



Jan. 20, 1913

Left Washington, D.C. at 10.45 P.M.,
by the Southern Railroad for
Parker, Arizona.

Jan. 21.

En route to Arizona. Early in
the morning we were in North
Carolina. The train ran all day
through the pine barrens, reaching
and passing Atlanta toward evening.
Weather cloudy, raining a little
at intervals and rather dreary.

Jan. 22

En route from Washington to
Arizona. Early in the morning we
passed through Bay Saint Louis, Miss.
and in the bayou and swamp
region between this point and
New Orleans many muskrat
nests were seen. The train at
one point passed a camp
of muskrat trappers where 20 or
30 fresh skins were hung out
apparently to dry. Arrived at New
Orleans between 7 & 8 o'clock and

accompanied by Dr. Dearborn
walked out for some distance along
several of the streets. Dr. Dearborn
goes on by the same train to
California. We left New Orleans at
11.30 and passed through more live
oak and swamp country festooned
with Tillandsia, but the best of
this was seen east of New Orleans.

En route from Jan. 23
Washington to Arizona. When I got
up the train was nearing San
Antonio, Tex. There Dr. Dearborn, I
got out and walked up town to
the Alamo. It was very muddy
in San Antonio and the sky overcast,
but later in the day we ran into
drier country.

Jan. 24
En route from Washington to
Arizona. Early in the morning I got
out at El Paso. Everything covered
with white frost, but air clear. In
the evening I left the train at
Tucson and spent the evening with

Herbert Brown who gave me considerable information about the state in general. At 10.30 I went to bed in the car for Phoenix.

Jan. 25

Arrived in Phoenix about 8.30 A.M. I called on Governor Hunt at the State House and received from him a permit to do general collecting in Arizona.

Jan. 26

Left Phoenix at 7.30 A.M. for Wickenburg where I arrived soon after 9 A.M. Remained in Wickenburg until about 2.15 when I went on to Parker on a local mixed train, arriving between 8 and 9 P.M.

The road from Wickenburg runs through the Salt River Valley some distance and then across into the rather narrow valley of Hassayampa Creek which it ascends to Wickenburg where there is comparatively little bottom land and the houses are being built out over the adjoining

mesas. Wickburg is a small town in an old mining region, and is mainly a supply point for the mines. The altitude is about 2000 feet. From Wickburg the railroad ascends several hundred feet and then descends gradually over a nearly level but gently sloping plain to a point a few miles above Dickburg where the plain narrows and the railroad after passing through some rough country descends rapidly a few feet to another level whence another long gentle slope extends to Parker. Low ~~but~~ very barren mountains flank the railroad a few miles away in nearly every direction and practically all of the country appears to be Lower Sonoran. But near Wenden and Aquila the highest mountains, known as the Harquahala Mountains rise apparently to over 5000 feet altitude and are marked about 5600 feet on one of the maps. These mountains appear to be much higher than any

others of the general region and today I still had a little snow on their upper snow. This snow was left by the recent cold ^{very unusual} weather which has visited the general region. Arrived at Parker at 8.30 P.M.

Jan. 27

Through the kindness of the superintendent of the Indian School, Mr. Homer L. Babcock, to whom I brought letters arrangements were made for me to stay the old Indian agency about two miles south of Parker a place conveniently located for my work, near the fields and lower lying lands, as well as to the mesa country lying alongside.

Jan. 28

Most of the day was spent in setting out the first traps.

Jan. 29

First mammals of the trip were taken.

Jan. 30 - Feb. 13.

Remained working on both sides of the Colorado River in the vicinity of Parker. Early in Feb. the weather was quite cold for several days and at night there was considerable freezing - the ponds along the river were covered with ice nearly half an inch thick and the wet sand was frozen hard enough to walk upon. This was followed by warmer weather and a heavy rain lasting two days and nights.

Feb. 14 - 21.

Still working in the vicinity of Parker. The last few days have been very cool, not much frost at night, but a cold wind blowing all day long from southerly directions. Rain had been threatening for several days and began yesterday. It rained slowly but steadily much of last night and there were several sharp showers this morning followed by clearing weather and the afternoon was bright and warm. It is quite cool this evening and there will no doubt

be frost tonight. Traps were set today about a low rocky hill projecting into the river about $1\frac{1}{2}$ miles above Parker. It is at this point that a dam is projected.

Feb. 23 (Sun.)

Traps were brought in from the rocky hill above Parker. They contained nothing different, but there were four specimens of Amnospermophilus harrisi, which seems to show that the rocky hill is especially favored by this species.

Feb. 24 (Mon.)

Made trip today about 22 miles down the valley with Mr. H. O. Gunderson and several others. About 12 miles south of Parker I came upon the camp of an old Mexican trapper and through him secured several specimens of coyote and a bob cat, and arranged to return day after tomorrow to purchase whatever he may have taken in the meantime. He has good success trapping coyotes by setting traps well concealed in trails leading to water no bait of any kind being used.

Feb. 25 (Tue.).

A stormy day. Specimens obtained yesterday, including some odd skulls were prepared. My own coyote traps are still unproductive.

Feb. 26 (Wed.) Parker.

