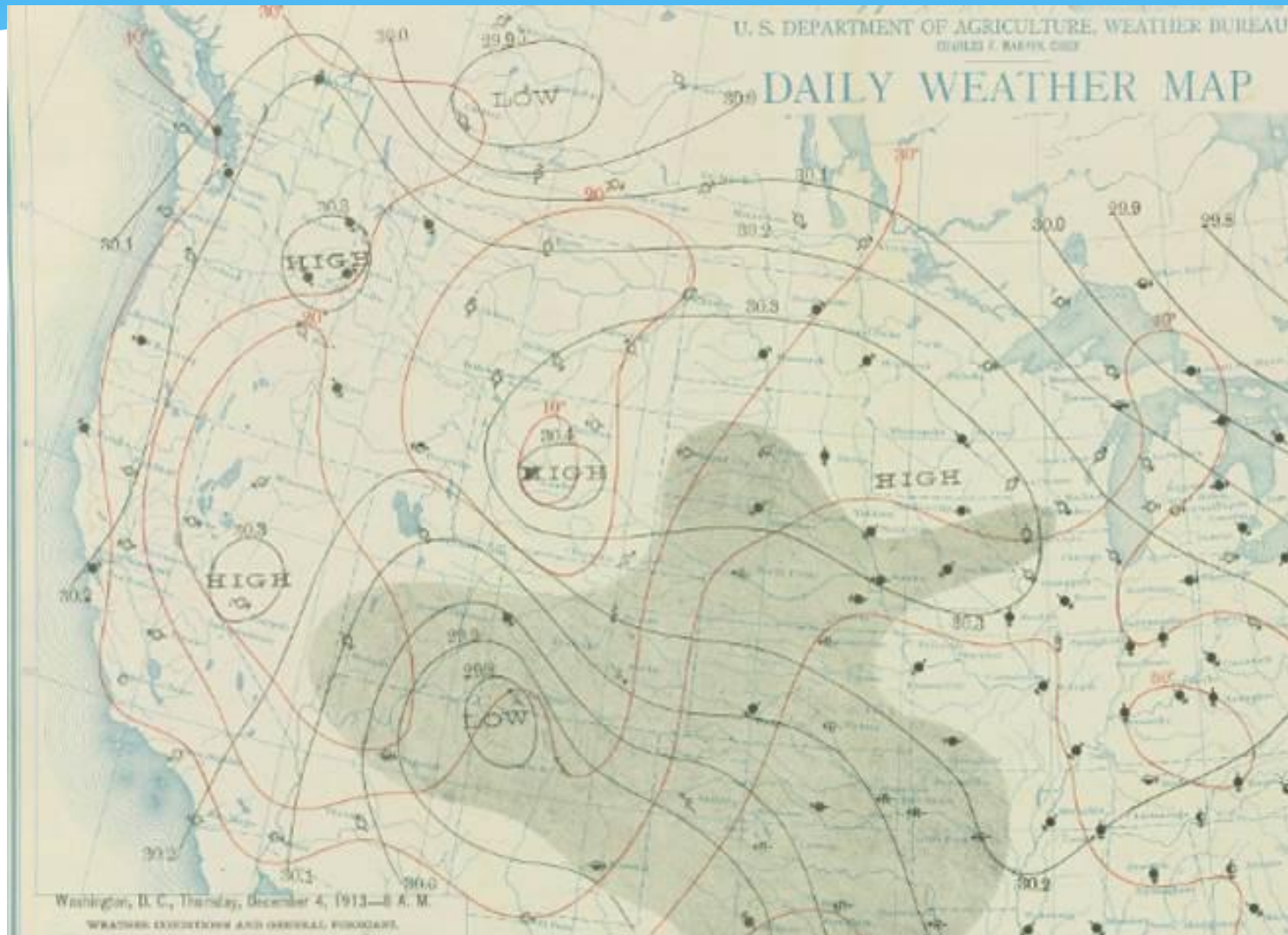
December 2



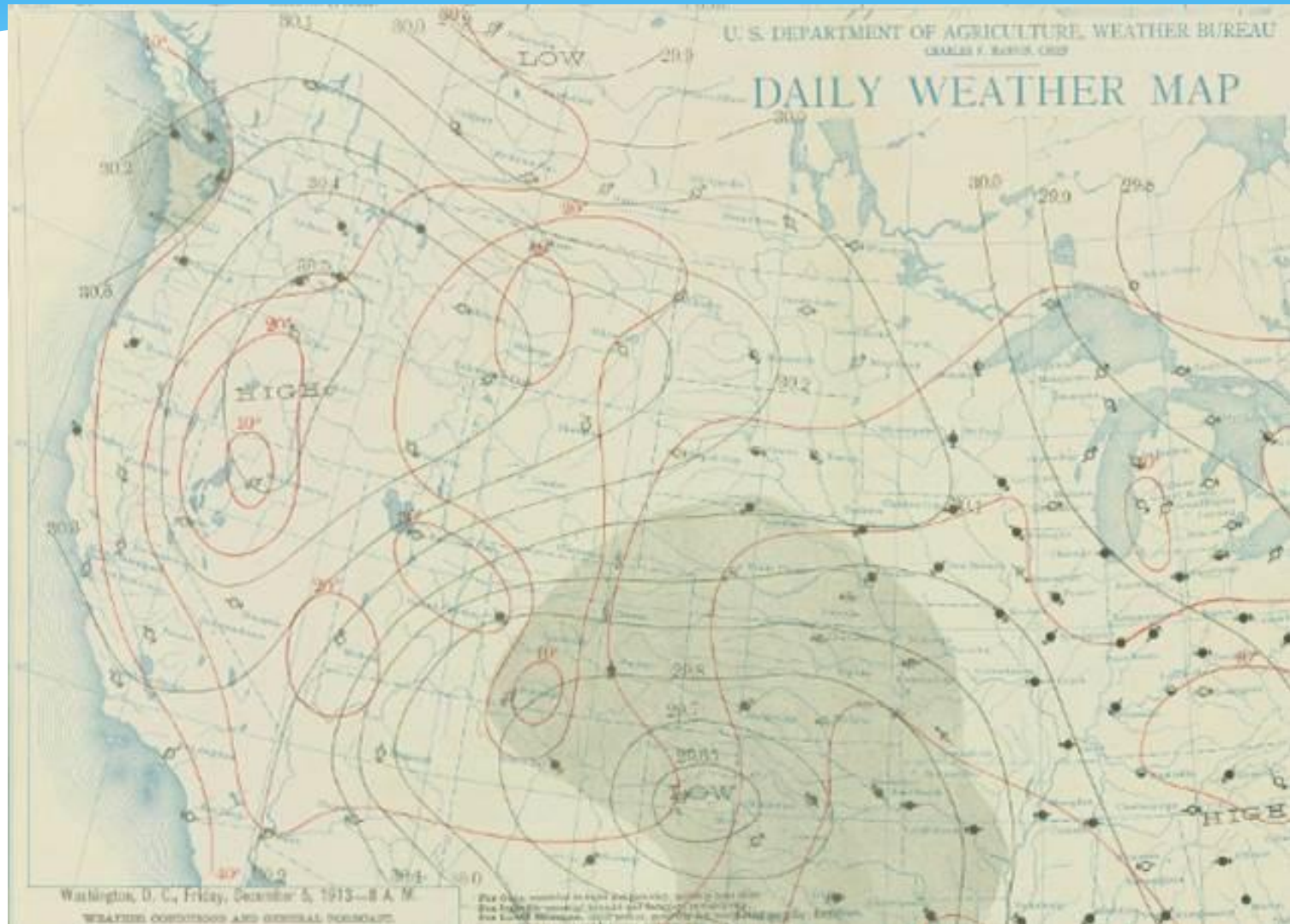
December 3



December 4

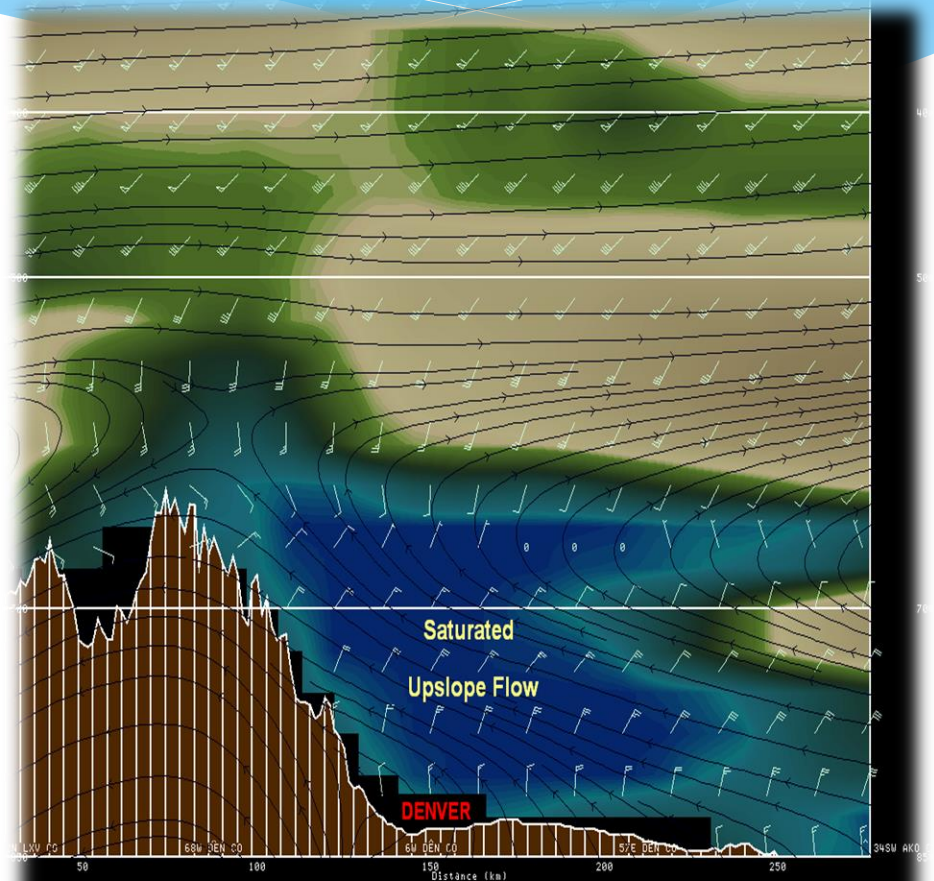


December 5



A Unique Pattern for December

- * Snow in the Denver Metro area is directly related to upslope flow conditions.
- * The placement of surface high pressure and low pressure during early December 1913 created an extended period of upslope flow.
- * The pressure pattern in December 1913 also “opened the Gulf” allowing lots of moisture to travel to eastern Colorado... an unusual pattern for December.



Temperature Differences

- * Temperatures remained at 32°F through much of the storm (very unusual for December).
- * Wet sidewalks in photos indicate these higher temperatures.
- * The temperature helped create heavy wet snow... also unusual for December.



