May 16, 1903
Left Washington at 10 Am. B.t.0. for Santa Rosa, New Mex.

May 17. Reached St. Louis at 1:35. and Kansas City at 9:30 P.M.

May 18. Passed Pratt, Kansas at 9:45 A.M. and reached Dalhart, Tex. at 7 P.M. and Santa in the night at 1 P.M. Went to the unheard hotel.

May 19. Moved over to the Stiff House after one breakfast at the hotel. Hunted hares and sent operator down to ranch for wagon.

May 20. Wells arrived in night

May 21. Set traps and hunted for tin and saddled horses

May 22. Got one horse & hunted over the country for a good camp place. Mr. Mott offered to take us out to his place to camp so went out another day.
May 23 - Went out & camp near Mr. Watts place 8 miles north of town on south west side of Pesc River. Surber went both to ranch & bring out buck.

May 24 - Sunday. Set traps around camp. Surber returned toward night.

May 25 - Made up skins in morning. In P.M. took photographs and hunted.

May 26 - Followed down the gulch from camp about 2 miles o' where it joins the Pesc River in a side gulch sandstone canyon 100 to 300 feet deep. The gulch is a side canyon 50 to 150 feet deep with a number of shallows and deep pools but no running stream. The walls are sandstone cliffs, full of caves & holes & beaks. Here & there a layer of clay is found in one of them we found fossil wood & bones. The gulch or canyon walls are...
are covered with scrub live oak, plus
aromatic junipers and nut pines.
A few cottonwoods grow along the bottoms
where there is water — bunches of willow
in a few places. One pool had a tendency
more likely to guard — another a bunch of fanks.
Junipers and nut pines make a sheltered
forest over the rocky slopes both grow
into canyons for a short distance
across the red shrublands, plains begin
and sweep away to the valley as usual.
From the top of the highest ridges a line
of blue mists, with snow capped peaks
show to the N.W. the high ridges with
sharp northeastern exposure to the S. E.
while the Staked Plains reach their highest
point. Between this point and the N.W.
and also between the valleys of the
Pecos and Canadian rivers a line
sharp buttes begin, with evidences
built from near the point of the
Staked Plains N.W. till they run into
other high mesas that slope up to the N.W.
The general region is upper terraced
plains, but along the valleys — canyons
especially in warm slopes a strong
element of lower terraced is shown in
scattered mosquitoes, a few Opatutia
epitrichus, Opuntia engelmanii, Cerus
ecrece aurantius?, Mammillaria hybrid,
and.

Erythrostigma spectabilis is common over
valleys to top of high ridges.  
Peumus Bolusii is common near the
gulch at Mott's ranch.

A pair of Calyptra aequalis are breeding
near our camp.

The country is old & has been
inhabited by the Mexicans for ages.
Old adobe & rock walls have often seen
& there are sandies at every cast
of good water (or drinkable water),
the the feat is alkaling.
Sheep are tended over the roughest
country.  Cattle & horses find a
living on the short grass of the
plains.
May 27. Shot at a few mule deer, but failed to get any. Handed for the horses half of the day. In the afternoon moved camp to a better location a few rods away. The two missing saddle horses came in for water toward night but Sugar did not get in till after dark as I had to get supper first, and shot no game.

May 28. Caught a pronghorn antelope, a lot of Sees, 2 or 3 big mule deer, 1 white + 1 black. Will get a Dipodaurs spectabilis. Made up skins + in P.M. went over to dip out the Dipodaurs wound + found a young one in it, with eyes still closed. It is quite helpless but shows the pattern of the adult in plumbers colored skin, when the dark hair grows + light pink when the white hair is to be. This little fellows is entirely helpless, but squeaks + cries + pounces the air with his little fat hands. Willer has adopted it + hopes to be able to raise it on continued milk. The wound was built around a
bunched low mesquite, was about 3 ft high by 5 ft across & had 9 deep holes. Some were closed near the surface of the ground & through as we touched the crest. The mound was merely a honeycomb of earth around low mesquite bushes. Fruits, thin walls and pillars or partitions of earth & mesquite stems. It was 2 1/2 in places 3 stories high, with floors between, but apparently none of the burrows went more than 6 inches below the surface of the ground. Other burrows may have been buried in digging however.

One of the larger cavities we found soft next to gray + in one of them a young bipedonopsis probably a week old. His eyes were not open nor ears unfurled. He was squeaking when found in the largest nest. The nest chambers were about 4 x 8 or 5 x 10 inches + were half filled by the nest. Other chambers contained stores of food, mainly grass balls, with some seeds
Experiments were made on the top of the mound, but none of the chambers, but none of the stores were met. The walls of the mound were lined with old vellum and food material that had been discarded years ago and used in building.

May 29.

May 30. Moved camp from Wills place to the Wills 3 miles east of Santa Rosa, and camped on a cliff overlooking a gulch 100 feet below us. This is on the road of Lummi and will be a good place to start from as soon as our outfit is complete.

May 31. Sunday. Worked around camp. Went to town but the light wagon had not come for the goods for back. Got supplies and returned to camp. Set traps. Caught only mouse, rats, and sparrows. A hard rain in evening gave us the first good water of the trip.
June 3. Went over to the big springs at the lake and added a lot of fish to the last and got a lot of good photos. Took the big spring nearest town which Susie says was found. Best water I found to be 82 feet deep. It is a round half hole through sandstone rock about 75 feet across. The water is clear as crystal and you can see white stones on the bottom. The sides are covered with water plants green and beautiful, and the water has deep green and blue tints. It is full of minnows that go deep down to can be seen coming up from near the bottom to get air at the surface. A good sized stream comes from this spring and fills 2 irrigation ditches that run for miles. The water is cold and clear but very alkaline.

The second spring is larger than the first, without outlet, and seems like a lake in an enclosed basin. It nearly fills the depression which is a rock walled pit down 50 feet to the water. The pool is probably 300 by 500 feet across, and is fringed with
cattails & tuber. The water is not very clear & I can not learn how deep it is. Apparently there are fish in it, as something kept jumping out of the water. There were also black ducks & blue winged teal.

The third pool is just over the ridge from the last. In the bottom of a deep pit in the rocks, but is small & shallow. Just a pond about 75 by 150 feet & surrounded with tall cattails, tuber, & reeds (Phragmites). It had a row of blue heron & duck.

The lake is just over the next ridge in an enclosed basin without outlet. It is two lakes joined by a shallow neck. The smaller one being nearly surrounded by rock wall.

The whole thing is probably half a mile long & half as wide. There is outlet. It is full of minions. I shot a bully duck & plum out for it near the neck & found shallow water 4 or 5 rods from shore. There were lots of storks & blue wing that in
Aqua Nuga Camp

It + lots of red-winged blackbirds in the tubs around above.
We shot some birds + came back over the ridges near the lake + found it was a short cut.
Made up blinds + put traps in.

June 3. Hunted back over Juniper, winding ridges 2013 miles N.E. + found interesting birds + nests, lots of prairie dogs + a big cattle around.
Two of the horses disappeared. Edwin hunted them all day without success. Got back one of us at camp and guided all day, but we hunted around nearby + made up a few skins.

Rained by showers toward evening.

June 4. Hunted horses most of the day.
Caught a little Porcupine.
Edd a shower in evening as usual.
Santa Rosa

June 5. Took a long ride over the high plains east & south of camp to see the country & look for horses.

Found little of interest. Saw a few jackrabbits & cottontails & plenty of huckleberries & cherries. Found a Chinook nest on ground under cottonwood tree.

Set a line of 12 quilomuins tarp under stones & covers to keep off the rain, but a hard shower in evening flooded the ground & washed off the last & spoiled the whole line.

June 6. Went to town & advertised for horses. Evidently they have been stolen, for I am told that a reward will soon being them back.

It seems to be a regular business here to run off horses for a reward.

Afternoon worked around camp but did not accomplish much.

June 7. Sunday, The horses were brought into Santa Rosa by a Mexican early this morning. Said he found them about 8 miles from our camp.
June 8. Went to Santa Rosa early & found my long delayed check had arrived. Now we can get a supply of grain & pull out. Passed Delicias & went 1/2 miles to town for supplies in PM.

June 9. Broke camp & started east on the Lucumari road. Four miles took us across open plains with a steady up grade for 12 or 14 miles to the highest point on the ridge, or swell, between the Rioo & Canadian valleys. Then we descended more rapidly down an eastern slope to Cuervo and camped 2 miles beyond in a cove of the high wall like rim of the plains. The survey will at Santa Rosa at 6:20 a.m. read at our Aque Nigra camp about 4750, at lunch on the plains 10 miles east of Santa Rosa, 5000, at highest point on the road, about 1 mile east of Santa Rosa 5100, at Cuervo and Cuervo Camp 5000.

On the open plains there is no
mesquite, and the only conspicuous plants besides short grass are Jueca glamaea, & Opuntia arborescens.

Near Cuervo we again find low mesquite & the usual set of birds & beasts that go with it at Santa Rosa. The gap where the mesquite grows is not over 10 miles wide, and apparently the valleys come nearer together a little further north.

Most of the day was cold & raw on the plains, but as we drove into the big amphitheater, which faces north, we were protected from the wind & the evening was warm & pleasant.