Returned to the old Mexican's camp and found he had one coyote and a fine big *Lynx* waiting for me. Bad weather had prevented his making a better catch of coyotes.

Feb. 27 (Thurs.) Parker.

Still stormy, cold with high wind and dashes of rain. All traps were brought in and I began packing up specimens and preparing to leave tomorrow.

Feb. 28 (Fri.) Parker.

Finished packing and in the afternoon moved up to the town on the railroad. Weather is clear today, but still cold.

Mar. 1, (Sat.) Vicksburg, Ariz.

Took the local train at Parker at 8.15 a.m. and arrived at Vicksburg about 11.30. Most of the afternoon was spent in getting settled in new quarters. Vicksburg is a small settlement,

the point of supply for a mining district in the hills to the north and south. Most of the mines are mere prospects, however, and business is dull. The hills reach down close to the railroad on the north.

Mar. 2 (Sun.). Vicksburg, Ariz.

Weather still threatening all day. The forenoon was spent in walking to the abandoned mill and prospect holes about three miles north of the railroad.

Mar. 3 (Mon.)

Began work today by setting out traps for spermophiles. A specimen of Citellus tereticaudus was secured.

Mar. 4 - 13

Remained working in the vicinity of Vicksburg. Most of the work was carried on in the hills to the north of the station where a few mountain sheep occur. These are rugged hills composed mainly of Precambrian rocks as a young geologist Mr. Lindsay informed me.

Mar. 14 - 18.

Spent on a trip into the Plomosa Range after mountain sheep. Most of the time was spent in the vicinity

of the Black Mesa. A few sheep were located, but none were obtained in the limited time I felt like devoting to hunting them. The Black Mesa is a lava capped butte which is conspicuous in a region where the hills are usually eroded to their summits, the summits usually rising as sharp peaks or narrow steep sided ridges. On the latter date I returned to Vicksburg.

Mar. 19.

Remained at Vicksburg.

Mar. 20, Wickburg, Ariz.

Left Vicksburg about noon for Wickburg, Ariz., where I arrived about 4 P.M. The railroad enters a pass about two miles east of Vicksburg and soon emerges from the broken country on a plain several hundred feet higher called Mc Mullen Valley. Crossing a divide on the sloping plain at about 2400 feet the railroad descends to Wickburg at about 2000 feet.

Mar. 21 Wickburg, Ariz.

Remained at Wickburg. The entire day was devoted to setting traps.

Mar. 22, Phoenix, Ariz.

Left Wickenburg at 8.55 P.M. and arrived in Phoenix about 11 P.M.

Eight species of mammals were taken in traps set last night.

Mar. 23 (Sunday), Phoenix, Ariz.

I did not discover today was Sunday, and especially Easter Sunday until I went to the post office and was unable to get my mail.

Mar. 24-25, Phoenix, Ariz.

Spent in starting poisoning demonstrations on gophers, bringing reports up to date. Met Mr. Howard S. Reed, the operating engineer of the Reclamation Service here who is most kind and helpful.

Mar. 26, (Wed), Phoenix, Ariz.

Went out this afternoon with one of the men in the Reclamation Service and covered nearly 40 miles of territory northeast of town, including visits to a number of orange groves which were badly damaged by the freeze of Jan. 7-8. Was surprised to learn that the grape fruit trees ^{with} stood the freezing ^{rather} better than the oranges. Old grape fruit and orange trees are ~~have~~ all the leaves

and tips of branches killed, many
branches being killed back several feet.
Young orange trees about three years
had all the branches killed, but the
trunks are coming out. Trees planted
last year seem to be entirely dead.
Old lemon trees were ^{apparently} killed down to
near the ground. In talking with
Mr. J. H. ^{whose place is} Mingle ^{about} 12 miles northwest
of Phoenix, ^{3 weeks} who told ~~me~~ he sold the
first wagon load of oranges ever sold
in Phoenix, ^{about} 20 years ago. He tells me
that grape fruit pays well, but oranges
are a losing crop. He does not believe
that any of the orange groves in the
valley have ever returned their cost to
the grower, the reason assigned being
that the crops are light. He tells me
at Valencia oranges are usually gathered
here in January, and Navals in
November. Valencias are coming out
about like the Navals, but show very
few flower buds so far, while the
navals will apparently blossom freely.
Mr. Mingle tells me that grape fruit does
not drop off like oranges usually do.
Mar. 27 (Thurs.) Phoenix, Ariz.

Went out with Mr. Ora Mc. Dermith and Mr. A. J. Halton and with an automobile we covered considerable territory in the valley and made demonstrations of gopher poisoning methods in a number of places. Both these gentlemen are in the Reclamation Service and have been very helpful to me here.

Mar. 28 to 29, Phoenix, Ariz.

Continued demonstrations in gopher poisoning. On latter date visited Mesa and Tempe and arranged to take up gopher poison demonstrations on south side of valley next week. Also visited the experimental date farm conducted by the Govt ~~near~~ Tempe. Dates are apparently grown very successfully in very alkaline soil. At first they were irrigated there, but the soil has become so permanently moist that they no longer require it.

