JOURNAL 1937

JAMES W. BEE

370103-1

NOTES 1937

1-3-37

Left early this morning to make deer Creek ascent. From the knoll west of the Hoover Ranch trended west and soon gained the hidden valley just under ridge to the west. Continued west to west

2-1-3-37

ridge and then followed north along crest. Returned same route. Pictorial record only except one or two notable exceptions. At one point on the ridge experimented with the snow cornices. They were so placed that there was no danger of a continued motion once having broken loose so I broke of sections involving several tons at a time and rode them crashing down. The impact and pressure is seven with a noticeable and loud accompanying thud with freghten ones more than actual being involved in the slide. The other exception is the case of 5 does and 1 buck deer that followed up the ridge ahead of me. The buck was concerned about his herd and at one point came charging down at me not realizing that it was brave enough to continue and did nothing. He continued and I spotted an oak tree to climb. However his intentions were not as true as I supposed but sufficient enough to give me a good scare. Picture no (1-1-3-37) is a general view taken on redge above the flat valley ~~on~~. no. (2-1-3-37) show a cool background of Trump but warm deer tracks in foreground; the deer (5♀, 1♂) having passed only 3 minutes before. The cut-off track is of ♂ which charged down redge. no. (3-1-3-37) is a shot taken directly east of Stewart Flats and shooting west at Mt. Trump.

3-1-3-37

1-1-3-37

2-3-37

Sidney Boyle and myself made 2 day trip to Strawberry Peaks. These peaks are located west of the divide of Daniels Canyons and are a part of the Strawberry redge. The peaks proper are about 9,756 feet high. The objective of the trip was solely a pleasure one with skiing

the main feature. We packed the night before which included along with the regular equipment, a tent and stove suitable and made especially for winter hiking use. Left Provo at 6:00 A.M in Sids old model T. ford. Sky clear with moon directly above. Heber valley proved exceptionally cold in the open car so we stopped for a cup of coffee & a role but remained only long enough for restablishing circulation and then we were on our way again. Arrived at Divide of Daniels at 9 o'clock Found the road in good conditions with corn snow along the side reflecting in the sun. A few snow slide had penetrated the valley from the west side of canyon. Left car at divide and shouldered packs. Snow in good condition so were making better time than anticipated. Picture (1-2-3-37) was taken about half way as we started up thru the more wooded area. Camp was to be established as indicated. The long North trending ridge can be seen It was on this ridge that we were to spend most of our time. Picture no (2-2-3-37) was taken without a string being merely a self taken exposure of my own shadow on the opposite side of a snow gulley. Arrived at base of Strawberry peak at 12:40 P.M. made camp in small group of conifer tree just over brink of open field below peak as indicated in later picture. By 4:00 P.M we were all set up and

1-2-3-37

2-2-3-37

3-2-3-37

ready to leave for west peak to watch the sun set over the Wasatch range to the west. Pictures (3-2-3-37) and (4-2-3-37) show Sid on peak with silhouetted against the western sky.

4-2-3-37

1-2-4-37 2-2-4-37

After sunset we returned to camp and prepared supper. Kept fire going all nite and remained absolutely comfortable despite the wind and sub-zero temperatures outside. (Continued)

2-4-37

Next morning we were up early and soon had breakfast over and on top of peak before sun-up. While waiting for the sun had an enjoyable time skiing on the crest of the ridge. The dawn soon passed and morning broke with all its glory. The first ray of light were received on the Wasatch range proper which was indeed a most inspiring site. Shortly after the arrived at our peak when I took pictures (1-2-4-37) and (2-2-4-37). Sid in foreground. The Gronte range, Timpanogos, Provo Peak and ridge can be seen in the distance. Wallsberg ridge in middle distance. Spent the remaining morning and early afternoon on the peak slopes, particularly the east exposure is indicated in picture (3-2-4-37). Picture (4-2-4-37) shows the flat or bench at base of peak. This slope is no doubt one of the best slopes near Provo and will be very popular when more publically known. While this trip was made primarily for skiing

3-2-4-37

(Picture only)

4-2-4-37

did not endeavor to record other things. Found one Perompcus in open late the first afternoon. We attempted to capture it but it found a hole to escape beneath the surface. Observed several snow shoe rabbits. We tarried on the peak with only time allowed for a quick pick and descent to divide of Daniels canyon before dark. When camping under such inspiring conditions one finds human qualities in a man that can not be expressed under our ordinary everyday conditions of life. We both acclaimed the trip highly inspiring and satifying.

2a

[INSERT] 370205-3

Provo, Utah. Feb. 5, 1937 approx. date, from Provo Herald.

Provo Hikers Camp Near Twin Peaks; Zero Weather, Only 2 Pounds Bedding

Over 10,000 feet up in the mountains, zero weather, and only two pounds of bedding. What would you do, if it were you?

Sid Boyle says it was the greatest camping trip he's ever had. "Plenty of fun, and not the least bit cold," he said upon his return recently from a camping trip to Twin Peaks where he was accompanied by James Bee. Sid is a student of Brigham Young university.

"We just went for the fun and the skiing. The skiing was the best I've found any place in the state. The snow was just right and East Peak offers excellent opportunities for slaloming. Of course, we didn't have any flags but we enjoyed the slope immensely."

He says Mr. Bee was responsible for their not being cold despite the small amount of bedding. Mr. Bee who is an expert winter camper, has found that the best way to keep warm is by sleeping in light bedding in a lightweight tent heated with a small wood-burning stove.

Some of the most beautiful views from the top of East Peak are to be had at sunrise and sunset. From the top, several mountain ranges, including Mount Nebo to the south are plainly seen. No more gorgeous sunsets and sunrises are to be found anyplace, in their opinions. One peculiar thing they noticed was that all the shadows are a vivid blue.

"The snow was well over eight feet deep," declared Mr. Boyle, "and just right for skiing. If only it were more accessible, there would be no better spot in Utah for skiing and slaloming than East Peak."

Marcus Hitchcock, Blaine Carlson, Harry Thomas, Ray Snow and myself spent 3 day at head of Pole Canyon in regaining Honor Hike Plaque. Made pictorial record only.

1-2-12-37 — Mark, Harry, Blaine and Ray on trail at lower end of ridge bordering Provo Canyon. All packs riding nicely but bearing heavily

2-2-12-37- Taking 5 at Lepidodendron Pass. Mark, Ray, Blaine & Harry. Utah Lake in distance. Only a short distance to camp now. (see opposite p for enlargement)

3-2-12-37— Camp organized. This camp is in isolated stand of conifers at end of flat below divide of Pole Canyon. Eight porcupines feeding in trees within 200' of each other.

4-2-12-37— Tent at night. Illuminated by burning paper and flash light. Tent made by 4 combination 9 x 9' tents. Fir boughs for base. Stove for heating unit.

2-2-12-37 TWB

[INSRT] 370213-6

Troop 51 Scouts Take Honor Hike

Five Scouts left Provo last Friday on their annual trek to recover a plaque which was previously placed in Rock Canyon.

The group left at 8 a. m., Friday morning and traveled north on the Provo canyon highway. Reaching the Pleasant View Church the Scouts left the highway and took to the "wilderness" where they headed for the ridge which separates the cascade from the valley. Arriving at the top of the ridge at 11 o'clock they ate their lunch and proceeded to Little Rock Canyon. Arriving at their destination at 2:30 they made camp by gathering pine boughs and erecting their tents. Supper completed, the Scouts, tired, but happy, turned into their wildnerness beds.

The Scouts arose early, and after skiing around for a time they broke camp and went south to Rock Canyon where they recovered the honor plaque from its refuge in a tree. Having accomplished the feat they had started out to do, the group turned their backs to Rock Canyon and returned to their Little Rock Canyon camp.

The Scouts broke up their pine-sheltered camp and retraced their steps to the highway.

The trip had many events and the observant Scouts had a chance to see a snowslide, eight porcupines feasting in trees, and many other winter "nature in the raw" scenes.