The cove shows the sheltering effects in its flora & fauna, as it is largely filled with Opuntia arborescens - mesquite, the latter on local S.W. slopes.

Also of interest, Amphilophus bicincatus & Notomon microrhynus.

We took the horses up over the rim rocks & pitched them on the plain about 400 feet above camp.

Found only a small rain pool, but have enough good water with us for things.
June 10. Caught a Victoria albicans at a nest under the rocks and photographed its nest + rat. Caught 2 Heliothis from cactus nests in the open and photographed one of the rats in an Acuina arborescens + its house under the cactus. Photographed a ravens nest near the top of the cliff. Climbed along the cliff edge + found many little untouched spots where not even sheep + wool have been + the grass + plants are untouched + the thus unrested. Good spots for a small deer, which might be here + probably are putting back from reined + settled. Junipers + pines cover the slope to the rocky edge at top. The country below + above is plains.

It rained hard + long in the night + was cloudy + windy + cold all day with snow + some drizzle through the day.

June 11. Rained most of the night and nearly all day. Cold and windy and we can neither help nor travel.
June 12. Another rainy night & cold rainy day with severely a blustery wind in the blizzard. Sent Subs back to Santa Rosa for banners & supplies. Caught but little. Wrote reports and tried to rain to keep warm & dry.

June 13. Rained west of night but cleared up during the day with warm winds. Still cold & windsly but the ground is drying off a bit. Subs returned at noon, but I decided to remain here until mowing as the roads are very sticky.

June 14. Sunday. Rained again in morning from before daylight to about 8 o'clock & then partly cleared with cold raw wind & showers all day. Broke camp and went about 15 miles on the Encuentro road and camped close to the high point that runs farthest north on the western escarpment of the Staked Plains about 25 miles S.W. of Encuentro. Camped in edge of juniper & pine forest by creek. The 24 foot timber point has 100 foot above us.
From our Curro Camp we descended a broken and easy grade over open country to Roberto, then entered fine junipers and rising forest and climbed up a few hundred feet higher over beautiful park-like ridges and plate. Good grass and plenty of water in plain pools.

For the last 1½ miles we descended into an open valley closely grazed by wire-tail herds and turned south from the清楚ness road till we struck the creek that comes around the high point of the plains then up the creek for a mile and camped. Made a comfortable camp among the junipers in a sheltered place and for the first time in a week were fairly warm and dry. Sat outside around camp.
June 15. Took saddle horses & explored the big basin above us lying on the west side of the high point. Followed about 8 miles up through beautiful junipers & met pine parks of the basin floor with steep walled cliffs bounding us in right resembles strata of slightly tilted, heavily stratified sandstone. Near the upper layer of wall a deep stratum of White sandstone carries a fringe around the canyon and forms a places miniature garden of the Gods in snowy bosques & little towers. Near the head of the canyon are spots of typical badlands with bare, red dunlo-lands full of dead wood, oyster shells and in old places a lot of large bones that may have belonged to a whale. Only rough chinks could be found not allowing enough of the surface to locate them. One such piece was saved. We rode as far as horses could be conveniently taken in the canyon then climbed nearly to the top of the wall, up a steep N. E. grade.
I found a number of fresh wolf tracks and followed one up the gulch where the wolf had eaten a little rawhide from an old dead cow. Saw lots of coyote, lynx, porcupine. Killed 3 antelopes; saw a few more.

I found lots of interesting bird nests. No one lives in the canyon but a fairly good road runs up nearly through it to an old tumble-down ranch. The road seems to have been used mainly for hauling out timber, but an order posted near the entrance of the basin forbids any more cutting of timber and is signed "timber inspectors." The timber is only juniper and pine, but these are of great value for wood and posts in this region. Wild plums, stock, scoured, should be thoroughly protected from waste.
June 14. Packed specimens & wrote letters in forenoon so as to send the team to Zuunmeari for mail & supplies. In P.M. took a bag of traps and climbed to top of the high point across the creek & went back to get on the Staked Plains, but found the timber extended back 40-50 miles from the edge. Set 20 traps at the top & got back to camp at 14.

June 17. Took saddle horses & went to top of high point of Plains and took 60-80 miles over the open plains. Shot 8 marmophiles or follandus & birds. Set more traps.

June 18. Went up on high point of plains to traps & thought them done. Got only Notornis & Strangipes. Shot Astralucana, which we have not been able to get before.

Aneroid 4800 at camp, 4750 at noon, and 5900 at highest point of plains. Yesterday it read 4150 at Zuunmeari or 4750 at camp.

A big wolf came to 100 ft. of our camp in night.
June 19. Start at 8 a.m. over the mesa on a hunt while we wrote reports at camp. Two cowboys came along and told us much about the country and game.

A hard rain & hail storm struck us about 5 P.M. & raised the streams to roaring torrents.

June 20. Broke camps and started for the Canadian river, to the north. Crossed the R.H. & the Pajarito Creek and around the west end of Mesa River and down along a valley to the north of it to near the N.E. corner of the mesa and camped.

Average speed 4.500 at camp, 5.200 on high

Camped near a low

A hard rain & hail storm came up just as we arrived at camp and produced plenty of water. A hot, clear day.
June 22. On the road to Clemens.Susser killed a fine large Chrephylitescallia. Saw some Callistaurus.Crowdolphus are common at camp.

June 23. Wound camp down the creek about 4 miles to near the N.E. corner of Mesa Rica. Camped under a group of Sabinus trees between two jumpery ridges. Started Susser to Clemens with the team and buggy for water and supplies.

Staid around camp & cut traps saw an old Coyote go to her den and pick a rabbit to her young ones, one of which came out in height from under the rocks. It was not dark when a clear, hot day, with a storm in evening to the N.E. or E.

June 22. Left Willy to work around camp while we took saddle horses & went N.E. to the Canadian River. Found it about 12 miles from camp in a rough, picturesque canyon. The river ran up, rolling & muddy. Found Chrephylites in the canyon—killed 2. Saw some tracks of a very large Coati and heard Callistaurus and Buzzard calling on the plain. A clear, breezy, cool day.
June 23. Broke camp & turned north to the St. Concha Creek near junction with Cuervo Creek where we struck an old, well travelled road leading up Cuervo Cr. to Lopatilla. We then followed up little Cuervo Cr. and struck due west across big open plains toward Cebra Spring and camped at a rain pool on the plains, came about 20 miles or 25. Averoid at camp in morning usual 70°F and at night 56°F. We came up a slight grade all day. Left Mosquitoes and all lower Sonora species in the valley of little Cuervo Creek below here. On the higher plains there is only short grass, grasshopper, cactus, sotol, yasna plant, Opuntia clypeata, Epina and other inconspicuous plants. For cooling supper we had a little cold jicara and mainy arrowchips.

Junipers & small pines begin on the mesa one or two miles south of here and cover the ridges north of the St. Concha. The high ridges of mesas north of the Concha seem to have tall timber on top.
June 24. Continued on our road and in about 4 miles came to Cabeza Spring, a stage station and P.O. 16 miles east of Gallegos, and 24 miles N. of Santa Rosa. Here we turned north on the Las Vegas road and crossed the Cabeza River, followed up the east side of it about 12 miles and camped within easy reach of the high mesa east of north of the Rio that seems to be covered with willow brush.

Camped among the junipers on a low point by a dry wash with fresh raindrops. Explored around camp but did not try to climb the mesa tonight.

At Cabeza Spring it averaged 1000 feet. At the Cabeza R. about 5300 feet above the floor. There is considerable vegetation in the Cabeza R. valley on southern slope but most of the country is judge by springs.

We are now between two Spanish land grants and the country is settled by ranch owners, mainly small and rather poor ranchers along the river. The raising grazing land and much stock, mainly sheep and cattle.
June 25. Got an early start and rode over to the mesa about 3 miles N. of camp and climbed to the top.

Rode the horses up to within 300 feet of the top and climbed over the rim rock on foot. I arrived at camp and at foot 1 mea read 6000 ft, where we left the horses 7000 ft, and on top of the mesa 7400. Further took the swell of the mesa rises at least 100 ft higher. On the north & west the mesa stands up with a steep slope and bold rim rock borders 1400 ft. high.

At a distance the slope seems very abrupt but on close examination offers ridges and spurs where a horse can be taken up, though there are few places where one can be taken over the rim.

The edge of the mesa is fringed with a scattered forest of tall yellow pines that come down in patches 400 to 500 ft. and extend back as far as top as the land is rough & stony.

Back of the pines is open plains with long sweeps of fine grass. The mesa is given on the land office map as Mesa del Agua de los Negros.
The S.W. slope when we went up is very stony and but sparingly covered with scrub oak brush, *Cercocarpus pedunculatus*, *Rhynchosia*, and a few spruces or nut pines. Mesquite grows on the flat slopes at the base of the mesa and a few bushes struggle up halfway, to about 6000 ft.