Mar. 30 - Apr. 18

Remained at Phoenix and carried on demonstrations in poisoning gophers in

various parts of the Salt River Valley, visiting points as far east as Mesa. Several trips were made to Mesa where I met Mr. J. A. Sprague who is in charge of the distribution of water on the south side of Salt River. Various trips were made in that part of the valley and gophers poisoned in a number of places.

Apr. 19 - 24

Left Phoenix and moved to Prescott, arriving about 1:30 P.M. I visited Prescott at the request of Mr. Malcolm A. Fraser, to do demonstration work in poisoning gophers as at Phoenix. The work was not carried so far as at Phoenix, but was probably as successful.

Prescott is situated among the pines in the lower part of the Transition zone. At the time of my visit, it was still very spring, the trees just beginning to come out in leaf. Trips were made to a number of places in the vicinity and out about 6 miles. Dry farming is being tried near Prescott, but on a small

scale only and the results have not been conclusive. Oats and barley are grown to some extent.

Near the town are picturesque groups ^{and ridges} of granite boulders.

Apr. 25.

Left Prescott at 1:30 P.M. and arrived in Flagstaff about 8 P.M., where I am to meet Mr. Schaffer and aid in the campaign against prairie dogs.

Apr. 26.

Saw Mr. Schaffer at his house and made arrangements to go out to his camp about 9 mi. N.E. of Flagstaff, on the 28, working in town meanwhile on reports.

Apr. 28.

Went out with Mr. Schaffer to camp 9 mi. N.E. of Flagstaff in the large open park called on Merriam's map Leocornia Park.

Apr. 29

Remained at camp, helping in

the mixing and distribution of
prairie dog poison.

Apr. 30.

Returned to Flagstaff preparatory to
making a trip to Mormon Lake, about
23 miles south of town.

May 1.

Left Flagstaff for Mormon Lake,
with Schaffer and two of his men,
arriving at destination about 5 P.M. We
stopped at the ranch of Campbell &
Francis, on the north shore. Mormon
Lake is now very full and the tule
marshes that formerly furnished shelter
for many breeding birds are gone.
Prairie dogs are very numerous in places
close to the Lake shore and on Anderson
Mesa which extends for 15 or 20 miles to
the southward.

May 2-7.

Remained at Mormon Lake poisoning
prairie dogs.

May 8.

Returned to Flagstaff.

May 9
Rejoined Mr. Scheffer and the main party at camp about 9 mi. N.E. of Flagstaff.

May 10
Returned in afternoon to Flagstaff.

May 11-12
Remained in Flagstaff on the 11th.
On the 12 returned to camp.

May 13-14.
In camp in the large park 9 mi. N.E. of Flagstaff.

May 15.
Returned to Flagstaff and prepared to leave tomorrow for Hart Prairie, about 14 miles N.W. of town and close to the western base of Mt. Humphrey.

May 16.
Left Flagstaff about 8:30 a.m. for Hart Prairie. Reached Fort Valley Experiment Sta. about 11 a.m. and stopped to borrow a tent and incidentally get some lunch. Met Mr. Pierson, who is in charge of the station and Mr. Alexander Jansche, ~~both~~

of whom gave me considerable information about the country in general. Fort Valley Apperiment station is 4 miles from Flagstaff. Continued about 5 miles farther in the afternoon and camped near the southern edge of Hart Prairie, and close to a section of privately owned land, a part of which is in cultivation.

May 17 - 23.

Remained at Hart Prairie, poisoning prairie dogs. It is still very early spring here, the altitude being about 8400 ft. ~~was~~ at our camp. The leaves on the quaking aspens are just beginning to unfold, and frosts occur very night.

There is quite a morning and evening chorus of robins, black-headed grosbeaks and green-tailed towhees.

May 24

Returned to Flagstaff from Hart Prairie.

May 25.

Remained at Flagstaff.

May 26.

Went out to camp, the work now being carried on at a point about 15 miles northeast of Flagstaff, in Black Bill Park.

May 27-28.

Remained working from camp.

May 29.

Returned to Flagstaff to celebrate holiday tomorrow.

May 30. Grand Canyon, Ariz.

Made the trip today from Flagstaff to the Grand Canyon, arriving about 4:30 P.M., in time to get a number of different views of the canyon before dinner.

May 31.

Made the trip from the rim at El Tovar to the Colorado River and returned on foot, starting about 6:30 A.M. and returning about 7:30 P.M.

I was accompanied by Emmett Cowles and Paul Holmes, who are assisting in the

prairie dog campaign, at Flagstaff, and
by Prof. Mayville W. Twitchell, Asst. State
Biologist, of Trenton, N.J.

June 1

Spent the day at the Grand Canyon,
going down Bright Angel Trail again nearly
to the Indian Gardens. A number of plants
were collected along the way.

June 2.

Returned to Flagstaff early in the
morning, having left the Canyon about
8 P.M. and spent the night on the train.
Continued on out to camp in Black Bill
Park.

June 3.

Remained working in general vicinity
of camp in Black Bill Park.

June 4.

Returned to Flagstaff in the evening.

June 5-9.

Remained working in vicinity of
Flagstaff.

June 10.

Went out to Fort Valley and began work on prairie dogs there.

June 11-13.

Remained working at Fort Valley.

June 14.

Returned in evening to Flagstaff.

June 15.

Remained in Flagstaff.