370213-7

1-2-13-37- Early morning mood of Timpanogos from camp before light rays were of sufficient strength to record properly.

2-2-13-37 Same as to left with light rays more intensive. The clouds now shrouding uppermost peaks.

3-2-13-37- Scene of Mt. Timp. from above Camp. Snow in good skiing condition.

1-2-14-37 - Ski slopes at head of Pole Canyon divide. Provo Peak and ridge in distance. North terminal of Cascade to left. The day started out like a warm July day so the fellows took advantage of the ultra violet rays. Ray, Mark, Harry & Blaine from left to right

2-2-14-37 At divide of Pole and Rock Canyon. The overturned fold of Rock Canyon commands their attention at present.

3-2-14-37 - Schussing down the second left hand fork of Rock Canyon. Provo Peak & Cold Springs Canyon in background. Snow in good running order. (see p 8.1 for enlargement)

5-2-14-37 Blaine & Mark as to left. Marcus pointing to eagle cliffs.

4-2-14-37 Harry Thomas on flats in Rock Canyon. Eagle cliffs in distance

6-2-14-37. Ultimate goal of trip. Regaining plaque from Comfer tree. These fellow will have the honor of having their names inscribed on this plaque with other Honor Hikers.

The Honor Hike Plaque is place in mountains by all members of the troop where it remains until regained by chosen qualified members of the organization. To be chosen as a Honor Hiker is the highest achievement of troop 51 which infers that the individual qualifies as a leader, outstanding character, outdoor man, good skier mountaineer. etc. To make this winter trip one must be prepared to cope with all pending emergencies or accidents. The Honor Hiker must be acquainted with the animals & birds as well as a conception of the geological significance of the surrounding country. He must also have a fundemental knowledge of the snow and weather conditions. Several preparatory trips are taken previous to the Honor Hike where the individual received an acquantenership with winter camping and group compatibility. In our estimation an Honor Hiker is equivelant to an eagle scout as far as the out-of-door feature can be compared.

3-14-37

Spent Sunday afternoon south of town looking over the newly drained

3-2-14-37 JWB

3702214-8.1

3-3-14-37 JWB

370214-9

fields of the recently constructed Municipal airport runways. The field is regulation size and at the peripheral edge are deep drainage canals which has sapped every ounce of moisture from the once damp meadows. These ditches are about six or seven feet deep and expose an interesting stratigraphic section. The first layer is superficial with a thin layer of sod. Immediately below the sod is an undifferentiated section of clay which extends down to the gravel base at the bottom of the canal. The waters of the field probably percolate down to the gravel base and are then escorted underground to the deep drainage canals. The area previous to draining was damp and supported meadow plants and grasses but now it remains one of burnt grasses and the soil perfectly dry. This new condition exposes the now conspicuous storage chambers and runways of last winters microtis activity The groups of congregations conform to the low depressions of the field. The runways, which are now indicated by rows of litter which were in reability tunnels in the snow or under the snow, give one an idea of their home construction. Several storage rooms had been filled with tender root tips of one of the meadow plants (about this size and shape) other rooms were filled with finer grasses and stems These areas of debris were represented only as small piles upon the ground but nodaubt were held within the confines of a snow chamber during the winter months. This would indicate then that they were active after snow fall and that the storage problem was introduced after snow fall. The rooms and runways were placed upon the ground proper and having, in reconstruction, walls of ice and snow. Many of these group habitations were found during the deep hike across the meadows. It would be interesting to learn the fate of these inhabitants of the airport field: whether they were forced to the peripheral field or whether they fell prey to the hawks and other predators. Numerous insects were collected (1) beneath the rocks and logs. I had expected to find a great congestion of insects because of the change of environment but did not find any unusual occurrence numerous Thamnophis o. vagrans were sunning on the banks of the canal. Being about the first ones observed this season, captured 5 and placed them in the University Reptile House.

3-16-37

Our three days of threatening looking weather, culminated in a rain last night. It continued throughout nite and now & then throughout the day. At 6 oclock today the western skies showed signs of a let-up with a promise of a beautiful sun set. At 4 oclock heard for the first time the thunder and electrical flash. Almost instantaneously came a heavy downpour of rain followed by a vigorous hail storm. New snow down to a point about 2/3 way up face of Squaw Peak. Slight wind accompanyed the days showers

3-17-37

Continued to rain last nite (Provo) with a drenching downpour about 10 oclock. Rain clouds left early this morning being replaced by

by cold looking mist cloud hovering along the mountain side. Line of cloud even with Y symbol on mountain. Favorable looking weather in site. In the afternoon accompanied Dr. Vasco M. Tanner to State and Federal fish hatchery at Springville. They informed us the following: 75% of fish saved in rearing ponds; 6% survive in natural streams. The native trout used to migrate into the Uintahs to spawn, then returning to Utah Lake again. Each rainbow trout produces 1,500 eggs. Eggs hatch in 30 days at 59°F. Eyes form at 17 days and are ready to ship. Average life of rainbow is 8 years. The first food given after disappearance of the yolk sac is ground beef liver and heart. Nearly all eggs hatched on our visitation. He states that gulls destroyed first nesting eggs of pheasant in 1936. We then visited the Federal hatchery. The most interesting feature was the bass in the outdoor rearing ponds. These bass were the first ones observed in many a moon. Every thing looked natural with clear water, mossy covered bottoms, bordering stands of cattails but oh! the whole thing was confined within the limits of concrete walls. A thrilling site, alright, but lacking the significance of presenting the bass in their natural environment. But after all these ponds were used for rearing fish.

3-18-37

Stormy weather continued today. Black clouds in west but shining on east mountains. Started to school in morning with my heart atune with the spring atmosphere only to find that at noon I had to face a heavy snow storm. It began to snow following a rain shower at about 10 A.M and continued to 2:P.M Also had a shower early this morning. Snowed 2" & remained on the ground during the day. Toward evening experienced a cold north wind which no doubt made it inconvenient for the bird life.

3-19-37

Perfect weather today. Very few clouds and moderately warm. Quite a change from our wind storm of last nite. No doubt the wind blew the storm clouds beyond. Most of the snow is now gone except on north sides of buildings. Snow on mountains remaining all day. Cold this evening.

3-19-37

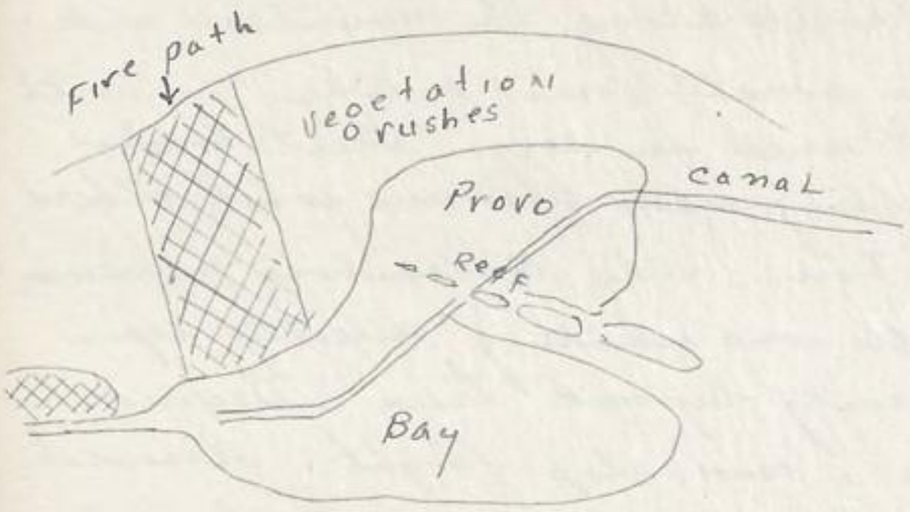
The Thamnophis taken March 14 were observed in copulation in the Reptile House at the University. Calif Gulls flying over field and City for first time this spring

3-20-37

Fair today. High mist continued thruout day absorbing most of the rays from the sun. Beautiful sunset. Snow that fell on the 18th now gone and south ridges bare up to Maple flat level.