Biscuits, the yellow pine at the top, they were no characteristic transition zone plants except on the edge of the plains where *Artemisia frigida* and *Rosularia* were common, but *Eutelia quadripartita* and *Lupinus pentalis* were common birds. This is the first yellow pine or set of transition zone species we have found this year, but some cowboys told us that there is a little yellow pine or similar mesas farther east on the Bill Ranch south of the Canadian R. Sheep & goats are the main stock in the valleys and over the steep slopes.
Returned to camp at 8 P.M. and
intended to start back to near Camp 5.
No to camp for the night, but a storm
cloud rolled over us so in a few minutes
it was raining hard, so we decided
not to break camp and leave the
shelter of the junipers for the open plain.
We were glad of the decision, when the
rain turned to a pelting hail storm
and the dry wash in front of camp
rose to a roaring torrent, and
still more so when an hour later
another hail storm struck us
with a driving wind and hailstones
as big as walnuts that tore our
tent and wagon cover and stove
the horses. One stone struck us
on the back as I leaned too near the wall
of the tent and nearly knocked me down.
Burke hunted for the horses after the
storm till dark but found no
trace of them. All tracks were pounded
out by the hail.
June 26. Weller found the horses before breakfast about a mile from camp and we got an early start on the road. Came back to near Calico Spring & camped & sent Erwin to Santa Rosa for supplies.

Our camp is about 3 miles west of Calico Sth. under a row of old cottonwoods along a dry wash that is now a creek of gurgling muddy water. There is lots of good rainwater in rock tanks.

Rained a little & blew hard in evening.

June 27. Erwin returned about 4 P.M. with mail & supplies for the trip.

No rain to speak of.

June 28. Sunday. - With a horse to school the buggy repaired and a few repairs made up. We went all kept busy in the morning and did not get off till 10:30. Returned to Calico Spring & then went to Gallinas Spring & camped. Climbed over high plains to 6200 feet and down again to 4000 ft at camp. Came about 18 miles.

A clear, warm, buggy day without rain. Saw no insects after leaving Coachella Creek valley.
June 29. Started early and came to Gallinas Springs post office, stop & search in about 2 miles. Then crossed over a high open ridge and down to the Pecos Valley of Casasque, then up the river to Antonio Chico, crossed the Pecos and went about 6 miles up over junipers & met firm slopes to west of the river on the La Rueda road. In all came about 25 miles entirely in Upper Sorozan gorge and with the anebhued setting of Gallinas spring about 6000 on the ridge about 12000 and at Antonio Chico about 12,000. Found no trace of mosquitos or any lower Sorozan plant. Heard blue quail in Gallinas valley and Amphipiza vilmeri in the Pecos valley.

Saw the first chukwunki near Antonio Chico & saw beech origanum.

The Pecos Valley is largely cultivated and irrigated in little patches. The Mexican adobe houses are so thick the valley seems like a town all along. Casasque & Antonio Chico are considerable towns. Peaches, Cherries & apples are extensively cultivated but hail has almost to pay.
valley is settled like a village.

This is usually a big old ranch house with long walls and a strong court and
out from it the houses grow smaller
smaller as if each generation merely
multiplied the number of individuals as
it divided the sources of support.

The fields are cut up small and crops
and fruit are cultivated in little plots.

Children are numerous, usually black,
dull, underdeveloped, active in appearance
and most of the people are either of
poor stock or underdeveloped.

The crops seem to be mainly wheat,
corn, alfalfa, garden vegetables, or
fruit. Peaches, cherries, apples and plums
are seen, but very well like.

No apples get to vegetables except a
few bitter green onions.

This is fairly good grass
the moisa but they must have been
very poor joints the last rains.
Numerous flocks of native goats are
seen but not much other stock
except horses.

Grain is thresher on circular threshing
horns, seen at worst seasons.
The river carrying a dense vegetation of such plants as Populus monticola, C. (C. viscosa), P. angustifolia, Willows, B. elaeis, Celtis, Primus, wild rose, Grape, Amelopsis, Eucalyptus, nettles, etc., which paint the canyon walls orange. Primus ponderosa grows along the rims of the canyon and places a few ticks scattered down the sides.

We saw a few Entanines along the road and lots of big marmots, and lots of dun birds. Oh! A Robin, Bluebirds (male), Black bird, grackles, Goldfinches, etc.

Above Ribera the two mountains begin to slope up, dark & deep toward the north.

We next camped a mile west of Ribera on west side of river, halfway between Ribera & San Jose.

But a few traps, but made a late camp at both as the horses were tired. The day has been long & hot, but unusually full of interest.
July 1. Caught only a few quail near camp & little near the river until traps got a weasel.

July 2. Caught waders & kinds of quails. These waders, etc., interesting. Made up levels & sent Dickie Miller up the river. Went down to old San Miguel & took a few photos of village, a group of people that looks like placidity, etc. San Jose.

July 3. Stopped to make up a couple of Peacock & Bluebirds & did not get started till about 7 A.M. up the Pecos Valley. Drove through the queer old Mexican town of San José, then followed near the line of railroad south of the way over foot of mesa, passed Fulton, Pajarito, Rowe, and camped about 4 miles of Pecos. Came about 20 miles up a slight grade most of the way & through beautiful juniper & juniper forest. Pines predominated the top of mesa south of 150
and in places extends down across the road. We could see Douglas spruces up on the steep N. slopes, but saw none down near the road. The top of mesa ranges from about 1000 to 1500 ft above us, very steep; abrupt. Numerous streams also where timber has been slid down it from on top.

The blue junipers of which I found two yesterday has become eulax.

We saw no water all day except a sappy spring at Payette and a little in the rain when we camped at night. Did not come near the river. Really a cool day with a hard wind in our faces all day, clouds of dust and would make travelling disagreeable. We lost much of the beauty of the country along the way by the disagreeable weather. Set traps on the sandy flat along creek and shot a prairie dog that proved to be delicious.
July 4. Caught a Fannum and 2 Procyon montanus, and 4 Procyon audax a.m. Sought out a Cymops gunnifera just across the creek from where I shot badgers last night. Stopped to wake up skins and did not get off till about 9 o'clock. Reached Pesc in about 3 miles, then 7 miles up the creek valley to Glorieta, 5 miles down the west slope to Campita and camped a mile west on the Santa Fe road, 15 miles from Santa Fe.

The whole day's trip was in jungles and wet pine country with scattering yellow pines in gulches and on bald slopes and clumps of pines along the north wall of the high mesa to our north and down to the road at the summit near Glorieta. Live oak and gambel are common most of the way, but the most beautiful part of the trip was from Pesc up the creek valley & Glorieta where for at least 3 or 4 miles east of Glorieta the tall old poplars and cottonwoods shade the bottom of the valley and little oaks grow bushy along the banks of a clear, cold little creek.
West of Glorieta the gulleys down which we follow is dry and rough & uninteresting till near Camonita, where a little spring creek comes in & they are pretty pretty & ravishes. Then we hear the creek & railroad & turn off & Made a dry camp and set traps for Porcupines. We are still 15 miles from Santa Fe.

July 5. Drove in to Santa Fe, but as it was Sunday could not get on work or supplies. Camped in an open lot under cottonwood trees by the creek in about the center of town, between the hotel house & post office.

From our camp in Apache Camp we first climb a long hill (250 ft.) and then down & up gulleys and over foothill ridges and open meadows till we reach Santa Fe at 7000 ft. in a gully bottom of the foothills of the Rio Grande Valley. At the highest point on the road, about 7500 ft., we came into the lower edge of prime forest.

(Osborn Carter)
elsewhere well in the nut pine and juniper belt with a little scrub oak, Q. gambeli. The country is dry and rather barren. Much of the timber has been cut off and the grass is short and dead. A few small rancheros are scattered along the foothills and native grass and little garden patches are the only signs of industry. A little below in the valley the country seems to be mainly open and rolls with a dry, stunted look. All arroyos are mainly dry but in one or two little springs and small streams trickle out. Santa Fe lies in a good stream, furnishing plenty of water for the town and irrigated ranches below and from the distance it seemed to be some faring along the Rio Pecos bottoms. The Santa Fe region is upper Sonoran. Its plants are juniper, nut pine, live oak, scrub oak, Q. gambeli, Rhus trilobata, Quercus suberules, Riguieria cuneata, B. alliaceus.
Crescents, Opuntia arborea, Yucca glauca, Populus monolphiops.

Amphibious philometer were heard singing but was seen, but no other birds that suggest lower Saranan.

Dipodampus spectabilis are common around Santa Fe and our set of this was seen in Apache Canyon when we left it, but no other lower Saranan mammals were found. Dipus argentinus & helicinus: we see also 5. gramineus & a coyote.

We caught Perodipamus, Phorura microphous, Peronyxens trunces, Dipodampus pallidens, Perogryllus.

July 6, Remained at Santa Fe all day, getting supplies, writing letters etc. - wagon repaired, horses tied, horses ahead, pack outfit together. It is an interesting old town, mainly Mexican.
July 7. Returned to Glorieta over the same road and camped about a mile east of the station under the cottonwoods by the creek. This is the most beautiful camp spot we have had this year. The large grove of cottonwoods are all magnificent, big old trees with rough, black trunks, long arched branches and drooping, willow-like branches. Below the ground is open & covered with grass & flowers, or with little groves of beautiful young junipers of the soft-leaved kind. The mountains slope up to the north and the mesa sink to the south, mainly covered with yellow pine & Douglas firs, but a lot of nut pines & both species of junipers are common on the warm slopes and quite a lot of bitter canoe plants go over the rocks at Glorieta. Our camp is close to the old ranch where the battle of Glorieta was fought between the New Mex. volunteers & Texas regiments in the Civil War.
July 8. Remained at camp, collecting, setting traps, etc.