June 16

Went out to Fort Valley and assisted in packing and moving outfit to Hart Prairie.

June 17

Continued on to Hart Prairie where work was begun from a camp at about 8500 ft. in a grove of quaking aspens at Hart Spring.

June 18 - July 2.

Work was continued on various parts of Hart Prairie and — at the Hochdörffer

Ranch about 1 1/2 miles farther north along the main road. We had a very pleasant visit with Mr. Geo. Hochderffer who is much interested in natural history in general and botany - especially the cactaceae in particular. Mr. Hochderffer gave me considerable information about the natural history of the region. Weather continues dry and much of the time windy and disagreeable.

July 3.

Returned in the evening to Flagstaff as the other members of the party wish to celebrate the "4th" in Flagstaff.

July 4 - 6

Remained at Flagstaff. After the celebration work was carried on in the vicinity of the town.

July 7

Returned to Hochderffer's Ranch, about 16 mi. N.W. of Flagstaff where work was resumed on the prairie dogs.

July 8 - 10.

Remained working at Hochderffer's - on ~~the 10th~~ latter date Dr. Fisher joined us, and tomorrow we are all to return to Flagstaff and I am to take up my regular work on distribution again.

July 12.

Returned to Flagstaff with Dr. Fisher.

July 13.

Remained in Flagstaff. Dr. Fisher left for Prescott at 11 A.M.

July 14.

Left Flagstaff with Charles Harrel as teamster on a trip into the crater between the San Francisco peaks. We travelled northward through Black Bill Park and then turned off the main road, following a dirt road leading up rather steeply across a ridge and down into the entrance to the torn out side of crater. From this point we continued about a mile and a half and camped at the cabin near the source of the water supply for Flagstaff.

Total distance travelled about 19 miles. Water is piped from this point into town. A short distance about the cabin which stands at an altitude of about 9000 ft. the crater widens and along the inner sides of the main peaks and ridges are cliffs and rugged slopes. The crater is largely filled with the dead trunks of Engelmann spruce and fox tail pine which once formed a fine forest; but the trunks now lie cross-crossed in every direction and make it difficult to get about. In many places below about 9500 ft. aspens are coming up thickly among the dead trunks while the new growth of spruces and pines is limited to scattered trees appearing here and there. It is evident that very many years must elapse before the original forest could be replaced.

The weather has been dry, but it began raining hard this evening.

July 15 - 16.

Remained working in crater between

San Francisco peaks. Weather almost continuously rainy, preventing most effective work.

July 17.

Returned to Flagstaff, arriving in evening after stopping to examine the southern end of Mt. Elden where considerable Upper Sonoran vegetation occurs.

July 18.

Took traps and made a trip to Walnut Canyon, 10 mi. S.E. of Flagstaff where the day was spent in setting them out. A heavy shower lasted a few minutes in the afternoon.

July 19

Brought in traps from Walnut Canyon, reaching Flagstaff soon after noon. Two species of wood rats - N. m. punctatorum and N. l. stephensi are found to occur within a few feet of each other among the rocks about the old cliff dwellings.

July 20.
Remained at Flagstaff.

July 21.
Left Flagstaff with Charles Barrel as teamster and drove 20 miles S.E. into Oak Creek Canyon, stopping for the night at Solomai Lodge.

Road leads through the forest, much of it badly deforested, remaining at about the same general level as Flagstaff, then drops by a steep grade for several hundred feet into the canyon which it descends to the lodge at about 5400 ft. A good stream of water flows down the canyon and affords fair trout fishing.

The vegetation of this part of the canyon is especially interesting. Douglas spruce and concolor fir grow close beside sycamores, black walnuts and alders.

July 22-24.
Remained working along Oak Creek, somewhat hampered by rain, but clearing

toward the end of my stay. Weather quite cool, becoming decidedly chilly at night.

July 25. Flagstaff, Ariz.

Returned to Flagstaff, arriving in the evening. At the saw mill near town I had occasion to stop at the office of the Riordan Bros. and found P.A. Riordan and his brother interesting men to meet and talk to, both being old residents of the district and well informed about things in general. Both of them remember well Dr. Merriam's visits to the vicinity many years ago.

July 26-28

Remained at Flagstaff writing reports and arranging for a trip to Anderson Mesa after antelope.

July 29. Yeager Ranch, on Anderson Canyon ^{at night} ~~at~~ ^{near} ~~run~~ of Anderson Mesa fronting valley of Little Colorado River.

Left Flagstaff and travelled about 31 miles southeasterly to Yeager Ranch on Anderson Mesa. Road led south to

beyond the southern end of Lake Mary and thence turned easterly, ascending abruptly to the top and then over Anderson Mesa to the ranch near the head of Anderson Canyon and close to the rim of the mesa fronting the little Colorado Valley. The "rim" is the edge of the mesa where it breaks away suddenly to the valley below. The Anderson Mesa is rolling and mainly open and rather thinly covered with grass, but here and there scattered over the plain are belts and isolated trees and groups of junipers, piñons and a few yellow pines. The general level is about 7000 feet. The mesa is very stony - in fact it seems to be the top of a lava bed with a number of depressions, in which water gathers, some of which form permanent lakes. The largest of these is Mormon Lake, at the foot of Mormon Mt.