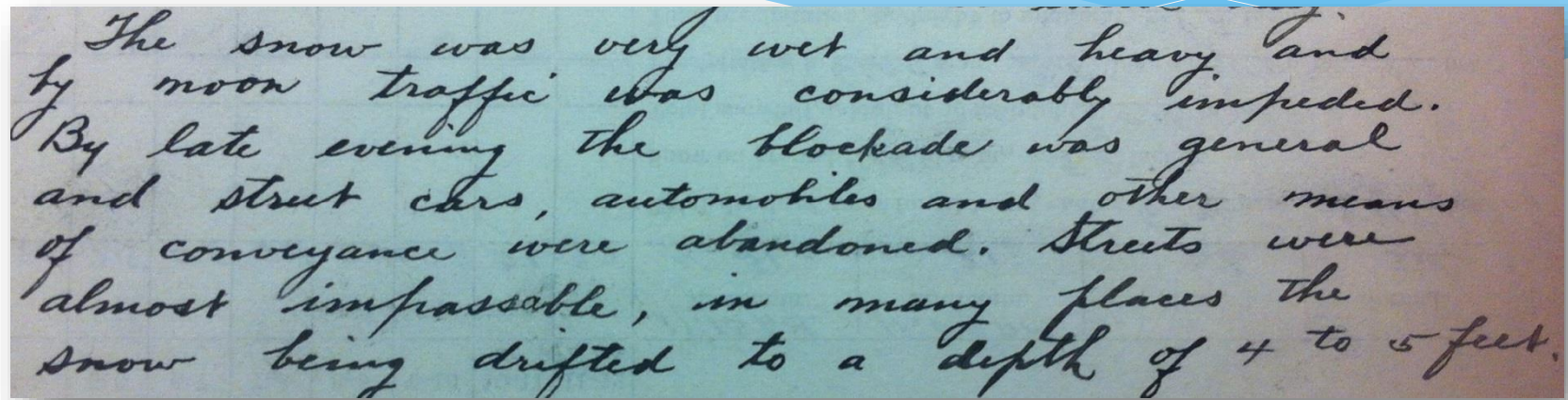
That Snow Storm/W. E. Heatley

Denver's "Royal Gorge" at Seventeenth Avenue and Sherman Street

Snowfall Observations

Denver Weather Bureau Records

December 4, 1913



The snow was very wet and heavy and by noon traffic was considerably impeded. By late evening the blockade was general and street cars, automobiles and other means of conveyance were abandoned. Streets were almost impassable, in many places the snow being drifted to a depth of 4 to 5 feet.

- * “The snow was very wet and heavy and by noon traffic was considerably impeded. By late evening the blockade was general and street cars, automobiles and other means of conveyance were abandoned. Streets were almost impassable.”

-Weather Bureau Record
December 4, 1913

Snowfall Totals

Location	Total for December 1-5
Georgetown	86"
Estes Park	53"
Denver	45.7"
Boulder	43.75"
Ft. Collins	33.5"
Colorado Springs	24.4"



Data from Colorado Climate Center

Local Newspaper Headlines

WORST STORM IN HISTORY RAGING IN COLORADO

The Daily Journal
December 5

ROOFS

Collapsing In Denver
from Weight of
Snow

Trains Stalled On All
Lines Near the Capital
City; Much Suffering

Aspen Democrat Times
December 5

SNOWFALL HEAVIEST IN 15 YEARS

DEPTH IS ALMOST RECORD
FOR MONTH OF
DECEMBER.

Official Register Gives 13 1-2
Inches With Moisture
Amounting To Nearly
Half An Inch.

Ft. Collins Weekly Courier
December 5

SUN APPEARS AND STARTS THAW IN DEN- VER--CONDITIONS AWFUL--NO TRAINS

The Daily Journal
December 6

WEEK OF RAIN AND SNOW

Yuma Pioneer
December 5

Storm Stories

MILLIONAIRES MINGLE WITH LABORERS TO FREE DENVER FROM CLUTCHES STORM

DENVER, Dec. 10.—Thousands of people today responded to the call issued by Mayor Perkins for help in clearing the streets and sidewalks of snow so that traffic could be resumed, and volunteered to shovel snow in the suburbs to clear the streets to traffic.

In this good work everybody seemed to enter in good spirit and with vim, the millionaires of the city mingling with the laborers and clearing the streets for blocks and blocks.

The railroad situation here and throughout the remainder of the state is rapidly improving, and most of the trains are now running on normal schedules. The Christmas shopping in the city is now on in full blast and nearly all of the schools are again open after being closed since Friday.

The streets in most sections of the city are now sufficiently cleared to permit the grocers and dairymen to deliver food and milk.