July 9 & 10. At same camp, beautiful weather, with a snow storm every day. Our grove of pine trees looks nice and beautiful. It is on the land of a Mr. David, who hospitably gives the choice of his field for a camp place.

July 11. Broke camp and started at noon for Picars and up the Picars River. Stopped at Picars for supplies & to arrange about work, then continued up the river valley about 12 miles and camped about 1/2 mile above. There is a small Indian Creek forked ranches, camps, & Mexican settlements all along the river bottoms and a lot of wild looking cattle boxes in the lowest part of the valley just before we reach the edge of the Barreto Reserve. Most of the places are posted & no shooting or fishing allowed.

The Picars Valley is narrow with steep slopes coming down to the river below and sides of the narrow bottoms on the other. The flat bottoms of really
is carefully cultivated & usually irrigated. But it is rarely a quarter of an mile wide. The whole length of the valley is a series of little fields of a few acres & some of 10 or 15, almost or between which the river runs. The side slopes are steep & stony - in places clayey, but mainly pruned or brushy.

*Source:* Upper sonoma game lands. The open part & warm slopes of the valley up to near the mouth of Dalton Creek, about 1 mile above beds, where the last junipers of both species, nut pines, & live oaks, was seen at about 750 feet. The main part of the valley is transition zone yellow pines great on the cool slopes below Dalton Creek and the warm slopes and open country above. Pinus ponderosa, Sequoia gigantea, Pseudotsuga menziesii, Salix discolor, Arbutus & many other transition shrubs. + one Pine species make the zone.

Canadian zone begins on slope N.E. opposite just below mouth of Dalton Creek, actually meeting the edge of Upper Sonoma on other slope. Pines and others make the zone and
Populus tremuloides, Deer globose, and many other species fill in.

On the way up passed 2 Houses, an old, almost abandoned Mission village, and camped a mile above the mouth of Espeinto Saints Creek at a mile below the mouth of Willow Creek.

July 12, Sunday.
Continued up the valley about 4 miles and camped on a beautiful flat just below the fork of upper Moca Rivers, under beautiful cottonwoods (Populus angustifolia). Found that we were in the land of St. Christmas River, who kindly told us to stay as long as we want to.

July 13. Rode up the valley to Willis, the post office at the head of wagon navigation. Learned from Mr. Winders, the post master, that he bought the place from the Nelson brothers who built the sand house and lived there for awhile. The Winders also knows Mr. Hinshaw when he was collecting style here.
July 4. Went up to the ranch of Mr. Tony Goodwells, the forest ranger. Game warden and had a satisfactory talk with him. Found his cabin on a ridge high above the river and about one mile south of Willis. He told us much about the game and trails and places to camp and work. Also gave us his permission to collect what ever we needed until I should hear from Mr. Aitso, the state warden.

Our way back moved up Mora Creek to the south of Bear Creek, then up to a mill and exploring hunting.

July 5. Remained about camp. Hunting, trapping, collecting up specimens.

July 6. Went down to Pecos to get supplies. No check has arrived yet so I asked Mr. Harrison to trust us for grain to the amount of $30.00, which he willingly did.

Got some good notes of crossings.
July 17. Ranmed about camp trapping, hunting & making up skins.

July 18. Caught a multienius mulex, nonax, + shot the large, white billed Einawins, all new to this camp. We also caught and shot the little Einawins, S. latopatla, Stipes semivominae, S. zappti, Stipes sp., Peromyscus arctinus, Thomomys + two species of bats. A blacktail doe came through camp yesterday, sign of snow since whites are common, also Coyotes & hedges thickes. Black + gritty bear, lynx, panther, + white + blacktail deer are said to be common here.

Broke camp & moved up to Mr. Hanna's place about a mile above Willy P.O. Mr. Hanna is superintendent of the forest reserve & has kindly allowed us to camp on his ranch as the road does not go beyond his place + we cannot go further up with the wagon.

July 20. Thought it was Sunday so we washed our faces & combed our hair, wrote some letters & hunted bird nests till noon, then found it was Monday & went to work.
July 21. Satisfied our outfit & left the wagons with all unnecessary baggage in Mr. Hannas' corral, packed our outfit on the two team horses & started up the trail toward the east side of Peaks Baldy. After about 10 miles & 2400 ft up we camped on Jack Creek 2 miles below its sources on the east side of Peaks Baldy. The aneroid at Mr. Hannas read 8100 and at camp 10,500 ft.

After following up the main fork of the Peaks about 2 miles we turned up a little stream in a deep gulch & climbed a steep slope to the open mesa top where the aneroid read 11020 ft then we had open grassy pastures through beautiful spruce & ponderosa groves till we struck Jack Creek up which we followed a mile or so in its grassy gulch till we found an ideal camping ground on the bench above the creek facing east with long grassy slopes before us, a winding wash, and back of us a piece of balsam grove so thick as to offer fine shelter. We can hear the creek roar & it is full.
Heavily timbered slopes lie before us (mainly spruce, lodgepole + poplar), but the grass, parks come as under the highest part of the hill as does the timber. Numerous cattle + horses range below us and above at timberline, but along here the grass is almost untouched, so full of ripe, living seeds + could not be better fed for horses. The flower season is at its height + parks + meadows are dotted with sunflowers, heliencums, asters, erigerons, Achillea, Eryngium, Linum, persicaria, campanula, ladecoster, Solidago, Vetch, yellow + red Castilleja + most wonderful of all a great azure-blue Aquilegia with a flower 2 in. across.

Strawberries are abundant + big enough to be worth picking. The creek is full of trout + apparently we are home camped in this year.

Spent the rest of the afternoon in building an ideal camp. Had a good mess of trout for supper.
July 22. Went down to Delano at
wealth of Esparagus. Saw Mr., P. B. Ellis, the first game winner
New Mex. who gave me a permit to collect
deer, turkey, & geese. Had an interesting
talk with him — got some good
notes. He says a large jaguar was
killed a few months ago, but far from
here — the skin was sent to his brother,
Gov. Ellis. He knows where one other
was killed in New Mex., & where one
was seen lately near Goo Spring,
not far from Glacier, a short time
ago. Says he will send us full notes
on these with measurements of the
skin on his brother's farm.

I felt well repaid for a long
day's ride, about 40 miles, & was put
down & up again. Got back to
camp just before sundown.

The threshes being about our camp
so constantly in morning evening
we decided to call it Hydrilla
Camp. Regular Calthalidae also swings
over our breakfast table.
July 23. Walked up to the little lake on east side of Peaks Reservoir, about 1,000 ft. above camp, all the way through beautiful woods, meadows till it came out in the open timberline country of scattered dwarf trees and grassy or flowery slopes. Found bands of hares running high up and jumped a white-tail buck from willows loading above the timber.

July 24. Sent Spencer down after grubs, which had been sent up to Windows so he did not have to go to Peaks for it. We remained at camp setting traps making up videos etc.

July 25. Went about 4 miles down the ridge to get Purfors humans that I saw the other day & killed a beautiful pair.

Our catch this morning included a species of Sour, Microtus vorder & Entamias.
July 26, Hunted deer till afternoon but did not see one. Sketch got a turkey.

July 27.

July 28. Went to the head of the Pecas and up to about 12,000 feet on the north ridge of Cone Peak, the first one south of Tulebas. On the way over we crossed the ridge & went down into the upper part of Pecas Valley but on the return followed the crest of the high ridge running from Baldy to Cone Peak. On this high ridge we found reed of Myriostis & shot specimens of Arcturus & Otoeens at about 13,000 ft. Found Arcturus, Lagows & Entomias at timberline on north side of Cone Peak. A clear, cool, breezy day with a shower of snowed snow toward evening. Suskis got a ground & tailless pigeon & a lot of small birds on his way down for the week.
July 29. Caught nothing in our traps but got a lot of birds & kept busy working skis, setting traps & taking photographs.

July 30.

July 31. Went to the top of Baldy peak - the whole length of the ridge including the east & west peaks a mile apart - the lower middle peak where most of the snow is. The western peak is marked as the highest (12,423 ft), but the average read 100 feet higher on the east peak & from it we could see lower peaks over the top of the west peak. While the west one is sharp & barren, the east peak has a long, broad ridge with rocky east face, good sight scarred-out & numerous rock slides.

Dwarfed timber (Picea, Abies, Pinus balfouriana) reaches nearly to the top of the S. S. slope. A few very dwarfed trees actually to the top. Extreme timberline may be averaging at 12,500, but the limit of upright trees is about 12,400.
The top of the mountain is largely glacially
formed and gneissy or the form is mainly
sharp ridges, eaten out by rain deep
caries. Below the peaks the valleys are
wide bottomed and ridges rounded
until the now deeply eroded lakes
quakes are reached below 10,000 ft alt.
The sides are steep and timberline varies
over 2000 ft on the opposite hot or cold slopes.
A few little deep green lakes are caught
in basins below the base of steep slopes.