High mist obscuring sun. Wind at higher altitudes. Cedar Valley and points west with occasional sunshin. Reed Fautin informed me that he saw the first yellowheaded Blackbird this season which was a single individual. He also saw several hundred robins in orchards at Vinyard and Provo Bench. Today made a trip across foot hills east of Provo. Left home 9:30 A.M. Left from the State mental Hospital grounds and planned to work up diagonally across mountain toward Lock Canyon following the uppermost quartzite bede. Followed up Slide canyon gulch thru Bonneville terrace to base of Y trail. Everything seemed to be active, meadowlarks in every field are singing, juncos in full song and pine siskin chattering from the oak tops. even 5 domestic pigeons gyrated above evidently enjoying their morning flight. The high mist was obscuring the warm sun rays and to me the day was not as typical as I was forced to believe from the activity of the birds. Collected a Eutamias dorsalis utahensis (mil) from a hackberry tree. It was evidently eating the hard insect galls from the branches, at least the great amount of noise he made would indicate that he was eating something of this hardness. Maybe the insect larva was his point of quest. Watched two long-tailed chickadees working over the branches of the oak. With the binoculars can see that they are hunting for insects and that a good many of them are being taken from the newly sprouting buds. Near by in the top of another group of oaks are seven pine siskin among the upper branches. The ordinary chirp is accompanied by a twitching of the wing while the drawn out and precaution note is made with bill fully extended they knew of my presence, being only 20' away but when prompted to leave, flew directly toward me over my head and down the hill. They will very frequently do this thing. While crossing a hollow I scared two magpies from a group of trees. They left without any warning note, slipping away as quietly as possible over the ridge and out of site. Upon examining the nest found it to be completely overhauled with a new roof of sticks and inner cup of wet mud. The first Autosperm-ophilis grammerus utah ran across my path seeming to be in a hurry It took only a few steps in its nonestop flight. At base of Y trail on Bonneville level picked up a Grey-headed Junco which had been shot. While observing a small flock of mixed juncos three red-tail hawks appeared upon the scene, frightening the juncos to cover. The hawks circled around several times offering their screaming calls. The two hawk remained but the third one sailed north along the mountain side. Collected (4 in) midges, Collembola and beetles on small snow patches on north exposure of gulch. The midges predominated and varied in size. Great hordes were flying in the air, some were clumsily walking upon the snow while others were on the oak trees. Several were in copulation. The Collembola numerous while the scarpion flies were few. One beetle was walking directly upon the snow. The snow patches are bordered mainly by oak trees. Beyond a Autospermophilus scurried up the hill on a non-stop flight. Arrived at spring north of the Y symbol on mountain. On approaching I heard

the splashing noise of water some 150' away. This spring is probably permanent because of the brilliant green masses surrounding it. The water looked clear and pure so indulged feeling quite refreshed from the first drink. The water probably originates above and comes to the surface at this point where a ledge of quartzite intercepts the floor of the gulch. The quartzite dips to the east and is highly fractured. The water falls 8' into a 2' diameter pond without an outlet. A semi circular concavity has been formed at the back of the pond in ledge. No sow in gully drainage above which would eliminate the likelyhood that it was merely a snow runoff. This spring is located two canyons north from the most northern turn back of the Y trail. One can hear it from the first ridge to the north. The lower red quartzite just north of the spring & about 200' above the tillite dips approximately 45° east. The contact surface of the individual stratum is smooth & has a rolling, waving appearance. Arrived now at mahogany covered knoll near the base of the limestone cliffs bordering the south ridge of Rock Canyon. Paused here for lunch. While cooking dinner I found that the valley below offers quite an inspiring view. Far beyond in Lush Valley and points west can see the sunlit mountains and hills with beautifully cumulus clouds sailing over head in contrast to my slightly windy point and mist clouds above. The mountains here must hold back these misty clouds that allow only the smallest amount of sun rays to filter through. The plowed pastures are just beginning to show a tint green. Some fields are very green being bordered by colorless ones. The trees in the town are all grey, except the many pines and firs distributed unevenly thruout the town. The oak below still retain their purplish tinge. Looking now beyond the city I see the mirror-surfaced lake that in several places is shattered into a thousand pieces by the varying winds. The promontary sand projections formed and exposed last fall are islands today. How sorrowful a site greets ones eyes when attention is directed toward the ~~fr~~ vicinity of Provo Bay. The effects of last nights fire devestation was clearly in evidence. It appears that the fire may have been intentional and was started from the mouth of the mill race where it enters the open waters. The fire tract trended S.S.E to the field on south side of lake. Also a fire tract bordering upper millrace. Snow still remains on north side of ridge on east side of Lake mountain. While eating in this Mahogany cafeteria heard the L.C. Jay imitate the red tail hawk and the marmot. The first note of the marmot call is 1/2 tone lower than the remaining call. Two species of flowers were out. While studying the structural formation from the



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south ridge of Rock Canyon, five deer started up from their bedding grounds among a thick cover of mahogany trees. This is rather peculiar because I passed within 40' of the grove but 20 minutes before. These deer evidently winter in these gullies during the winter months. Heard the Clark Crows from this point calling from above. The structural set-up as viewed from here at this vantage point help only to substantiate the overturned nature of the range without necessarily assuming that a sheer fault is responsible for the abrupt valley exposures. Becoming chilled I descended to mouth of Rock Canyon. On south side found a rock specimen which showed the exact contact between the glacial tillite and the tintic quartzite. Frightened 2 more Autospermophiles in limestone displaced blocks at mouth of canyon. Observed 15 different species of bird including the bluebird.

3-22-37

clear today with a high south wind. Western skys dark and stormy looking at noon. When I found that the Blattidae were not very well represented I decided to go directly to their habitat so headed toward the city garbage pile. It seems that wherever one finds the signs of human habitation or environment, one also finds that the Roaches are with them in heart & soul. One Blatta (3m) was taken under a board near pile of trash. Several beetles were also taken in same vicinity. It was interesting to note that the spiders, sow bug (Porcellio) centipeds and many others lived in mutal agreement. The Porcellio were especially numerous. The smaller beetles were observed to nearly always move toward the pivoted end or side of a board or log being lifted. The Scarabidae were inactive and covered with mud and dirt while the Carabidae were shinny & active. This area is located on 4th east & 2nd So in Provo.

3-23-37

Started to rain last night about 10 oclock. This morning found the ground covered with snow but did not last long. Practically all gone by evening except north exposures. Also started to snow about 3 oclock for just a minute or so. This afternoon walked out to the edge of town to collect a few bugs. Mr. Strong owns a field adjacent to the old city junk pile and he has been rather neglect in its upkeep. The neglect is in favor for the bug collector for the many piles of wood and logs strewn around make for ideal habitats for mahy of the ground insects. Practically every board that was turned over harbored the omnipresent Porcellis. Under one board a square foot it harbored over 1,000 of these bugs including small ones of this size to larger ones of this size . They ranged in color from cream through red to shiny black. A weevil was imbedded in the damp dirt and was very inactive. The jumping beetle was taken under a board in a rather damp habitat. It was very active. Associated with him was the sow bug, spiders, crickets and ants. A green beetle (7) appeared to be the most active of the beetles collected, taken from under log in a very damp situation. The carabids were more or less active while the scarabids were extremely inactive. The click beetles (8(were found under a board lying upon a mat of grass; a much drier situation. The remaining beetles(9) and insects were all taken under cover of boards and logs

with the dirt being more or less damp.

3-24-37

Beautiful day in every respect.

3-26-37

Picked up a nice Scarabidae(10) on sidewalk on way to upper campus. No activity and acted as if it had been stung. Find the Dipter emerging from the manura pile. The superficial layer appears to be suitable for hatching purposes.