The Daily Journal
December 10, 1913

The Daily Journal
December 9, 1913

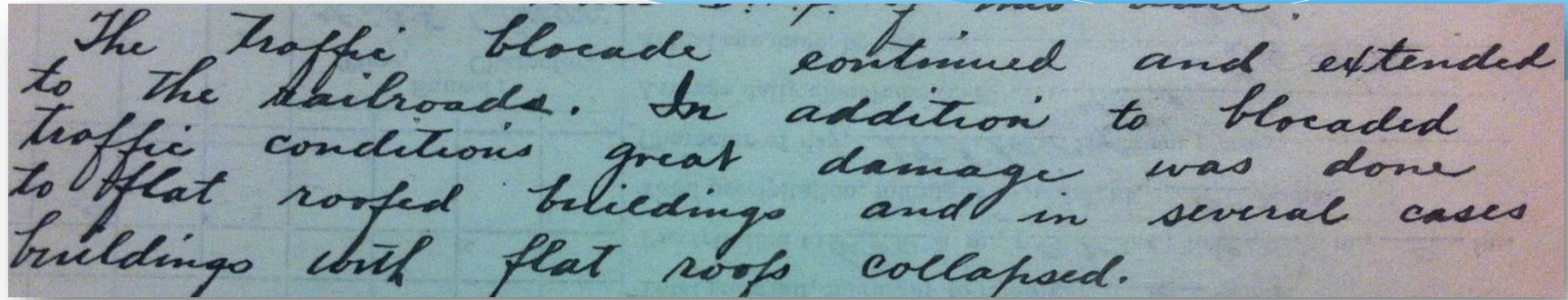
MELTING SNOW REVEALS MANGLED BODY IN DENVER

DENVER, Dec. 9.—The melting of the snow here today caused the revealing of a severed hand, which was protruding from the snow this morning. This led to an investigation and the discovery of a badly mangled body of an unidentified man on the Colorado and Southern railroad tracks in the suburbs of the city. The body was terribly mangled and for this reason probably never will be identified.

The 34 persons who have died in the city recently are still unburied, as it is impossible to reach the cemeteries nor to dig graves. These bodies will be held in the undertaking rooms until the snow is cleared sufficiently to permit of holding funerals.

Traffic in the city is rapidly assuming the normal and it is expected that within a few more days everything will be running as usual.

Impacts of the Storm



The traffic blockade continued and extended to the railroads. In addition to blockaded traffic conditions great damage was done to flat roofed buildings and in several cases buildings with flat roofs collapsed.

- * “The traffic [blockade] continued and extended to the railroads. In addition to [blockaded] traffic conditions, great damage was done to flat roofed buildings and in several cases buildings with flat roofs collapsed.”