July 30.

at Yeager Ranch. One of the principal objects of my visit to this

point is to obtain specimens of antelope. A fine buck was secured today.

July 31

Hunting antelope. No success today, although one was seen, and was watched through the glasses for considerable time, while being stalked on foot. It was feeding, eating a bite of grass occasionally and walking a few steps at a time until finally it passed into the shade of some small yellow pines and laid down, after standing in the shade a few minutes, and occasionally shaking its head apparently to dislodge flies. It finally rose and escaped however, before I got within gun shot.

Aug. 1

Traps were set yesterday afternoon under the rim at about 6500 feet and about five miles below Yeager's summer ranch on his winter range. They were set about a ledge of limestone near Anderson Canyon and

today contained specimens of Neotoma
albigula, N. stephensi and Peromyscus
truei. A Mephitis estor was taken
close to the spring just below the
house on Anderson Canyon. Traps were
set in the afternoon near the ranch
house along the rim of Anderson Canyon.

Aug. 2

Traps today contained a number of
specimens of Neotoma pinetorum which
is the common species inhabiting
the cliffs along the rim of the
Anderson Canyon. Several specimens of
Peromyscus Boylei were also taken -
a specimen of Antennaria dorsalis was
shot and several others seen. A part
of day spent in hunting antelope.

Aug. 3.

Hunting antelope. Two were seen
near Pine Hill and I led my horse
slowly up to within about 250 yards
of one when he started suddenly, ran
a short distance and stopped
broad side toward me. I fired from
a kneeling position, my horse giving
annoying little nervous taps on the

rope I held in my hand and no doubt spoiling my aim so that I struck the antelope at the base of the ear instead of behind the shoulder. The antelope went down instantly and gave only a kick or two. The distance was 247 long steps.

Aug. 4.

Six antelope were seen today. Four were located with the glasses in the distance on the rolling mesa and riding around to leeward of them I left my horse and tried to stalk them but they soon became suspicious and ran off when I was still far out of gun shot. I watched them and marked them down in the distance and returned to my horse and keeping out of sight for awhile rode toward them, then ~~they~~ ^{slowly} dismounted and led my horse toward them, keeping partly out of sight behind some junipers. While working toward these four I saw two others over a low

ridge, which became frightened and ran off without disturbing the four. When I was within about 400 yards the four started off suddenly, but stopped and looked back ~~at me~~ after running a few yards, and I shot two of them ~~before~~ while the other two ran off with their heads high in the air. Those shot ran about 100 yards each before falling.

Aug. 5

A trip was made today to a point about 12 miles from Yager's summer ranch down along Anderson Canyon into the cedar belt under the rim and on to the edge of the Little Colorado Valley to examine the country in that direction. The soil is firm and I saw no signs of kangaroo rats which might be expected to range up to near the base of the mesa. The pines had all disappeared and the cedars were thick, the cedar belt was however about three miles farther

out on the plain. Beyond the cedars is open grassy country stretching down toward the Painted Desert in the distance. Across the Little Colorado Valley far away are flat topped buttes known as Mogui Buttes.

I purchased a coyote from an old trapper and on the way back up Anderson Canyon shot a fox (Urocyon).

Aug. 6. Flagstaff, Ariz.

Returned today from Gaeger's Ranch to Flagstaff, having secured the specimens of antelope.

Aug 7-11

Remained at Flagstaff packing and shipping specimens and preparing accounts and reports.

Aug. 12

Left Flagstaff about 11 A.M. for Grand Canyon. Reached Williams about 12:20 and left there for Grand Canyon at 1:30, reaching Canyon shortly after 4 P.M.

Leaving Williams the railroad line

soon enters the cedar and Pinon belt and continues in this belt and across open parks to within a few miles of the Canyon when the line ascends again into the yellow pine belt.

Aug. 13-19.

Remained at Grand Canyon, writing reports and working along the rim and down the slope to 4800 ft. altitude.

Aug. 20 - Indian Gardens, Ariz.

Left the rim and descended into the canyon to the Indian Gardens at 3800 ft. walking down the trail myself and outfit taken down by one of the company's packers.

Aug. 21-28

Remained working at Indian Gardens and down to the Colorado River in the bottom of the canyon. Considerable work was done on the inner plateau bordering the inner gorge.

Aug. 29 - Grand Canyon, Ariz.

Returned to the rim at Bright Angel

camp at the head of Bright Angel Trail.

Aug. 30 - Sept. 2.

Remained at Grand Canyon, working report, labelling specimens and packing and arranging for shipment of a fine mounted sheep specimen taken many years ago on San Francisco Mt., and now presented to the Biological Survey by Mr. Ralph H. Cameron.

Sept. 3. Flagstaff, Ariz.

Left Grand Canyon this morning and arrived at Williams about 11 A.M. where I got mail and made arrangements for working. In the evening I continued on to Flagstaff to get extra outfit and make final arrangements there.

Sept. 4. Williams, Ariz.

Returned to Williams and located for work on the mountain.

Sept. 5.

From Williams made a trip on horseback to the top of Bill Williams

Mountain where many traps were set.
It rained for several hours and there
was a heavy hailstorm on the mountain.
The hail sprung many of my traps
obliging me to go over my line again
and reset them.