3-27-37

First day of active field work on Ichthyology Research problem of the Distribution of Utah County Fish. The purpose today was to collect representative material to use as a comparison for any subsequent collecting. Wilmer Tanner, Burton Hunt, Sid Boyle and myself constituted a party of feebly experienced ichthyologists seeking evidence to prove it all. We proposed to spend the forenoon at the mouth of Provo River but on arrival found that it would not be feasible to seine because of uncontrollable high waters. While we felt a keen dissapointment it was as nothing compared to our thrill in seeing again the rapidly rising waters of a lake that has experienced near extinction only the summer before. Doubly encouraging too, when reversing our position to adjust our vision upon the distant Wasatch Mts. to see the white covered peaks with their potential waters along with the assurance of a more adequate habitat for our drought-worried fish. The rising waters and abundant snows impressed me with the feeling of a returning friend from exile. The water at the mouth of the river was unusually clear for this abnormal flow of water. Failing to make arrangements for boats at Mr. Milt Jacques, we boared faithful 'lizzy' and worked up stream in quest of gentler flowing waters. Had in mind a permanent creek situalted at the terminal of the old Provo bench delta. rising from the many springs located here. This creek is also supplied with water from the canal which leads around the base of the delta. The fluctuations of the source from the canal causes undue disturbances within the creek proper. The water is at all times clear except as it is influenced by occaisional muddy waters from the canal. The food is very abundant. The upper end of its course is thickly populated with water cress and other water plants with their accompaning life of invertebrate insects. In a shallow hole immediately below where the canal ushers in its supply of water we took the following species all associated with one another within a 20 foot length of the stream bed. One(28) sun fish; one mud sucker, Pantosteus platyrhynchos; one lake sucker, Catastomus fecundus; 5 Brown trout, Salmo fairio; and one carp, Cyprinus carpio; also two silverside minnows, Richardsonius hydrophlox. The species were concealed under the protection of overhingin g tree roots and follen trees, being forced into the net only after vigorously and thoroughly probing with a long stick. A trail leads to the hole and probably accouts for the waryiness of the fish. A Belostomatidae(12) was collected in our net at this point being dislodged form its abode under an accumulation of limbs and debris entanglement in the center of the creek. Placed it in the same formulin solution as used for killing fish specimens. While the solution was certain death to all the fish it only appeared to reenergize the water bug. Attacked the stream at several other points but without success, so abandoned the part of the river bottoms and headed spstream again to the Provo Brick and Tile Co. Mr. Sidney Belmont informed us that clear lake was our best bet for collecting the different species. He made a very interesting statement to the effect that trout have certain colors and conditions of flesh according to the type of food eaten. When eating their normal food ob bugs and aquatic life the flesh is yellow, when feeding on prepared flesh of other fish, such as carp ground up, the flesh

turns a decided red white, while those fed upon a diet of beefsteak have a white colored flesh. No seining at this point because of high waters. All carp must first be cooked and fleshed before given to fish raised in captivity. Back to the university to check in and account for the days catch. The carp's history up to this point was; seined from shallow creed, tossed upon a dry bank near by in scorching sun, picked up one hour later and wrapped in news paper, thrown in back of car to patiently wait for six mor hours before geing placed in aquarium at the university. This typical amphibian had survived the rigors of its days dry-land environment and soon adjusted again to its normal habitat. It remained in the small aquarium for two weeks. before it died.

3-28-37

Left this morning for Lake Mountain to look over a couple of eagle nesting sites. Arrived at John Hutchings a little after 9:00 alm. but were soon on our way. Father, John and Mrs. Hutchings and myself made the Easter trip. Near the Jordan river, saw a few blue hirds resting upon the fence posts and feeding in near fields. Saw first Ferruginour Ruffed leg flying over wash at the mouth of Seven Mile. As we neared the prominent cliffs to the south of the old well, we could see a hawk flying in a circle above the old nesting sete of a F. R. Hawk. It seemed very likely to conclude that the bird seen in the fields below might be the mate of the circling vird. So it was. On closer examination of the old nesting sight, disclosed the new nest of the F.R. Hawk placed in a small tree near old nest. The nest was lined with cedar bark and feathers from the bird. The bird disappeared over the cliff and dis not return while we were making the examination. On our way again passing old well and riffle mark outcrop. Near the top of Seven Mile Pass were several snow banks hugging the upper edge of the ridge about 100 ft. east of where road crosses pass. The first view across the wide expanse of Cedar Valley was indeed a pleasant one. The gray sagebrush and shadowed areas from the clouds above presented a decidedly gray and purple tone. The road on the west side of the Lake mountain is in a poorer conditions than found in previous years. The terrential rains of last fall had probably been the factor responsible for the widening of the smaller gulches. The ruts were concealed by the many tumble weeds which had come to rest from their flight across the bare and rought stricken surfaces of last year. Besides widening of the small gulches, rock beds were working down from the mountain slopes. The new erosion did not, however, give us any trouble in navigating the country but could not help notice that erosion was in process as the years go by. A resting hawk perched upon one of the outer junipers of the large grove south of the pass allowed us to stop and examine within 80 feet. Just thought at the time how easily this hawk could pass on as was the fate of a red tail examined shortly before that had received the lead of a high powered rifle from some sportsman shooting from his car. Drove on beyond grove to first cabin south. Went east beyond toward the mountina stopping our advance only when road graded to steeply into a gulch. While working up mountain side to a raven nest collected two (16) Scarabidae from the surface of the rugged cliffs. About 11;00 A.M. and good west exposure. Also a hemipter (18) mear by. There appeared to be more moisture than previous years at this same time of the season. The snow line was low, the north sides of the ridges were covered with snow and even at the lower levels and extending into the flats where small patches of isolated snow still remained. The ground under the rocks was very moist without much insect life. The fround was soft to walk upon at least the lower borders of the mountain. The lizards, Uta stansburiana stansburiana were active and seemed to be congregated around the light colored areas which had many perforated holes. Three cottontails were observed on way up among the rock outcroppings. Two Eutamias dorsalis utahensis were also seen. Soon were at the cliffs and we located the Raven nest. It was placed about 22 feet from the base of the cliff and made of sticks lined

with cedar bark, wool and plant fibers. Skunk hari had found its way in to the linging. Five beautiful and unusual long occuppied the depression. The cliff was about 70 feet high. Just below, at base of cliff a snow patch still remained. Both birds were concerned and flew directly over us many times, sailed for a time, cometing with partially folded wings and colliding occaisionally with its mate. Sometimes they offered a guttoral note. Seen falcon leave nest and return. Investigated and found 1 egg. This nest was about a block from the raven nest. Kept in close touch with us during our shor visit. She was not as demonstrative as usual but that was justified when we found only the one egg in the nest. The reddish colored egg was placed upon a floor of earth in crevass one third way down from the top of a 60 foot ledge. Visited two other nests near that had been used by a red-tail hawk and a G.H.Owl the year before. Our next stop was Goshen Pass at a point between Soldier Pass and Chimney Rock Pass at the south end of Lake Mt. The eagle nest is placed in the large set of cliffs to the right as one proceeds down toward the lake from the divide. An unusual and conspicious red formation can be seen outcropping to the north on the other side of the road. The eagle cliffs are just south from these red outcroppings The nest did not show much signs of being reconstructed except two or three pieces of sage brush that had been freshly nicked by the bill of the bird and a clump of rabbit brush that had been in a flood and was covered with mud. The mud covered rabbit brush was really too large for either a raven or hawk to have carried. Many of the constitutent limbs were too large for anything but a eagle to carry. An old wood rat had taken his share of the smaller twigs and had placed them in fromt of his domicile evidently for protection. Unfortunately a sheep herders camp had been set up on the divide south east of the cliffs and nodoubt had hindered the birds in their building and had forced them to abondan the old site and move on to their alternative nesting site. Both the raven and the falcon were seen near the cliffs on our approach. A set of three eggs of the great horned owl were taken in the lower set of cliffs. The nest proper was in a very parculiar situation, being placed in a circular hole in the face of an otherwise smooth faced cli f. The nesting hall extended back for about 5 feet but the owl had placed her nest near enough to the front door to be able to leave or lean foreward and keep in touch with the happenings of the country below. Nest about 18 feet from the ground. Just as I was about to take a picture of those glimering eyes, they about faced and hurried to the back of the chamber, out of picture taking range. Rather she have done that than rushed for the entrance and to greet me with her stroking wing or climching claws. Leaving for Chimney Rock Pass by gaoing directly south was not a very good ventur. Traversed several small gulches by filling in with shovel. All well until we ran face to face with a grand canyon. So we retracted and took the road leading east from where sheep camp was located near the eagel cliffs. This was our only bet because now we were blocked from the south and in crossing from the north were on a one way road, too steep to make the return. Finally arrived at abandon homestead S.W. of the Moceda near the canal. Mr Hutchings had been informed by an old prospector friend of his that an eagle had a nest about ½ way through Soldier Canyon but failed to find any favorable looking cliffs. We should have been able to see eagle cliffs from road as informed but mothing looked likely. Retracted our tracks to main road near the Old Great Blue heronery south of Pelican Point. From here we pointed the o old buss homeward. The Lake and the east mountains bordering the opposite side always look their best at twilight. Met a rain storm at the north end of the lake mountain which lasted until we reach the city of Lehi proper. Laurel had supper all ready which we found nicely prepared and tasty. Mr. Hutchings presented me a Saw-whet owl(19) that he had killed with a stick in his front yard. The owl had taken a pine siskin and was holding in clows when discovered. This bird had been shot through the hind quarters previously as discovered when I mounted