-Weather Bureau Record

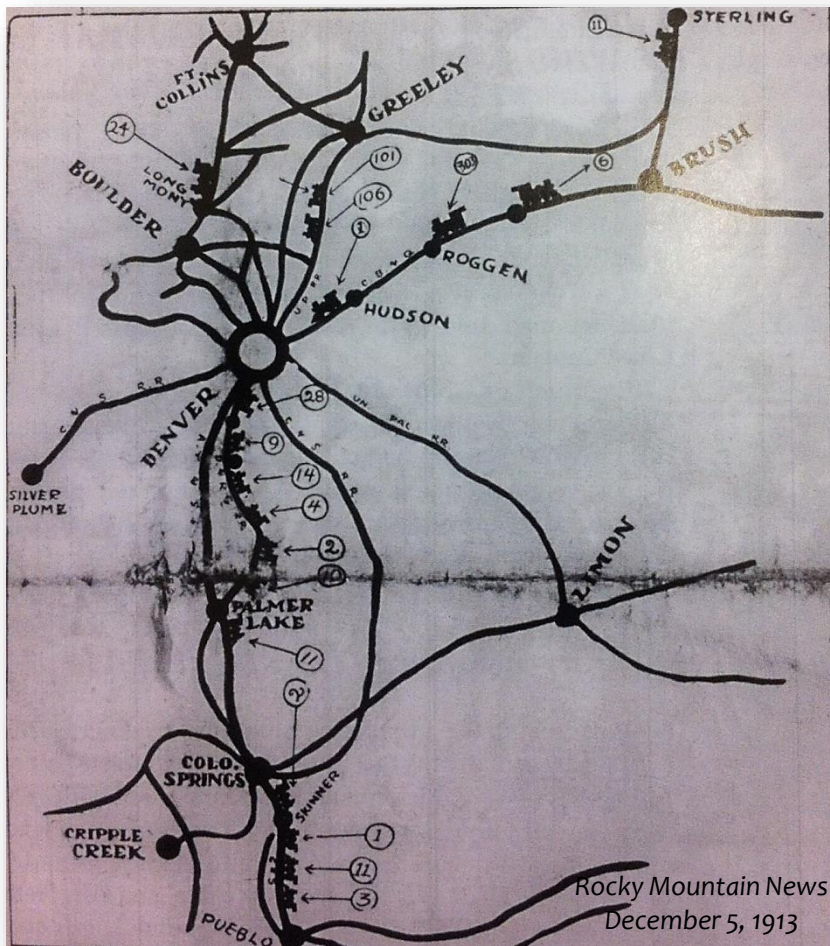
December 5, 1913

Streetcar Routes Frozen



Thursday, December 4th at noon, all tramway service through the city was cancelled. Service wasn't restored until one week later. As soon as one track was cleared, another would be tied up and covered with snow drifts.

Rail Transportation Crippled



- * Map showing the number of trains stalled heading in and out of Denver published by Rocky Mountain News (Dec 5)