At our present camp at 11,000 ft
altitude we are on an east slope about 50
fur above the creeks and meadows. The night
was warm and we have seen no frost nor
snow but the meadows are white with frost
almost every morning (July 21 - Aug. 7).
Most of the meadow plants are Andesine
species while those of the higher slopes
are all Canadian genus species.
The meadows are full of wild flowers,
but it might a stretch of dry alpine
seem to flow down all the creeks
to their bottoms. On crossing the quakes after
dark this is very conspicuous.
Aug. 7. Moved camp up to the lake at east base of Reeds Baldy, about 3 miles above our last camp and 2000 feet higher. Camped in a pine grove on south end of lake and about 50 feet higher up. The lake is 11,600 feet so nearly as the aneroid readings show. It is in pure Hudsonian zone. On the east edge Canadian zone stops about 200 feet lower down. On S.W. slope of Baldy it runs about 400 feet about us.

Aug. 8. Stopped up a saddle east of Baldy, hunted and made up abins. Rained all day, but cleared up beautifully in evening with full moon & glorious night—clear cold.
Aug 9. Sunday. Spent the morning taking photographs, mainly of Ordovice & this bay & rock slides on east face of Baldy Peak, when there is a big rock slide of gray quartzite inhabited by lots of Comps. They are very tame & this morning were very busy making hay. Probaly the cold night cleared them out so they had not stored much energy before mowing hay. One old fellow that I watched for an hour was too busy to pay serious attention to me. At 8 AM I found him hard at work gathering hay. He stopped for a few minutes to look at me, sized me up from the top of gray boulder & then scanned left over the rocks to the meadow and back for a load of hay. While he was busy I crept closer to his rock pile & as he came back with a big bunch of leaves I clipped some Potentilla frutecosa in his mouth and dipped them into a boulder I located one of rocks of hay & while he went for another load arranged myself where I wanted to be, clipped his tail. In a minute he was back with a mouth of grass
at a Venetian leaf in his mouth, making a bundle as big as his body, and hiding him from me not seeming at all to interfere in the least with his progress under the stones—so rapid, leaping, voiceless runs over the stones. He did not stop hesitating or stop till the cove was reached, or the boy approached under the coves. Then he disappeared, jumped to the top of a boulder, took a good look, let me and all around him put himself comfortably for a moment, then bolted down 5 off over the rocks to another wind pocket for more clay. This he kept up on an hour bringing a load each one or two minutes, almost always from different material, ever a loamy, ever different, and bringing now on one attack, now on another just as he happened to be nearest to one or another till I was located 5 of his attacks in different parts of the cove beside. For a long time he worked at the task while I was located and often came past within a foot of me with his load of clay and gave me any number of orders to photograph him on a stone.
at 10 feet. Occasionally he would speak at us but almost seemed reassured when I talked softly to him. At one time he came up only 2 feet away & took a good look at me, but soon dozed back into the rocks. The whole region below the surface of the rocks seemed to be open to him & he would go down on one side & come up on the other. I would hear little squeaks from the rocks directly under me. He came as quickly & rapidly under the rocks as over the surface or just as madly. This was never seen as his furry foot gathered over the rocks & he would alight as neatly as a missstep. His pigtails all but. He goes along very well without hands & feet but once I saw him put his front foot on a large stone to hold it on the rock while he nibbled off the head, but usually lips & teeth are his hands. I saw him from behind for the top of a stone, rip off grass stems & eat them with head by drawing it into his mouth as he ate. Again I watched him bite of the pâté of a Polynagia histrioidea leaf as he watched the whole leaf disappear slowly into his mouth as he chewed very rapidly.
There was no trouble in getting photographs of him as he sat still on a stump at 6½ ft. distant, but I wanted him with a mouth full of hay, which was a difficult position to get as he was then always in a hurry and would not stop in his rush to the stacks. I finally got in his roadway and waited his return camera ready. Before a straight for me but dodged under a big boulder and for a moment was out of sight, then popped out only 2 ft. away and ran over my shoe and against my leg with a bump. He gave a squeak that was almost a shriek as he dropped his bunch of cliff rose and Geranium leaves and down into the nearest crack in the rocks and I could hear his frightened squeaks directly were for several minutes. He did not come out again for thirty minutes, then he sat on a stump and squeaked at me for some time before he started to work again.

I examined his nest stack of hay as carefully as possible without disturbing it and found a bunch of fresh cut, dry hay.
welt sheltered by the cedars above it and
stacked up on the old "stack bottom" of
last year's supply. The fresh lot
included almost every species of plant
growing among or around the edge of the
brook itself, or was bright with flowers
of Potentilla or Senecio. There was
considerable grass there, of which I
recognized 9 different species (Timothy,
Stipa, wild rye, red top, foxtail, etc.),
besides Carex, thistles, larkspur, Acaly
Ochrole, Acti, Ericameria, Aquilegia,
Potentilla, Viola, Potentilla pantica,
Potentilla gilliata, Geranium, Polygonum,
Hirschel, Acaly, Heliconia.

On another stack higher up on a
W.E. slope at 1200 ft., there was mainly
Red clover, Timothy and other grasses
of which 2 species were additional to the
I noted in the last stack. It had
also a few Caltha leaves, Sagittaria
alpina, Geum roberti, Silene nocturna,
of a dwarf Cynoglossum.

My host's agent with the Carey
does not expect his morning's
work. He was busy when I arrived
at 8 & still when I left him at 9.
but on my return at 11 A.M. he was not in sight. Had probably retired for his lunch or mid-day nap. He was not the only one in the rock slide. Two or three others were working at the other end and some young in the gray coats were running about in another place, squeaking or playing, but apparently not at work in the bailing.

This particular slide is at the foot of 1,000 ft. rock slides and must be buried under a hundred or hundreds of feet of snow in winter. The intermediate of the rock slides must then be a spacious, warm, dry and well protected home for the winter, or the remains of old hares and the pockets full of shot like pellets show that the coyotes shield their winter's housed under the depths of snow or avalanche.
Aug. 10. Took Willy and went around north of Baldy and down the canyon past its north base which is entering Navel Creek or Navel Club Canyon. This
first survey map sheet is so inaccurate that it gives no clue to any part of the canyon, placing peaks & coves & lakes where there are
none or omitting most of the prominent features). We found a fairly good, but steep & rocky trail down the canyon as far
as we went - about 10 miles - and down to 9,500 feet. This took us fairly into transition zone on the NW slope and
gave the limits of good heric not previously found in the Rio Grande Valley. We did not go low enough to get the
lower (NE slope) edge of the canyons but this in bottom of a steep canyon would be much lower.
The canyon is steep bottomed most
of the way and heavily wooded except when burned of.
See report for altitudes and
plant list.
Aug. 11. Went up Teodas Peak, on one that was the monument on it and seems to be the highest of its group. Another on the same ridge in a mile to the north is apparently just as high, but we did not go on it because a storm was gathering. Arrived at camp 7 a.m. at 11,600 ft., on Baldy saddle, 12,600 ft., at timberline when we left the horses 12,900 ft. on top of Teodas 13,000 ft. The peak is marked 13,906 ft., but we did not stay on top long enough for the auger to come up. Skied to main S.W. timberline in 12,300 ft. a few pieces strung up to 12,600 on sheltered S.E. slopes.

The climb was easy, the peaks are beautifully dotted over with alpine plants. We hoped to find Pleurozium + Lenzites but it was too windy + raw + cold. There were lots of Anthus pennsylvanicus at the top + an Artedora took dead hale under the monument. This was Tommys hills on the very top to we heard Bobtong a few feet down in the rocks. Saw some track + considerable sign of Dott winters.
Found root of the plants collected on top of Pres. Baldy and some others. Get a good list of species and their limits. Took a few photos, but the clouds & rain made most of the surrounding peaks & valleys.
Saw a huge blacktail buck with the glass in one of the passes 2000 ft below us and am not sure if it was not an elk. Will go in a day or two to find out.

Aug. 13. Sent Wally down with latches that had to go at once and sent Stoker hunting. Remained at camp rest of day writing & doing small jobs.

Aug. 17 Broke camp & packed down to crossing, then drove down to fork of Pres. Vista & camped.

Aug. 19 - Went up to Duckwells & over to Otter's camp from the Vista Canyon.
Aug. 21. Moved camp from mouth of the Mesa down to Riobos Canyon just above El Medio.

Aug. 23. Mr. P. B. Otero came down and stayed over night with us.

Aug. 24. Moved camp down to our July 3 place, 3 miles south of Peers and set traps for Pecoswolves.

Aug. 25. Caught 4 Pecoswolves. Served caught one. Sent horses to Peers to be sold, made up supplies, wrote on report, packed specimens.

Aug. 26. Caught 8 Pecoswolves & a Pecoswolf. Packed up and came to our old camp ground near Ribera and camped early enough to make up our specimen. Sent express & mail taken from Peers. Good roads, down hill most of the way - beautiful country.
Aug. 27. Passed through Ribera and east to Bernal. Then turned back to point of mesa. Back to Bernal hill and camp in guipus. Cut pines with a few ponderosa. Climbed to top of mesa. Shot birds & a chipmunk! Found the top mainly transition, covered with sand topped yellow pines. Could see numerous pine covered mesas to west, east & north.

Beautiful juniper, patches of fine grass, stunted cypress behind our camp but water is scarce. Little cornfields are scattered here. This and along the Bernal cut off valley are lots of little sandwashes.