Sept. 6.

Made another trip to the top of
Bill Williams Mountain to bring down
specimens and reset traps. Today most
of the traps were set for shrews.

Sept. 7

Made a final trip to the summit
of the mountain to bring down traps,
and do some hunting and picture taking.
Traps contained very little in addition
to what was taken yesterday.

Sept. 8.

Remained in town making up and
labelling specimens. In the afternoon a
short trip was made to the park
just north of the town.

~~Sept. 9~~

Sept. 9.

Most of day devoted to making report on Bill Williams Mt. at Williams.

Sept. 10

Packing specimens at Williams and making preparations to leave tomorrow for Seligman.

Sept. 11 Seligman, Ariz.

Left Williams at 12:30 for Seligman where I arrived about 3 P.M. to measure ^a series of mountain sheep skulls at a local establishment. A part of the measurements and photographs were secured.

Sept. 12, Valentine, Ariz.

Finished measurements ^{and photographs} of skulls at Seligman and left in afternoon for Valentine where I arrived at 3:12 (Pacific Time). Presented letter of introduction at Indian School store.

Sept. 13

Gathered what information I could in regard to making trip to Hualpai

Indian Reservation and decided to return in the afternoon and make trip from Seligman as it will be a better point to outfit from in many ways. Left Valentine at 12.36 P.M. and reached Seligman about 5 P.M., (train late).

Sept. 14

Arranged ~~to~~ in evening to go out with a man who will have to spend two days getting his team.

Sept. 15-16

Remained at Seligman.

Sept. 17.

Remained at Seligman. The man who went after team on the 15th returned and reported that the team broke away when within five miles of town and he chased the horses nearly to Williams without being able to overtake them. Arrangements were made here to leave tomorrow with a Hualapai Indian and a poorer team than the one that broke away. Frank Bell, a white man who knows the country well will go along.

Aubrey Valley, Ariz.

Sept. 18. (Thurs), ^{Indian, Frank Bell}

Left Seligman with Hualpai, and ~~train~~
and travelled west about 15 miles keeping
near the railroad and following to the
south and below the escarpment known
as Aubrey Cliffs, past the railroad section
house at Chino. After travelling about
15 miles, ~~we~~ we rounded a point of the
escarpment, ^{turning} gradually ^{north} and camped about
5 miles farther on where a narrow belt
of scattered junipers ~~and~~ junipers and
Arizona? oaks extend down from the
escarpment. This camp was in Aubrey
Valley which was entered after crossing
a low divide a short distance west of
Chino. The southern end of the valley
forms a rather broad basin - several
miles across, the bottom being a gently
rolling alluvial plain from which ~~it~~
drains on west to Diamond Creek. The
valley extends northward from our
camp, narrowing gradually, the bottom
being ~~open~~ ~~and~~ treeless, but junipers
and junipers grow along the escarpment
bounding the valley on the east and
along a low ridge along the west side.
altitude of camp about 5600 ft. Total distance

travelled today about 20 miles.

Sept. 19 (Fri), Pine Spring (8 mi. W. Aug.)

Left camp in Aubrey Valley at 8:20 a.m. and travelled north about 26 mi. to a tank about 8 mi. N. of Pine Spring.

Road led ~~up~~ north along the rolling valley bottom ascending gradually for about 18 miles to the extreme head of the valley at Sanford's Ranch where yellow pine timber begins. Entering the mixed pines, junipers and junipers we continued to ascend gradually until we came out finally on a mesa at about 7000 ft. where the junipers and junipers have disappeared and the forest is yellow pine ^{and} Gambel oak with sage brush Artemisia tridentata as undergrowth. We soon began to descend gradually along a broad, open wash and the sage brush disappeared but the pines and Gambel oaks continued. We camped about a ^{mile} ~~mile~~ from the summit at about 6900 ft. where a dam thrown across the wash holds water for stock. The open wash ^{perhaps 600 yds. across} is bounded here by low ridges overgrown with juniper, Juniper - 2 species - and the low scrubby oak.

looking somewhat like D. arizonica.

Sept. 20 (Sat).

Remained at camp 8 miles north of Pine Spring, working in the pine timber in that vicinity. Many traps were set today.

Sept. 21 (Sun).

Remained at camp 8 miles north of Pine Spring, making up specimens and preparing to leave early tomorrow. About 3 P.M. it began to rain. Weather until this afternoon has been beautifully clear, the days bright and rather warm - too warm for comfort in the sun about the middle of the day, and the nights are cool.

(Mon.)
Sept. 22, Prospect Valley, Ariz.

Left camp 8 miles north of Pine Spring and travelled northward about 25 miles to a dam near the lower end of Prospect Valley and about 4 miles from the rim of the inner gorge of the canyon.

Road led down the canyon in the head of which we had camped for about 5 miles, opening into Prospect Valley which was followed the rest of the way. The canyon was narrow and rather rugged; the valley is

fairly open, and smooth over much of the bottom, but near the upper end is a dense growth of pinjun and juniper. These thin out gradually and in the lower end of the valley have become scarce except along the sides, and the bottom is overgrown with Atriplex, Artemisia tridentata, the large cholla cactus and other bushes.