it. A flock of pelicans were seen on same day on return.

3-28-37

Mr. Hutchings informs me that although one very seldoms finds developed brest glands on a coyote when skinning he does know that they suckle their young because he had an occaision to raise and family at one time.

3-31-37

Rained last night. Snow line down even with the 'Y' on east mountains. Rain clouds overhead. A pair of English Sparrows were observed to be in copulation this morning at 7;30 A.M. It had rained only a hour before.

3-27-37

Collected a (14) Dytiscid at the University taken by the Library in a hole made for a basement window. Had evidently frown into the window glass in its search for light. A tager beetle (15) was taken at the mouth of Provo River in sands bordering the river to the south. About 50 of these beetles occuppeid an old road bed 10 feet wide and 50 feet long. Some were found to be copulating.

4-3-37

Professor Hayward, Mervin Peterson and myself left the University at 7:20 A.M. to take a bird census of the winter and native birds and mammals on the face of Mt. Timpanogos. Started out in whta looked to a very unfavorable atmosphere for census work; at least desirable, however, to include varied weather conditions; snow and sunshine, mist and wind. Just a short minutes ride to the mouth of Provo Canyon, then along a few country roads and hence to the mouth of Dry Creek on the west slope of mount Timpanogos where we abandoned the Chev. for more reasons than one. Soon on the trail and from the very start were supplied with the most interesting observations. Not more than 5 minutes on the trail before we run upon a red-tail sitting upon an old limb of a cottonwood at the mouth of Dry Cr, Evidently, a guard of the rugged canyon beyond or at least concerned enought to show signs of anxiety. It flew west for a short distance, turned abruply east, sailed across the canyon just over head and clumsily alighted in a small cliff rose bush on the opposite side of the canyon. No sooner had he established his equilibrum when our eyes were attracted to the other side again where we saw another red-tail leaving his high perch upon the top of the perpendicular cliff. He flew directly across the canyon and alighted upon a structur of sticks placed 15 feet down from an eighty foot cliff. Things looked rather suspicious from the beginning and on further development found the nest and brooding bird of which so much concern as evident from the action of the keeper of the gate far below. While peering over the edge of the cliff I dropped my glove which went sailing down past the nest in obeyance to the law of gravity. It was accidently of course but brought the bird to the edge of the nest to watch it continue its course. Sometimes looked fishy I suppose she thought for she looked up at me afterwards with a turned head. Remaining perfectly quiet she looked at me for 16 seconds and then with a couple of steps sailed out over the deep canyon screaminga at the intrusion. With the show over we descended the cliffs and took up our trail leading up the canyon. Shortly we heard another call which disclosed the presence of the prairie falcon. We had frightened a great horned owl from the side of the wash just a second or two before. It was easy to piece the story together for the falcon has a very special call for its attack upon the owl. Quite an association. Great Horned Owl, Red Tailed and Prairie Falcon all nesting in same canyon. Followed on again up newly constructed wat r works to boundry of the Timpanogos Refuge. Near the sanctuary line we collected a Fox Sparrow (Clay colored) (20) at the edge of an oak patch. It was vigorously scratching among the dried

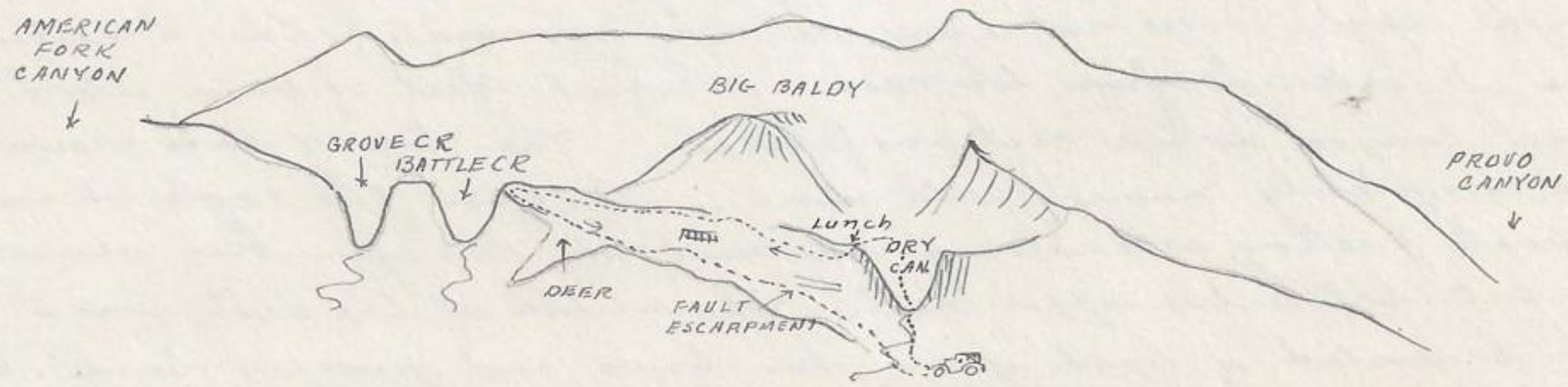
leaves under a well protected oak covering. The wild garlic was unusually abundant in places taking on the appearance of a newly sprouted grain field in brilliant green. Its color was a decided contrast to the duller colors of the undeveloped vegetation surrounding. The atmospherer would have pleased an Italian or Spaniar. We continued to the west and south along the upper outcropping of the cliffs on the west side of the canyon. Atthe promontory we build a small fire and had our dinner. Collected a cottontail(21) here, which was heavily infested with fleas and small ticks. The fire was welcome for it was tather collish and windy. The fog clouds would frequently close in bringing snow, then followed with a warm ray of sunlight. The morning in general was cloudy with considerable snowing. It was interesting to watch the snow flakes being carried upward by the up canyon draft over the cliff abutment. I have often wondered if these air currents hav anything to do with the distribution of deer for we have found that quite a number of deer had used the top of these ledges consistently as evidenced by the many droppings, tracks and discorded horns. The droppings ranged from to and . During lunch we discussed the part thet the hillsides played in the ecological setup of the mountain. After lunch we headed west along the escarpment, and followed the gentle graded trail at the base of Baldy, until we arrived at the rim of Battle Creek. The most unusual thing along the entire trail was the abnormal abundance of the Collembola resting upon the snow patches. Every snow patch seemed to be crowded to capacity. I would judge that there were 40 or less to the square yard. The weather at this time was not too warm to melt the surface of the snwo. Also midges were present. It was interesting to note that as we ascended along the trail the large collembola became minor in abundance while the small round ones became dominant. Encountered one spring at a point about 1 mile or less n.w. along the trail. It is evidently a permanent spring. Most of the trail was free from snwo but in some of the flat valleys we found a good covering of winter snow, while other places found plenty of mud. South rim of Battle Creek was compared with Yellowstone except for color by one of the party. Without a doubt it was quite a hole from this high point. To the east and north toward Mt. Timpanogos was very few ridges free from white snow infact it had a typical winter appearance. A trail followed upl the canyon to the right. A water canal also was visible traversing the canyons n.e. of and about on our same level. Considerable water below being distinctly audible from this point. The mohagany on the ridge of the point had been high water lined by the deer; looked as if they had been eaten last year. The mohogany on the north side of the ridge where the snow was deep did not shwo this water line as pronounced as on the west side where the snows were mostly melted from the fround. This ridge is evidently a favorable place for deer in the winter months. At the southern terminal of this ridge where the canyon intercepts we jumped up enough deer to bring our deer censss to 25. A few were seen on trail earlier and one or two lone individuals. However these deer were all in same close vicinity of each other. The deer we frightened were in the oak, on sunny side hill and in the bottom of the gulch. They divided, going in all directions some in pairs, groups of four and five and lone individuals. It was extremely interesting to observe that a golden Eagle had been attracted by the escaping deer and was seen to fly down and glide over the oads where the deer were passing. Evidently after being satisfied he flew in circles upward and when attaining a certain altitude flew northward out of sight along the bordering hills. Five minutes later two turkey vultures, two red tails and a Coopers Hawk sailed by in same general direction as the course taken by the eagle. While working back to Dry Canyon several hundred feet below trail we paused to observe the flying gyrations of the red tails. The two birds concerned were always together and both taking part in the maneurvering. The most characteristic phase