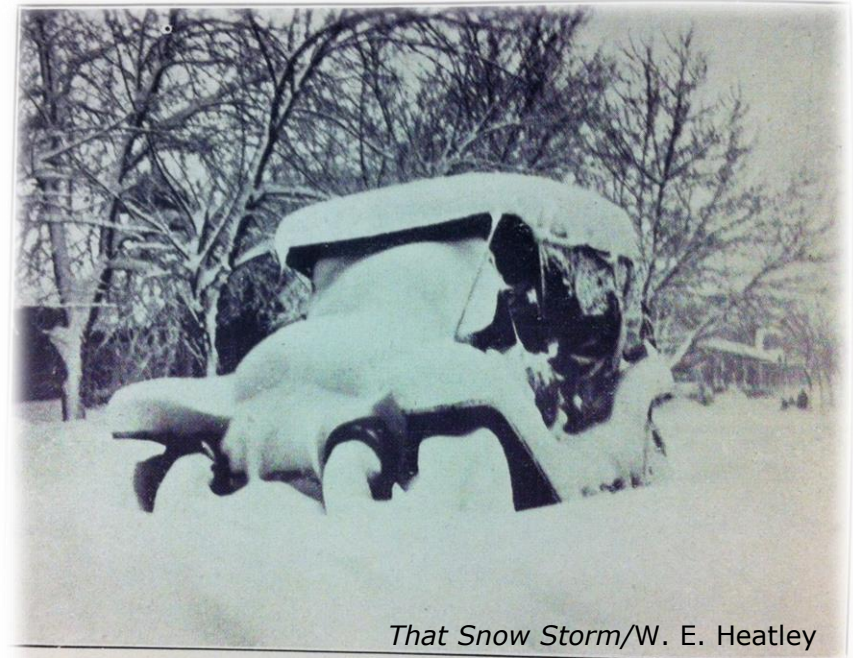


Automobiles Immobilized



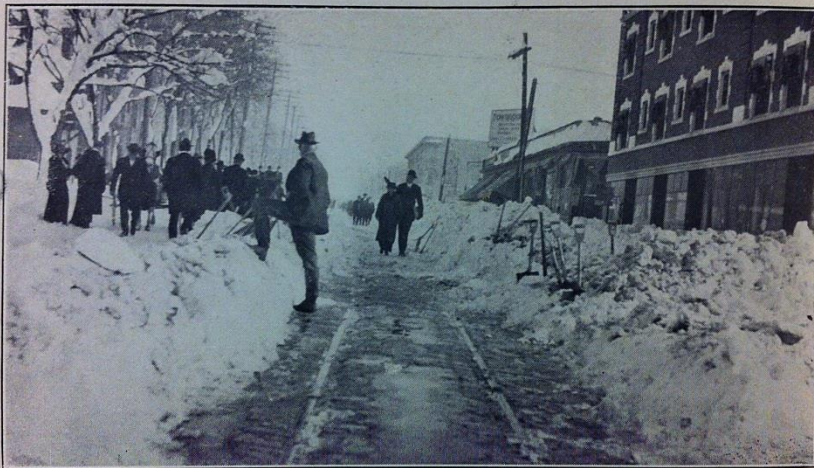
History Colorado Museum

- * Automobiles had to be hauled to garages by (ironically) teams of horses.



Many Autos Were Abandoned in the Streets

Pedestrians Take Over



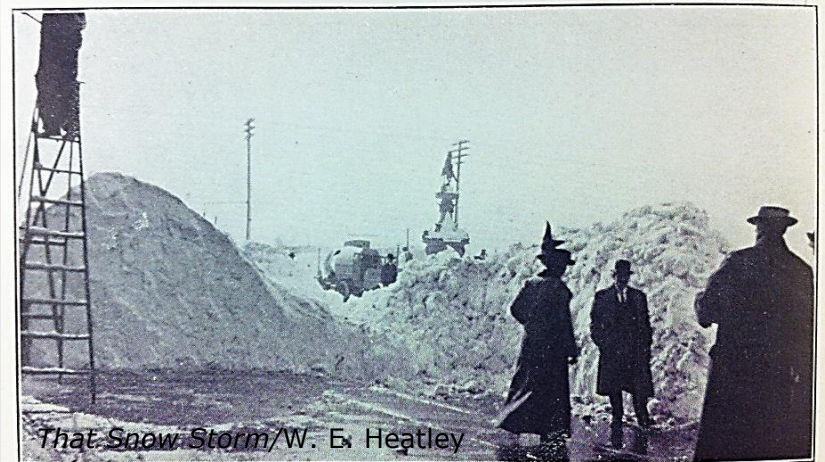
Sidewalks Impassable—Pedestrians Take to the Middle of the Road

That Snow Storm/W. E. Heatley

- * *The Denver Post*: “The only means of transportation was a sturdy pair of legs.”



History Colorado Museum



That Snow Storm/W. E. Heatley

Banks of Snow Everywhere. Typical Scene of Cleared Sidewalks

Employment Abounded

The tramway service hired anyone who was able-bodied to help clear the routes. This started out on Thursday with 780 men, but by Friday grew to over 4,000!



10032203

History Colorado Museum

Tramway Has Jobs for Everybody Today

Anyone may have work today by applying to the Tramway company. Hundreds of men are wanted to shovel snow, and no one who wants to work will be turned away.

Seven hundred and eighty men were employed by the Tramway company yesterday to clear the tracks of snow. Over 200 men found work with the city dump wagons at salaries of \$2.50 a day. Both the Tramway company and Highway Commissioner Sheriff are seeking more men.

By noon today there will be no unemployed men of able body in the city of Denver.

Rocky Mountain News

December 5, 1913

Long Term Impacts: Ski Industry

- * Skiing was never considered a “recreational sport” until the years after the 1913 storm.
- * Denver’s first ski-jumping competition was held in the foothills in January 1914.