Aug. 28. Continued our journey north from Bernal to Zerolote & thence to Las Vegas. Got grain & grub & camped a mile north of town in factions of Mr. A. H. Harris.

The valleys are very narrow, the top of mesas & sand slopes Transition.

Aug. 31 - lost a day somewhere.

Sept. 1. Left Las Vegas afternoon & camped 12 miles north at ponds on mesa a few miles north of Sahelos, at 7200 ft on east slope. To the east is open plains with small basin ponds, to the west rough ridges rise with streams cutting canyons through them to the plains. The ridges are mainly transition covered with yellow pines - *Abies lasiocarpa* while Douglas firs + *Abies concolor* grow in the gulches. Our camp is as nearly as possible at edge of upper Sonoran + transition zones.

Sept. 2. Moved camp down nearer to the pond & found good spring water in the canyon half a mile up. Set a lot of traps, hunted & wrote.


Rode camp latest & moved north through Sahelos and camped near head of creek about 5 miles s.e. of *Abies balsamea* in the yellow pines at 7200 ft. Camp 8 or 10 miles.
La Cueva

Sept 4. Remained over a day to do some trapping & for walls to ride back to Las Vegas for the mail. Caught 4 herons of apparently 2 species

Sept 5. Went on to Cerro Colorado, but they turned off on the wrong road & went up to Hillman (now called Rosario), and had to go back via Cerro Colorado, then to Caminos & Morla, then back to La Cueva & camped at small pond 2 miles north of La Cueva.

Sept 6. Sunday. Pushed on & in about 5 miles came to Coyote on Coyote Creek, & then followed up the creek till 1 PM. & camped a mile below Guadalupe. Just opposite the first old crag of Coate at 7450 ft. We are almost out of upper basin zone, which clings to basin slopes & basin valleys still. Pines predominant on other transition plants predominant.
Sept. 7. Stopped at the little store in Quadjupetia for grain, then continued up Coyote Creek about 5 miles to the Snowy Mills, then about 3 miles beyond and camped at 8000 feet in the midst of transition ground.

The country is mainly bare covered with the creeks cut regular canyons with cliffs and sheer walls full of corves. Usually one slope is a cliff and the other, a steep slide rock. There are beautiful meadow patches along the creek bottoms bordered with groves of Populus tremuloides, Alders, spruces & pines. Small springs & little side streams are at the creek is cool but clear. Beautiful & we saw trout fish in it.

Saw fresh turkey tracks in the mud while we camped & by a pool up a side canyon.

Sept. 7. The horses went up the gulch so far we did not get there in time to know camp early so waited for lunch to take photos to write up notes and did明确规定. In afternoon went up stream up to Black Lake's camp on its outlet in head of canyon. Rood very rocky and rough but not steep. Came up from 8000 ft to 8500 on mile of short lake at 8400 ft camp on a near level. Left a north slope in transition zone yellow pine forest till we entered the great grassy park of the Black Lake basin. These are surrounded with deep yellow pine forest, ever the side slopes where Canadian rose bushes or Populus tremuloides come down.

The lake is nearly a shallowed slough with numerous islands of trees overhead it. Its greatest length is not over 1/2 mile as it grades off into a big wash that runs 2 miles farther north so yields lots of beauty, a poor quality. Found a lot of blue-water trout, boots in the stream - the lake, but no signs of mammals around it.
Western Valley

A dracinus
Seirus albitrice
" nainitnia
Eutaxies - issel-
Gymnogymnus
Pompeius lucifer - I caught.
Thommy
Tatida
Carris hicie:
Netona (Morn)
Spermophilus /thin/ pelidus

Sept. 10. Started for an hour before starting and did not get off till nearly 10 A.M. Then continued north to head of creek and over mesa and down the creek away north + crawled near into head. Unluckily, came about 6 miles - crossed - went side 1. Aquatica Mt. Overlook at camp used a 4, on divide 8707 at camp 8702, shot a few five squirrels.

Sept. 11. Stayed over to get a series of five squirrels as we are near the type locality of S. nainitria. Hunted in afternoon + got 4 more. Our camp is an an east slope about 50 ft. above the open valley bottom on a sheltered spot that has been an old Indian camp ground. Some 20 or 50 of the big yellow pines around camp house and the thick yard half or clear around as high as man can stretch. A Tosa Indian came along yesterday — when I asked him about the pearly times he said the Indians did it. Smashed his lips to said "my treas". Some of the trees have been pulled down and killed + many old logs on the ground have been pulled + died from the effects on from the pitch on the sound burning the tree in pieces.
Just below camp is a "fairy ring" about 30 feet across, almost complete, with 22 mushrooms standing around the outer line of the circle. They are fairly full and a good size. Are 4 to 6 inches across and a thick, heavy form. The grass is dark and thick and all other plants unusually small in the circles, which has a width of about 4 feet. Besides grass there is Achillea millefolium, Antennaria, Cerinpozium, mustard, and other plants. This is one of the typical circles seen all over the plains but rarely seen with the mushrooms present.

The circles is a little circle of Antennaria dioica, about 1 foot across. It grows as a mat, the middle has died out, leaving a silvery ring a foot in width.

One of the mountain grasses grows in a ring in a circle over the inner part dying out and the new shoot coming up on the outside of the circle so it constantly spreads.
Sept. 12. Broke camp early after a very cold night and traveled down the Moreno Valley to the north about 1 mile to the Taras road. Then went to a mile east of Taras Pass and camped in a sheltered timbered gulch at 8,700 feet (about 3000 feet below the pass). The Valley is big and open to park like 5 to 18 miles wide and apparently 20 to 30 miles long. It is semi-arid covered with bunchgrass, Gutierrezia, and Bisbeloria canescens. It seems like a Nevada desert valley, but streams and washes cut through it or long washes cut through it or long washes cut through it. A gale of wind is blowing. It is so cold we were glad to get into the timber to camp. It is hard to tell an inch thick last night. The mountain peaks of the Cimarron and Taras Hills were white with snow this morning. It seems like fall. Cypripedium gunsanum bloomed all over the valley. We saw a S. 13.

Sept. 14. Hunted all day, saw many, crossing divide and following up to a high peak on it, from which I could see the Taos Mts. and away south over the range and over the Wickers & Rio Grande valleys on the set & west. The country last year has been heavily forested but is now a waste of burned logs & aspen brush as far as you can see up & down the range. A few patches of timberland where the fire has missed it and in the lower part of Taos it has not been killed. Afforded the country has been burned to make more grass, but not enough soil was left to raise grass & the burned slopes are mainly worthless. Transition zone runs over the top of the index (about 9000 ft.) on warm slopes with Canadian, on the cold slopes about 8700 ft. Our camp is at 8700 + the future portion of the Wickers Valley is about 8500.
Sept. 15. Broke camp and traveled north in the open valley to a few miles of Elizabethtown. Then turned up a gulch to the west and camped at 8,800 ft. on the east side of THE Taos Mts. at the junction of Canadian & Taosian gorges. Our camp is approximately 7 miles S.W. of Elizabethtown - straight.

Mount Valley continues the same open, low and irregular covered valley, mainly filled in large tracts used for cattle pasture & hay. We began to see occupied ranches back from the road at edges of valley when within 4 or 5 miles of Elizabethtown.

The wind blows a steady as it seems to all the time on this valley - it was so cold we were glad to get up into the timber to camp in a sheltered gulch.

Sept. 14. Climbed well up on the ridges to get oriented and find the best slope to follow up the mountain. Got some good shots in afternoon at twice.
Sept. 17. Took a horse and started up the mountain in morning to make an all day trip, reaching one of the peaks that is about 12,200 ft. high and well above timberline. As near as I could judge the next peak is about 14,000 ft. high and the one beyond near 16,000 ft. high, or about 13,000 ft.

[July 13.48]

From camp at 8,000 ft. up to 11,000 ft. The slopes are mostly burned off and show a dry tangle of dead spruce trunks, young aspens, which winds with here and there a young spruce or pine. The slope above nothing of trees, save for its dry, hot barrenness which carries Transition zone winds up to its edge at 11,000 ft., at least on southern exposures. Upon my return I followed another ridge, where I was able to get a good sort of upper limits of Transition zone plants on unburned ground and found the edge to be approximately at 9,000 ft. on S. E. slope.

At 11,000 ft. I struck into unburned Canadian forest of Picea engelmanni, Abies lasiocarpa, and in wind swept patches Pimelea aristoloba— all of which reach to
timberline. This is typical Canadian forest, down with deep peat and clay ground that refuse to be burned over. The lower part of the ground is burned away, but the upper part is untouched and beautiful around the base of the peaks.

I left my horse at the edge of the Hudsonian zone at 11,400 feet on the S.E. side and climbed to the first high peak. Extreme timberline reached to 12,000 on the S.W. slopes of the peak, ran 2000 feet above it, but full 1000 feet above the N.E. timberline. The peaks are well rounded on a horse could be ridden to the tops of most of them. There are steep, rocky slopes, usually on the N.W. side, but the tops or southern slopes are soil covered and not very steep.

Most of the plants were dead, dry, but I recognized a large part of the Peas Reddy set of species at about the same levels.