of the gyrations was the closing of wings and dropping abruptly downward, andnthen an upshoot sending the bird to its maximum heighth without a flapping of the wings. Thenbydirectingithem downward again the continued the same performance. They appeared to be on good terms most of the time, however at times one bird would close wings and dart down upon the companion who resented by turning over or to one side. One of the most interesting things about this west exposure of Timep. was the faulting along our course. Several places we decided were made in a most recent time. It appeared to me to be merely a slepping of one stratum upon another along the west limb of the anticlime. These blocks have merely slipped along their contact surfaces with their underlying base. The new exposed escarpment carries alone for several hundred feet at the base of the foot hills. Several Slate colored Fox Sparrows were seen in sage brush along way and in both instances the three birds were fighting and scraping. Near our destination found the long crested and Woodhouse Jay associating with each other. Their calls are distinct when heard together. The long crested on the one hand has developed the mimic call of the screaming red-tail marmot and other natural calls. Our only fl ck of Juncos were met with at the end of our tramp; a flock of about 75-100 of mixed Gray-headed, Shufeldt, Pink sided and possibly the Montana Junco. Many were singing on our approach. Collected a hemiptera (27) under a rock and several flies in a water box. The flies were massed together upon the water surface.

Record of Census

Weather- See notes
Number of birds and animals observed- 222
Species recorded- 22
Time in the field- Approximately 8 hours.
Distance covered- From 3½ to 4 miles.
Number of observers- Three

Course Fallowed



Census List

Juncos	85	Mixed flock (see notes)
R.N. Pheasant	5	
Am. Magpie	6	
L.S. Towhee	28	Evenly distributed
Red Tail Hawk	7	Possible duplication
L.C.Jay	11	Three lone and one group of seven
Woodhouse Jay	6	Associated with the L.C.Jay
G.H.Owl.	1	Possible nesting
R.C. Kinglet	2	
T. Solitaire	1	

R.S. Flicker	2	Calling occaisionally
W. Robin	15	One flock of 11
S.C.Fox Sparrow	7	Two groups of 3 and one lone individual
Golden Eagle	1	
Vulture.	2	
P. Falcon	1	
Grey Squirrel	1	
Mule Deer	25	One aggregation
L.T. Chichadee	8	One group
Cooper Hawk	1	Identifacation doubtful
Cottontail	3	
Elk	1	Track only (?)
Coyote	3	Tracks only.

4-1-37

Typical spring weather at Provo. Sun emiting intense radiation.

4-2-37

Rained this morning with snow. Cold in evening & during nite.

4-3-37

Rain, snow and slight wind in the morning

4-4-37

Low and intermittant clouds. Snowed yesterday nite on lake mountain considerably more than on the east mountain. Spent the day in quest of the American Eagle on the east side of lake mountain. Started up the ridge to the south of the canyon that leads up from the old calcite quarry about in the center of mountain. While climbing the snow covered ridge noticed that the numbrous collembola inhabited the north side of the ridge and as soon as one would cross to the outer side or approach the top the insects would decrease in numbers. They probably require a hard wind blown snow in contrast to the more or less melted snows of the sunny side. Several mecoptera (24) were taken in copulation. A winged termite and several beetles or staphylineds were also taken upon the snow. The eagles were not seen in the air until the brooding bird was frightened from the nest. Several feet of snow still remained in canyon where nest was placed. The top of lake mountain was also completely covered with snow. This year the eagle chose its alternate nesting sete using the nest in the fir tree several hundred feet below the upper nest. The width of the nest was 5'. The cup consisted of both green fir bows and juniper bark. One side of the cup was lined with the juniper bark while the other side of cup was lined with green fir boughs, motherwards, the juniper bark was not continuous. A few cones and several feathers from the bird were in the nesting cup. The entire upper surface of the nest proper was covered with green fir boughs. Ninety percent of the new nest addition placed this year was dry mohogany sticks. A tumble weed was placed on the side (south) of the nest. The nest proper was on the north side of the conifer. The cup measured 14" across and 1/2 inches deeper than the top of the eggs. The outer rim of the cup about 4 inches from the trunk of the tree. This nest was placed 1/2 way up tree, hugging the trunk and protected

370404-21

above by overhanging branches. This nest was unusually well concealed. The eagle on leaving flew around the mountain to the north across the canyon. It was met by a cawing raven. The nesting tree is placed on the north side of the ridge in a dense and extensively covered mahogany & fir hill slope. On return we visited a raven and a falcon nest on the ridge across canyon from the eagle nest. Each nest contained one egg. We collected the two eagle eggs for a lake mountain record. A red-tail hawk (23) was picked up along side of road west of Lehi, evidently been shot only a few hours before. In mounting the specimen found that it had been in the act of eating a ground dog (Ct. mollis) The stomach contained the whole head while the crop housed the remaining feet, legs, tail, skin and body. If the individual who had killed this bird knew the facts he would have certainly thought twice before killing such a beneficial bird and ally. When skinning found several thorns that had penetrated the skin and were lying between the skin & muscles.