10028506

History Colorado Museum

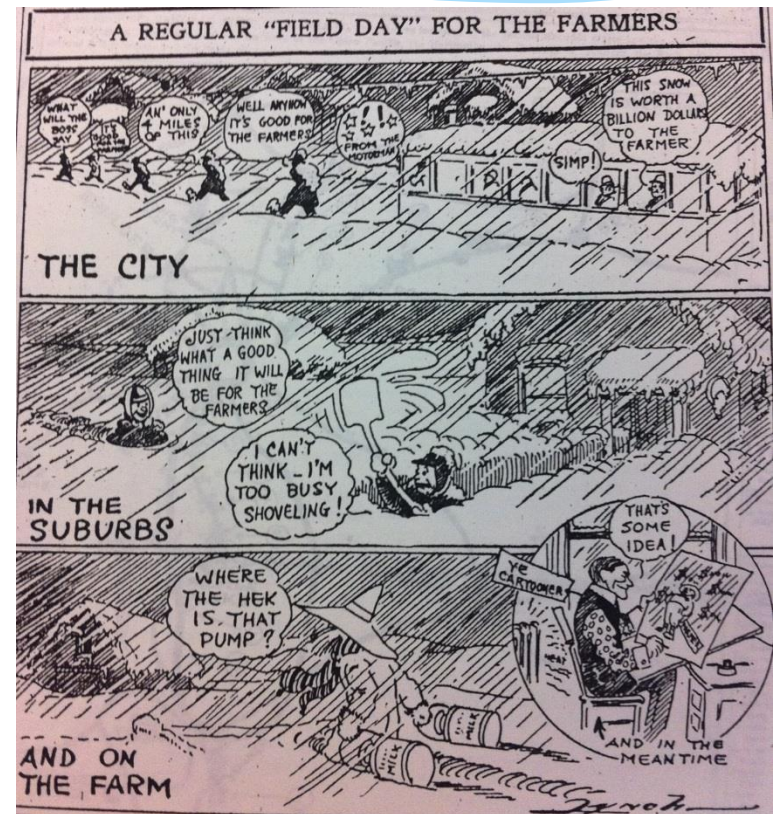
Long Term Impacts: Farming

WHOLE STATE REJOICES OVER BIG SNOW STORM

*Bountiful Crops Assured by Enormous Increase of Moisture
and Business Men Are Happy.*

Rocky Mountain News
December 5, 1913

- * Saturday headlines of Rocky Mountain News declared “Farmers See Golden Harvest”
- * The 1914 crop valued at \$115,000,000
- * The snow assured sufficient moisture



Rocky Mountain News
December 5, 1913

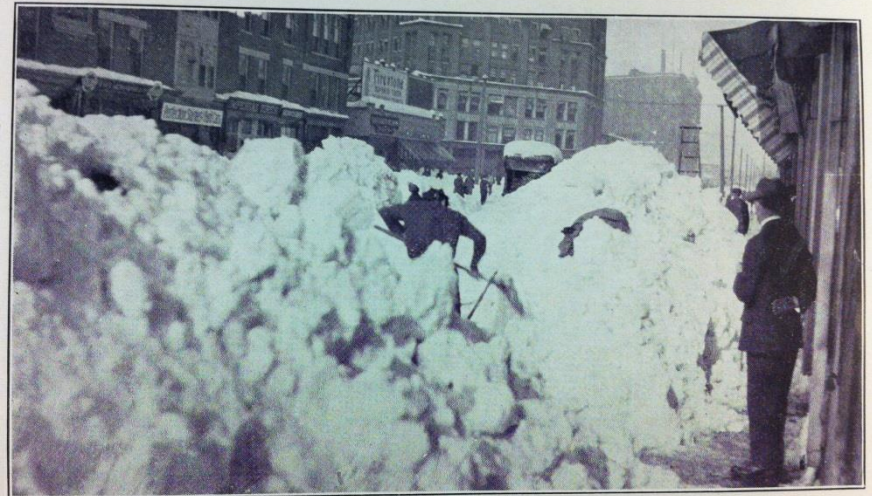
Long Term Impacts: Building Codes

- * This storm set the precedent for snow loads on building roofs
- * Modern roofs must be able to hold 25-30 lbs/sq ft*

*Taken from Denver Building Codes



Figure 11. Collapsed roof of the large Bed, Bath, and Beyond store on south College Avenue in Fort Collins, CO. The roof on this structure was replaced and the store reopened several months later. Photo courtesy of Ron Phillips, City of Fort Collins.



Tired? Every Cubic Foot Weighed Twenty-two Pounds

That Snow Storm/W. E. Heatley

Caption: “Every cubic foot weighed twenty-two pounds”

Kit Carson Pioneer Monument

Downtown Denver