The wind was blowing perfectly on the peaks, it was cold and raw at noon, though quiet and warm down at camp. The birds or mammals were to be seen on the peaks have a wintering coat or feel.
There are a few snow banks on the cold slopes of the highest peaks, & just to the north the main range in Colorado is solid white.

The view is one grand panorama of mountains, including the Sneffels Peaks & the south, the Cimarrons in the east & range after range of peaks beyond peak to the north, with high forested ranges - ridges, plateaus - valleys in between.

After leaving our little creek, which heads a mile above camp, I found no water and saw now came a little lake just below timberline at the head of Pueblo Creek, but crinkle occurs in most of the gulches. I kept on the ridges.

Saw lots of deer tracks but no sign of bear.

Sept. 15 - went below into the Cimarron Hills, near the valley but did not reach the top and his provisions empty so the trip was worthless. Apparently he found timberline at about 12,000 feet on southwest slope
Moore Valley to Taos.

Sept 19. Caught a lot more voles
and set more traps lower down in
the valley.

Sept 20. Sunday. Took up traps - broke
camp as early as possible - started
back for Taos. Came over the pass
and about 10 miles down Taos Creek
and camped at 8,100 ft, about
8 miles from Taos. The thermometer
read about 80° but too high all day.
Full sun making the correction one camp
at 8,000 ft the lowest part of Moore
Valley. That we reached probably 100 ft above
the outlet. Was 8,100 ft, Taos Pass
9,100 ft, our nights camp 8,100.

Moore Valley was once a great lake,
20 or 30 miles long by 5 to 10 miles wide,
and 500 or 700 feet deep. It was a big
valley shut in by mountains and dammed
by a stream of lava that ran across
the outlet. The water has cut a notch in
this down and now runs out as
shown in one of the photos today.
But the effects of old lake shores
are still visible and the effects of
the lake are shown in the cliff lines.
valley up to about the 8,000 foot contour line.
The valley is semiarid, covered with
grasses - several species of *Bisuloria*
(are-priming), *Gutierrezia*, *Artemisia*
(bright & fluffy) & *Liatris*
All streams coming in from the side
canyons from meadows where a good deal
of hay is cut, the uplands are used for
pasture. Most of the ranches are in
the middle and east north end of valley
near Elizabeth town which is a mining
center. The hills around it are full of
prospect holes and washed out placers
but most of its present mining is done
by dredging from the creeks.

The whole valley is rich for mining in
Transition zone! But little funding is
done in it. Hay & stock are the main
products. Some grain is raised & good
turnips, beets, & bulbs.

Transition zone extends over the
Pass on warm slopes, but Canadian
zone comes down on both sides
on cold slopes, down to edge of
open valley or about 8,000 feet in places
on the east side and down to about
8,500 feet on NE slopes on the west side.
Sept. 21. Drove into Taos in four hours, about eight miles, got mail, did some trading and camped on Lascoo Creek about six miles north of Taos. Barometric at camp read 8160, at Taos 7000, at Camp 7700. On coming down Taos Canyon we began to strike juniper-pinyons on steep, bare, hot slopes at a little above 8100 feet, and pure upper过渡 on flat slopes at 7800 feet. The last trace of transition grew on cold slopes was at 7500 feet. The whole valley to country around Taos is upper transition, but transition plants such as Populus angustifolia, Picea pungens, Abies concolor come down along the streams to our camp at 7700 in open valley. The whole valley is quiet and mainly covered with Artemia, tradescantia, euphorbia, gisetaria, etc. except where along the stream bottoms or where fields are irrigated.
Sept. 22. Made up the specimens collected along the way, hunted & moved camp across the creek to a better sheltered location.

Sept. 23. Went down to the Pueblo to see the war chief about camping on the reservation, but missed him on his way up to see us. Returned to camp. Told him we talked with him through an interpreter, John Guebba, a young chum who was at the Santa Fe School for a year & can talk pretty good English. The war chief, Segundo Romero, and his brother, Jesus Romero, are finelooking men.

Sept. 24. Visited the Pueblo & took some photographs that might be good. Met the governor & some of the local people, the teachers etc. The Indians are very busy threshing their grain & gathering in the crops.
Sept 25. Took Stakes & made a hussle trip up the Howo's Canyon to the mining camp of Tuning, and then up Lake Fork to the little lake at west base of Wheeler Peak. With Tass as a base at 7000 ft + our camp at 7750 we found the mouth of Howo's Canyon 7800, the mining camp 9800, the meadow above 10700, & the lake 11500 ft. Some claim that Wheeler Peak is over 14000 ft high but it appears to be a little over 13000. The lake fills the bowl of an immense glacial cirque, behind a big terminal morain 100 ft. above it. It is small but deep & green, surrounded by grassy meadows & then a circle of alder-groves. Trees up to some 500 ft. above it. Then the big open slopes reach up to the ridges 5000 ft. above, some grassy, some others of bare slick rock, & still others of jagged edges sharp spurs & spires. The forest from the lake down to the meadow 3 miles below is dense & dark but below that it is a ragged remnant of the original forest, now grown up to Aspen & brush.
Some of the cold slopes are still heavily forested, as they seem to have been too damp to bare, well down into the Hood's Canyon, but to the country has been burned over it has little trace of original forest. Throughout the Canadian zone Douglas firs have come up in dense masses that now cover the steeper slopes of the mountains with a yellow coat. In places they form groves of smooth, straight, palm-like trunks, no dune you can see but a little way into them, the trees as tall and slender with only a branch or branches at the top that they look like reeds. Firs branch through at the bottom and often lie or 75 feet high, again tapering only enough to allow for perspective. A good cut through these groves is wonderfully beautiful, especially so now with the yellow sunshine of their leaves overhead. Around the rims of the canyon have been cut for wood, as they are said to make the best of charcoal.

This yield for wood must be enormous.

From a distance the lake is now worked by colored geese.
along the peaks the light gray
dried rock & dead grass of Arctic Alpine
below it the deep black of Hudsonia
conifers that have never burned, then
the broad yellow flax of the Canadian
zone asparks; then the dry red of
hamilton zone oak + rose, spirea,
Cherry, Amelanchiers etc. & below
this the gray Upper Sonoran sagebrush
Bigelovia etc. spread out over the foothills
& plains. In many places the asparks
are hidden or obscured by the conifers
but from a distance they are strong
& continuous enough to make the zones
as distinctly as on a colored map.
They show on the mountains all around
us and can be traced in the finest
detail. Their edges rise and fall with
every change of alpine exposition +
tight little tracts of color follow down
streams + gulches from one zone to
another or rise on stubby hot slopes
of exposed rocks. The demonstration
is as interesting + instructive as it
is gorgeous + beautiful.
Sept. 30. Drove down to the Pueblo of Taos and watched the Indian foot races and dance, then camped over at the ranch of Mr. M. Martinez and stored our camp outfit in his barn, as he is going to winter over here.

Oct. 1. Got up at 3 o'clock & started at 4 for the railroad, long before daylight on a lovely morning. Started for Cerrillos but got the wrong road & went to the Picuris, 34 miles instead of 18 miles. The train was due at 10:15 and we missed it by only 5 minutes. It pulled out as we drove up to the station so we had to lay over at the Picuris 24 hours. We crossed the Rio Grande at the mouth of its fjords in a fine canyon 1000 feet deep with lava walls and the deep green river at the bottom. This is a good bridge & good road, a well & tall house in the canyon.
Oct. 2 - Took the train south for Santa Fe and rode over rough, desert sagebrush and pinions country to Black Mesa. Then down over 1,000 ft to the bottom of the canyon of Animas when we approached the river. Then down the widening river valley past the pueblo of Santa Clara. San Juan, San Ildefonso, the mesa Prieta, the black mesa. Then across the Rio Grande up long washes to Santa Fe.

Found pods of Dipodamus, or baby bats, half way between river and Santa Fe which makes the northernmost record for the species.

The country around Animas is mainly lava in broad level places through while the Rio Grande has cut a deep canyon—Granada Canyon—through layer after layer of hard, black tuff. There are numerous lava flows comes over the valley, some with secondary chimneys of a steep central cinder cone.

Great quantities of lava have flowed out in successive layers like those of the Smoky Plains in Idaho.
The Black Mesa (Mesa Pinta) near San Elizario is an old volcanic neck, standing exposed for apparently 500 feet high in the bottom of the Rio Grande valley. As the valley opens the cliff is seen soft, clays and sandstone beautifully brooded and sculptured into badlands, buttes, and castle walls.

For Embudo down the river only is a barren desert except when irrigated along the bottoms. Good crops are raised, but the Mexican settlements are the same poor little adobe villages as elsewhere. The wind blew such clouds of dust that we could not see inside the country or the mountains.

After leaving the river the country is all barren desert, almost indistinguishable till we reach Santa Fe. Went to the Palace Hotel which proves to be a comfortable place.
Oct. 3. Remained at Santa Fe and drove up the creek into edge of canyon but not far enough to get the edge of transition to zone. Took the train in evening for Canyon City CB. via Las Vegas to Pueblo.

Oct. 4. Crossed the Raton ridge about daylight and breakfasted at Trinidad. Then went to the junta - transferred to Pueblo, then caught a 5 o'clock train up to Canyon City - arrived after dark.