4-10-37

Mr. Dave Rust informs me that the best time to make the trip down the Colorado River from the mouth of the Fremont to Lees Ferry is from the 20th of April to the 10th of May. Mr. Hutchings of Lehi took a mallophago (32) from a Ferruginous Rough Leg that he was mounting. Hawk taken west of Lehi. Leaving Dr. Tanner, Lynn Hayward & Wilmer Tanner at mouth of American Fork Creek, Sidney Boyle and myself worked west along the old lake shore line to the Lehi pumps and along the way we intercepted the many small creek and ditches draining the country and meadows above. Our first seining was in the American Fork Creek taking four small Richardsonius hydrophlox. We found that the water is intermittent at times & that since yesterday had increased twice in volume. Several dead chickens were imbedded in the banks of the stream. The second main creek west of Am. F. Cr. yielded best results. The lower drainage ditch was about 2' or 3' deep and narrow. Moderate velocity & gravel bottom. Numerous small fish could be seen darting up & down the stream. From this stream we collected Lepomis cyanellis, Richardsonius hydrophlox, Richardsonius copei and a small Cyprinus carpio. Food numerous with many blood suckers, snails, caddis flies & other aquatic life. A small Belostomatid (35) was taken from these waters. From the farmers we find that during the summer these streams are nearly dry. The water toward the Jordan river were nearly barren of fish life. Met the party at the pumps. They report that in cliffs 2 mi south of Woffindins supported several blow snake & a small rattlesnake Prof. Hayward reports the Ripley of the day. While sighting along the collecting gun at a flushed pheasant the bird crumbled in the air and fell to the ground. It had flown into a high tension wire. Dr. Tanner collected a Sabana atraria at pump in Jordan River.

Observed the following 370410-22 birds from Am. Fork Creek to the Jordan River.

1. R.C. Kinglet.	7. Calif Gull	13. Am. Coot	20 Cin. Teal
2. R.W. Blackbird	8. Killdeer	14 Gadwall	21 Shoveller
3. Brewer Blackbird	9. W. Robin	15 R.S. Hicker	22 Baldpate
4. Meadow lark	10 W. Snipe	16. Marsh Hawk	23 C. Goose
5. Mallard	11. G.B. Heron	17 S.E. Owl	24 Curlew
6. R.N. Pheasant.	12. Bank Swallow	18 Sp. Hawk	25 Magpie.
		19 Sav. Sparrow	

26. W. willet	28. yellowhead blackbird	30. B.C.N. Heron
27 Am. Pelican	29 Crow	31 Scaup.

a flock of fifteen western willet flew by. Watched two Calif. Gulls alight just in front of us and proceed to greedily eat the remains of a short eared owl nest. The five eggs were fresh and had been deserted because of a grass fire that had passed over the area. The two owl were seen flying just west of the nest in adjoining field. Nodoubt the most thrilling experience along the way was the occasion when forced to obey the demands of a bellowing jersey bull that seemed persistent in keeping us from cross a field.

4-10-37

Wilmer Tanner, Burton Hunt, Sid Boyle & myself scened the North Fork of Provo river above Wildwood. Collected specimens of Salmo irideus, and Salmo fario.

4-10-37

Examined a Ferruginous Rough leg nest on west side of Lake Mt. Nest in juniper tree. First twigs of nest small with tumble weeds. then upper solid mass of larger twigs on top. Cup nicely shaped.

4-11-37

Spent the day near Sunshine Canyon or Alma Young Canyon proper on the Utah Tooele County line. The old structure of the eagle nest visited two years ago before had been destroyed by fire. The previous year sheep herders had dislodged the nest from its moorings in the small cliffs. The cliff proper is 30' high with the nest being placed about 8' from the ground. Its position was the most unusual nest yet discovered. The birds have evidently attempted to nest here for the last few years but have had to abandon it because of the burning of the nest by the herders. The bird was seen on our visit to this old nesting sete. We later found that an eagle was nesting to the north in the second canyon. Examined a neotoma lepida nest. It was placed in a hole of a juniper tree about 8' from the ground. The cavity was filled with juniper bark. The ♀ was in the nest with her newly born young. She was loathe to leave and when disturbed would hump back and draw in its head under its body. She finally left and dropped down to base of tree

370411-23

to a hole leading into the ground. As she made her escape she carried along a suckling young which held tenaceously to the mammae. It was dislodged however when the mother entered the ground chamber. Several favorable rat house if sticks were found in close proximity to this tree nesting site.

4-11-37

The weather recordings for prevous days are as follows:

April 5- Pleasant
" 6- Snow today. At about 2:30 P.M it thundered which was followed by a severe hail + snow blizzard which lasted 20 minutes. It may produce a hardship on many early breeders
April 7. Snow 1 inch last nite. Clear this morning.

4-12-37

Low waters at Jordan River Diversion gates provided excellent seining for the more common fish specimens. The spring pumping operations had not as yet commenced and construction work on the gates permitted a minimum in water level. Any one hole would have offered our quota many times but seined several with the hope of collecting either the native trout or bass. The day before a large bass was caught here. No record of the occurrence of the native trout for several years. Most of the aquarium specimens come from here on this date. Jordan River was literally alive with thousands of fish in every hole, a condition that more or less spoiled us for subsequent seining on the more or less high or barren waters. Wilmer Tanner, Sid Boyle + myself collected the following

1. Catostomus fecundus
2. Cyprinus carpio
3. Ictiobus atraria
4. Apocope carringtonii
5. Perca flavescens
6. Lepomis cyanellis
7. Ameiurus melas

4-18-37

Made short trip on west side of Lake (center) Mt. Recorded the following.

Lark Sparrow	1	
Antelope Chipmunk	2	
Eutamias d. utahensis	1	
C. B. T. Jackrabbit	1	
Rock Wren	3	
Red tail Hawk	3	
Cottontail	1	
Robins	1	
G. H. Owl	2	(2 young)
Raven	1	
Falcon	1	

Rock squirrel 1

Counted the number of neotoma house as we made our short inspection tour of one or two canyons. They numbered 68 mall and were found on ground in the main. Some were placed in abandoned tree hawk nests.

4/24/37

Sidney Boyle and I made two day trip up Grove Canyon on the west exposure of Mt. Timpanogos. Camped at the head of the Grove Canyon in conifers. These conifers are situated at the point where the broad valley converges into the steep and narrow canyon of Grove Creek. Next day we visited the eagle nest on the south rim of Grove and then retracked to camp and from there traversed the broad valley to the divide of American Fork Canyon, hence west to top of the valley bordering ridge and hence south to high north rim of Grove and then dropped down into head of Grove at camp & then packed and returned to Pleasant Grove. The deer & coyote tracks trended east-west across the broad valley. Made pictorial record only.

2-4-24-37 Sid at Camp preparing breakfast.

1-4-24-37 - From north-east rim of Grove Canyon shooting north across the broad upper Grove drainage. We were able to walk upon the crusted surface of the snow without much trouble Our trip took us up the R right side of picture to divide and then west along divide to valley or secondary ridge.

Pictures (1-4-25-37) and (2-4-25-37) constitute a panoramic view of the north side of American Fork Canyon taken from the divide of American Fork and Grove Creek Canyon. Sid as subject.