Sept. 23

From camp ^{in Prospect Valley} four miles from rim of ~~of~~ inner gorge of Grand Canyon Frank Bell and I made a trip to the rim to examine the vicinity of the place where he saw a bunch of sheep in April and May. We saw many old tracks, and even saw old tracks made by Frank in the soft soil along the rim, but the sheep were gone.

Sept. 24

Frank and I spent the day hunting for fresh sheep signs along the upper part of the inner gorge. We climbed down one canyon to 3700 feet altitude where near the upper border of the blue limestone we came to a perpendicular drop of about 100 feet and could go no

farther.

Sept. 25

I spent the entire day setting traps in Prospect Valley. Sent Frank to the top of the outer rim of the Grand Canyon west of Prospect Valley to look for sheep signs. He reported finding a few tracks.

Sept. 26

Made a large catch in traps and spent afternoon making up specimens.

Sept. 27

Rode up Prospect Valley several miles and then turned up through the mouth of a side canyon where Frank & I left our horses hobbled and climbed to the top of the plateau which we crossed coming out on the rim well to westward of the point visited by Frank yesterday. No signs of sheep were found until toward evening when very fresh ones were followed until late and we finally had to leave the trail and go back to our horses. Had a rough trip in half

darkness down a rugged canyon. Found horses just at dark and returned to camp about 8.30

Sept. 28

covered more country near mouth of Prospect Valley, but found very few sheep signs.

Sept. 29

Beds and supplies were packed on the horses and we moved up on the plateau in order to be as near the sheep country as possible very early in the morning.

Sept. 30

We were out very early and I killed a sheep about sunrise. Another seen at the same time escaped by jumping off a ledge about 15 feet high. It was not seen after this jump was made although I could hear it running along under the ledges for five or ten minutes.

Oct. 1

Hunted until after noon and then signs being so scarce and the water getting short returned to main camp in Prospect Valley.

Oct. 2

Hunting sheep and in afternoon setting traps near the rim of the inner gorge. Frank spent the day on the mountains east of the mouth of Prospect Valley and getting between two perpendicular cliffs just at dark was unable to return to camp and remained out all night.

Oct. 3.

Frank returned to camp in morning and then continued hunting. I had a very large catch of specimens to dispose of.

Oct. 4

A few more specimens taken near rim of inner gorge and in the afternoon we started on the return trip to the railroad. Left camp at 3 P.M. and made new camp about 8 miles farther

up the valley and a short distance below
the wagon road to which turns westward
from the valley and ascends a canyon.
This wagon road is used by freighters
^{hauling ore} from the rim west of Prospect Valley.

Oct. 5

Continued on the return trip about
20 miles, camping on the top of the
mountains about 5 or 6 miles north of
Pine Spring. In the evening the Hopai
Indian teamster killed a very large
Buck deer.

Oct. 6

Travelled southward about 15 miles
and camped at about 6000 feet in the
upper end of Aubrey Valley where I had
time to get out a good set of traps.
The last night it froze hard on the mountain.

Oct. 7, Sulphur, Ariz.

Left camp in upper part of Aubrey
Valley and travelled about 28 miles,
reaching town about 6 P.M. Last night
about half an inch of ice froze in the
water bucket and specimens were some
of them frozen stiff.

Oct. 8-11

Remained at Seligman, packing and shipping specimens and making reports.

Oct. 12 Sun.

Leaving for California on vacation

Oct. 13 to Nov. 7

Spent in Calif. on vacation.

Nov. 8, Seligman, Ariz.

Returned from vacation and taking outfit from Seligman moved in afternoon to Ash Fork where I boarded a Pullman car at 10 P.M. and went to sleep, the car being attached to Phoenix train which left at 1 A.M.

Nov. 9, Phoenix, Ariz.

Arrived at Phoenix at 9 A.M. In the afternoon I saw the game warden and ~~secured~~ secured for a permit for Mr. Sheldon to hunt sheep.

Nov. 10-16.

Remained at Phoenix waiting for telegraphic instructions and trapping musk rats

along Salt River. In the evening I took the train for Wellton where I am to meet Sheldon.

Nov. 17-18
Remained at Wellton, on evening of latter date Mr. Sheldon arrived. (arrived morning of 19th)

Nov. 19. Copper Mt. Camp. Ariz.
Left Wellton and travelled about 18 mi. South to camp ~~at~~ near a tank at the foot of Copper Mt.

Nov. 20. Tinajas Altas,
Left camp at Copper Mt. and travelled about 12 miles southwest to Tinajas Altas.

Nov. 21.
Made trip to summit of Gila Mts. near Tinajas Altas and set traps - climbed up a short steep slope to the right of the Tinajas and turning to the left through a natural tunnel dropped down about 150 ft. again into a small valley at the head of the Tinajas which are formed where the water drops into pot holes in the harder granite.