Oct. 5. Got my baggage and started up the canyon after chipmunks early in morning. Went 502 6 miles up to edge of Royal Gorge and shot 5 chipmunks saw 40 of them close enough so I could be sure they were the large one, the same as those killed. The others were too far away to be identified. Set a few traps for them.

Canyon City begins is out in the open valley - the canyon begins a mile west of town. It is nearly
Canyon City, Colo. Oct. 5 & 6, 1903.

Enterias quadriemittus - numerous from ridge 1/2 turn up into the canyon, mile to at least 1000 ft above
Thomsoni - numerous

Perrycicus - big, red

Pseudophasia richardsoni - seen along road 5 miles up toward Garden Park.
Pyrographus - held them along road to Garden Park, numerous.

Big, rough gullies with nearly frozen sides. Its only thinker in sight as far up as I went, is weathered granite
mixed with grass and yellow aspens, 3000 or 4000 ft above me.

Canyon City at 5000 ft is in the midst of higher Sonoran zone which reaches up over the slopes and foothills
to 1000 or 2000 ft above. The slopes are barren and rough, it is not easy to
give a zone limit.

Oct. 7. - Got a horse & rode up the Garden Park road about 7 or 8 miles and
about 1000 ft above town - did not get out of upper Sonoran but a gale
of wind blew all day. The air was so
full of dust & sand & stones that I
could hardly see - only one
chimney was seen. It was nearly
1000 ft above town & was a large
one, the same as 3 others caught
in traps on the hill just back of
the penitentiary, only 1000 ft from
Oct. 7. — Got up to catch the 5 o'clock train, which did not come till 8:30, and came around by Pueblo Denver, Boulder to Gold Hill. Made the last 4 miles from Saline up 1700 ft. up Gold Hill by stages after dark on a cold night & went sheltering the body in an old half abandoned hotel where I could not get anything to eat. An old Irishwoman in a log cabin across the gulch got me some supper after 9 o'clock, so I did not have to go to bed hungry as at first seemed necessary.

At Boulder we left the plains & followed up a rocky gulch that I could see the outlines of my room by, but it was too dark to see the upper Saroran range left off by transition began.

Oct. 8. — Found myself in an old half abandoned mining camp at 8300 ft on top of a ridge that comes down from the big 12420 range to the east. Ward in his plains view on top of the same ridge 8 miles to the west.
and much higher up. A deep gulch comes down on each side of the ridge, the one on the south up which the 190
runs and the one on the north in which Mr. Gale lives and below Gold Hill. The ridge tops a long gentle slope on both, but both sides are steeply down to the gulch bottoms. Turning this is not more than 10 miles west of here. The tall peaks run up steep and white into the snow.
The common tree around Gold Hill is Picea engelmanii, although P. pumilio grows on the warm slopes. It is the meeting ground of transition to Canadian coniferous, Canadian reaching from 8000 on M.E. slopes upward to transition reaching about 8500 feet on S.W. slopes. Canadian is marked by Picea englemannii, Populus tremuloides, Picea pungens, Pseudotsuga

Transition zone is marked by Picea englemannii, Populus angustifolia, Abies incana, Acer grandanum & Ailanthus altissima, Prunus virginiana, Prunus serrulata.
Gold Hill.

Nestorius fallax, common from 7,500 ft. down in Transition zone, Mr. Gale says he has never found them above. Nestorius (ferrum) males, one was caught in woods at 7,400 ft. Mr. Gale says they are uncommon.

Peregrines (big card) - 2 caught in woods at 7,500 ft.

Peregrines hucopylagus - Two caught in rocky places at 7,800 ft.

Entomias quadrimaculata - Common & scarce. Seen from 7,300 to 8,000 ft.

Entomias - small, common at 7,200 ft. - 2 saved.

Colaspesophillus latistriatus - One caught in traps at 7,300 ft. It was in gray coat, but had some skin visible & was covered at all feet, which may account for its being up so late in the season.

Wrens present - One shot at 4,000 ft. & 7,300 ft. - sound to be common.

Threnops - hills common

Symposurus, Spica, Phycoceras, Salix (green twigs), Charadrius pecus, Ribs Lucena., Arctocephalos snow-lina, Arboris pumila, Aerithus jumillae, Rose, (anaveladiades)

The two gates face each other on the north & south sides of the gulch & are mixed on tops of ridge & in bottom of gulch.

A trail of Upper Soocean gates comes in on hot slopes in the canyon below Mr. Gale's place at about 7,200 ft. when a few quails occur and a few mules of ribs lucena & Pesticula originating.

It is not impossible that Nestorius fallax & the big carded Peregrines fly in this gnu & wander around a little above its extreme edges, but I think they are Transition.

Went down in gulch to see Mr. Bliss Gale & stand all night with him, sitting all my traps below his place in the gulch. Mr. Gale is an interesting old man 75 year old & rather fat, with fair face, a whisk as snow, but still fully interested in natural history.
Oct. 9
Caught a big full of Mesta and other things, hurried up the hill to the old hotel and made up specimens and took stage at 12 P.M. for Saline. Set tents for Mesta at Saline, which is 4871 feet at 7 a.m.
Saline is also in Trans-Missouri zone with only a trace here or there of upper sandstone on hot slopes. A few pinions are almost the only upper sandstone thing.

Oct. 10—Caught 5 Mesta fallow, took up traps & caught the train at 7:23 P.M. for Boulder, arriving there about 8:30. Worked up specimen & in P.M. went about 2 miles up into mouth of canyon & set traps for Mestas among the rocks.
Boulder lies on the edge of the plains close against the tall rock cliffs & spires that form the fort of the river. A coast of upturned red sandstone rises at the edge of town & rock of this old brown granite forms the rough, steep, foothills.
The valley about the town is irrigated and mainly in a fine state of cultivation well out onto the plain. Boulder Creek Canyon is narrow and rough with rocky slopes. Apparently the town is at the very junction of Upper Sonoran and Transition zones. Low round topped Pine is widespread over the foothills down to the edge of the valley and a few Junipers become an the lower slope, along this. Populus angustifolias is the main tree along the creek but boxelders grow at the mouth of the canyon. Rhus glabra is abundant in the canyon and over the foothills. It is striking in color. The plains to the valley plants are little guides to the zone but apparently are mainly Lower Sonoran. Much fruit is raised. apples, plums, peaches and lots of grapes.
Dec. 11. Caught 2 hares, a jackal that I got and a weasel apparently dragged 2 more, traps & all, into the holes where I could not find them. I caught him dragging away another but scared him away & got the rest. Found a Skillogol in another rat trap but he got out as I tried to pull the trap out of the hole with a crooked stick. Had packed my gun in the chest last night so as to get an early start this morning & missed getting both weasel & Skillogol.

Then missed my 8:30 train by a minute I had to wait till 12:05 for the next train to Denver. The morning was clear but it clouded over about noon & began to rain soon after. Promised to be rainy day.
| No. | Item                                      | Description                  | Date       
|-----|-------------------------------------------|------------------------------|------------
| 35  | Negatives                                | 11 Elizabethton, Sept. 15    |
| 36  | Negative 1                               | 12 Zaos, Sept. 27            |
| 37  |                                          |                             | 28         |
| 38  |                                          |                             | 30         |
| 39  | Skin & skull                             |                             | 31         |
| 40  | Skin & skull                             |                             | 32         |
| 41  | Plants                                   |                             | 29         |
| 42  | Epiphyllum root                          |                             | 43         |
| 43  | Maps                                     |                             |            |
| 44  | Negatives                                | 13 Los Angeles, Oct. 2       |

| No. | Item                                      | Description                  | Date       
|-----|-------------------------------------------|------------------------------|------------
| 1   | Packages sent in 1903                      |                             |            |
| 2   | 1-9 mailed at Santa Rosa, June 1          |                             |            |
| 3   | 9. Skulls, Santa Rosa, June 1             |                             |            |
| 4   | 10. Bandier skin                          |                             |            |
| 5   | 11-12. Alcoholics                         |                             |            |
| 6   | 13. Negatives, Ribera, July 2              |                             |            |
| 7   | 14. Skins by express, Globe, August 10    |                             |            |
| 8   | 15. Skulls                                |                             |            |
| 9   | 16. Reptiles                              |                             |            |
| 10  | 17. Fossils                               |                             |            |
| 11  | 18. Negatives                             | Press, 16                    |
| 12  | 19. Prints                                | Willis, 19                   |
| 20  | 20. Skulls                                |                             |            |
| 21  | 21. Skulls                                |                             |            |
| 22  | 22. Nest & eggs                           |                             | 29         |
| 23  | 23. Plants                                |                             | Aug. 4     |
| 24  | 24. Zp & skin                             |                             |            |
| 25  | 25. Skulls                                |                             |            |
| 26  | 26. Negatives                             | 8                           |
| 27  | 27.                                       |                             | 92         |
| 28  | 28. Bess & turkey, for Roger, 26. express |                             |            |
| 29  | 29. Skulls                                |                             |            |
| 30  | 30.                                       |                             |            |
| 31  | 31.                                       |                             |            |
| 32  | 32. Plant                                 |                             |            |
| 33  | 33. Empty cartridges                      |                             |            |
| 34  | 34. Negatives                             | 10. Mona, Sept. 4           |            |