Tinajas - The tinajas or "tanks" as they

in this region
are usually called by Americans are, usually
pot holes in a harder granite formation the country rock being as a rule
shattered and decomposed so that it does not hold water. Most of the tanks are
in canyons and located above the level of the base so that they are rather
difficult of access or at least it is rather difficult to get water for stock
from them. They are usually found where the water running over the harder
formation leaves it polished and the lighter ^{and harder} rock shows as a whitish patch
in the canyon descending some steep slope. Old trails made by sheep and
other animals invariably lead to tanks and serve to locate them

Nov. 22.

climbed to summit of Gila mts. back of Pinarjas Altas and brought down traps set yesterday

only mammals taken near summit were Peromyscus crinitis and Neotoma albigula

Pinnacle Mountains looking fairly high were seen between east and

southeast from summit of Gila Range. The Gulf could not be seen owing to hazy atmosphere, but mountains across the Gulf were plainly visible. To the west stretched the level plain, no mountains appearing except ~~the~~ a short range about 800 ft. high rising from among the sand dunes which begin a few miles below the Gilas. These sand dunes are wind drifted ~~and~~ and probably like the "algodons" of California. To the west east and across the Cochugilla Desert about 15 miles ~~are~~ Tule Mountains and farther east the Pinto Range, all with the same northwest-southeast trend, could be seen. The Buck Mountains are an outlying northern division of the Tules. In fact the Tule Range and the Gilas are divided into isolated ranges or mountain islands rising abruptly from the sand at their bases. The Gilas like all the other desert ranges of the general region are rugged and bear little vegetation on their upper slopes.

Nov. 23-24, Raven Tanks, Ariz.
Remained at Tinajas Altas Nov. 23, but on
the 24th moved to Raven Tanks, ^{in the Gila Range.} behind
the lava mountain about 8 miles north
of Tinajas Altas.

Raven Tanks are ^{narrow} potholes in the hard
granite in a rather inaccessible place.
Indians evidently lived formerly at these
tanks as shown by smoke stains under
overhanging rocks which furnished shelter
and by hieroglyphics on the rocks, as
well as mortars in the rocks such as
those seen at Tinajas Altas. More
abundant or more recent rain had
occurred here and *Cuculia farinosa* and
some other plants were flowering along
the wash.

Nov. 25.

Made a trip up over a part of the
Gila range a ^{short} few miles south of camp
to look for ewes, but failed to find any.

Nov. 26.

Mr. Sheldon shoots 3 rams and in
evening received telegram that child
is sick in New York.

Nov. 27.

Brought in Mr. Sheldon's sheep and in afternoon he goes to Wellton to be within telegraphic communication of home.

Nov. 28-29

Remain at Raven Tanks working on material gathered in the vicinity. Mr. Sheldon and Murray Chappel return in the evening of the 29th.

Nov. 30.

Move from Raven Tanks past Pinajas Altas to a point about 8 miles southeast, in the Yehugilla Desert, on the road to Tule Tanks where we camped after dark. Total distance travelled about 16 miles. Weather cloudy and a few drops of rain falling at intervals.

Dec. 1

Continue on about 10 miles to Tule Tanks which we found dry and after lunch move on about three miles to Tule Wells where we camped.

Road entered and wound for several through Tule Mountains to the Tule Tanks.

and skirted the southern ends of several spurs to Tule Wells where several wells have been dug at different times to the water about 30 feet from the surface along a sandy wash.

Frost last night - weather clear today.

Dec. 2-4, camp south of Tule Tanks.

Remained at Tule Wells until the 4th - Mr. Sheldon hunting sheep while I tended traps set in the vicinity.

It is very dry here, no recent rain having fallen and Mr. Sheldon finds few sheep signs. On the 4th we move camp about 4 1/2 miles S.W. to a point near Mex. Boundary about 2 miles south of Tule Tanks.

Dec. 5

I spent the day climbing ^{and around} over a rugged peak on the boundary where I found conditions the same as in the Gila Range.

Dec. 6.

I remain at same camp - Mr. Sheldon

goes with Proebstel and establishes a camp alone, about 7 miles south of the line to hunt sheep where Proebstel yesterday found some and also found more abundant fresh vegetation.

Dec. 7-#9

I remain working at same camp and Mr. Sheldon is still at camp south of line where Proebstel goes to supply water and bring up specimens. Mr. Sheldon has secured a large ram and an old ewe.

Dec. 10

Make a trip to the sand about 10 miles south of Boundary at southern end of Tule Range and set traps, camping for the night with Mr. Sheldon. Very few signs except of Dipodomys deserti.

Dec. 11

Return to main camp, the only mammals taken being 3 specimens of Dipodomys deserti which is common in the sand and appears to be about the only mammal. The sand is very

finely pulverized and has a floury like character and the absence of tracks shows that small mammals are exceedingly scarce in the drifting dunes.

Dec. 12-

A coyote trapped near main camp in my absence south of live had a broken fore leg and was found dead in the trap on my return. Weather today again cloudy and threatening.

Dec. 13. Tule mts.

Mr. Sheldon returned to camp 2 miles south of Tule Parks from his camp 7 miles south of Mexican boundary, and in the afternoon we started back to the railroad, camping for the night near the ~~east~~ western edge of the Tule mt. group.

Dec. 14

Left camp and travelled about 25 miles, stopping for dinner at Pivajias Altas and camping for the night near the "Black" mountain, 8 mi. north.

Dec. 15

Returned to railroad at Wellton and
left for Washington at 5.32 P.M.

Dec. 16-21

En route to Washington, arriving
about 9 A.M. on latter date.