1-4-25-37

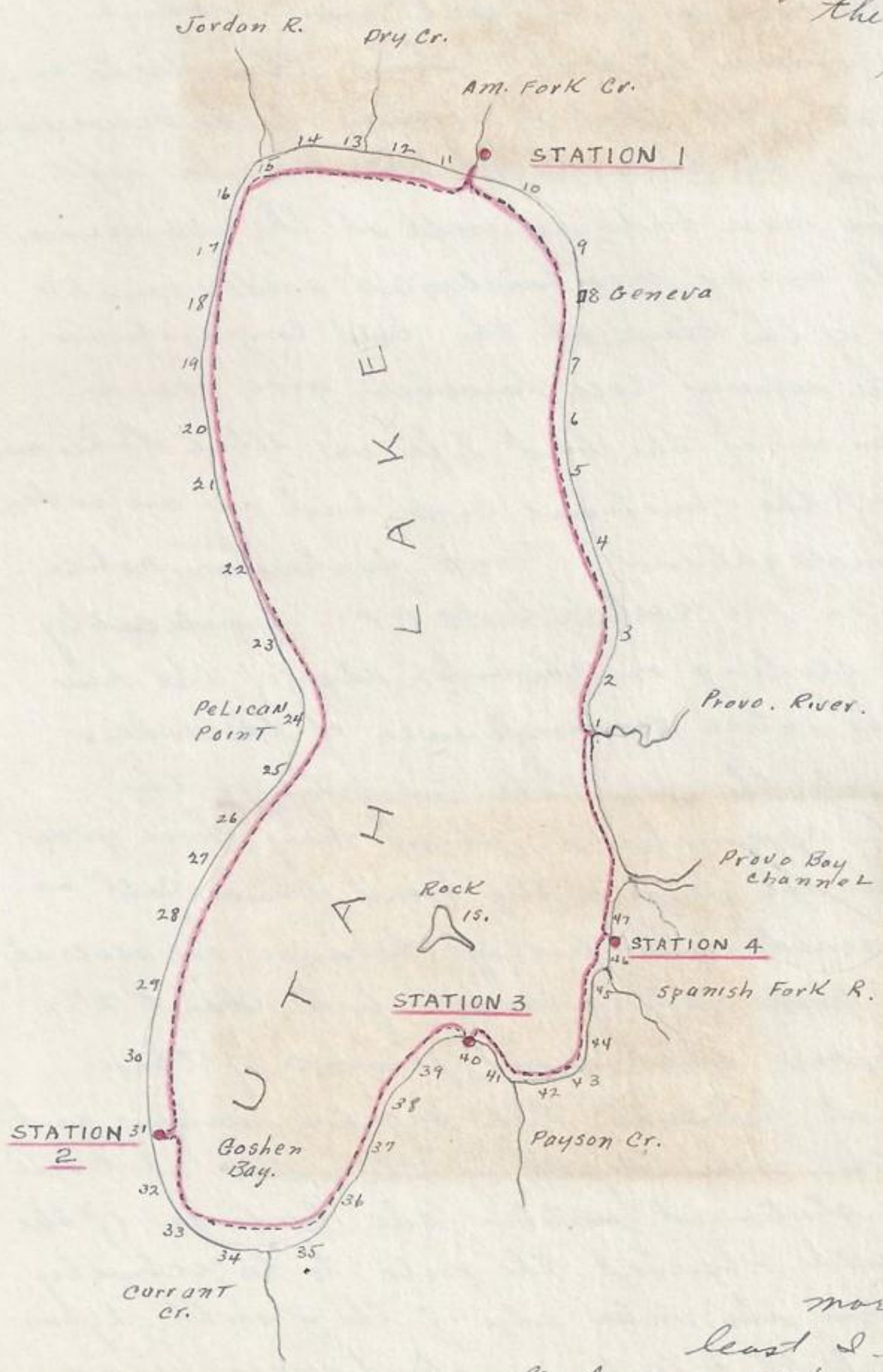
2-4-25-37

3-4-25-37 North side of American Fork Canyon. Thermometer Peak in distance.

4-4-25-37. Sid Boyle on Secondary valley bordering ridge. North terminal of Timpanogos in background.

4-26-37 (pagination as of 4/26/37)
+0
4-30-37

Circumnavigation of Utah Lake by Canoe. Sidney Boyle and myself made the 5 day trip with the objective of checking upon the birds along the peripheral edges of the lake and the correlation of the fish eating forms with the likely and favorable fish habitats. The original objective ~~was to~~ including the execution of the following recording: Record of species, numbers, correlation of percent frequency with the time factor, flights, earliest and latest activity, weather log, water temperatures and depths, shoreline topography and vegetation, crosssections of shore lines and transects and possible associations. Each individual birds was to receive consideration as to time, location, flights and general activity. However, the first few miles thoroughly convinced me that the above procedure could not be carried out to our full expectations, simply because the manning of the canoe demanded more time than had expected. At least I felt it would not be fair to shirk my 50% of the canoe propellion, so reduced



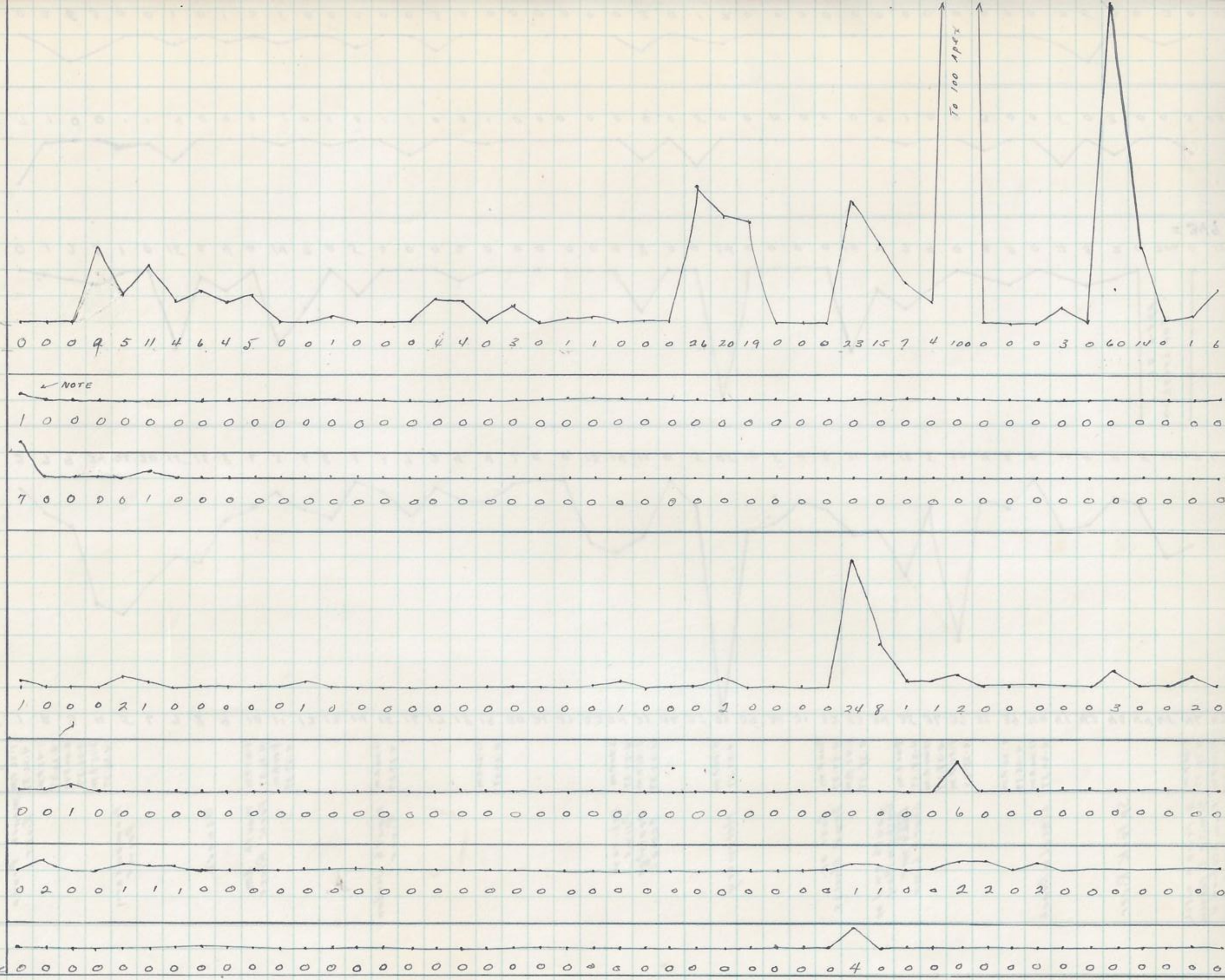
the somewhat ambitious recording to correlation of percent frequency with certain equally divided sections of the lake. The results are far from perfect but I feel that the evidence gained is more correct that wrong and can be used in general considerations. Our itinerary included a route immediately adjacent to the peripheral edge of the entire lake edge. Time and dates of station positions are:

Stations.	Arrived	date	Left	date.	
Point of departure			1:30 P.M	4/26/37	
Station 1	6:45 P.M	4/26/37	8:00 A.M	4/27/37	
Station 2	7:00 P.M	4/27/37	6:45 A.M	4/28/37	
Station 3	2:30 P.M	4/28/37	12:00 A.M	4/29/37	
Station 4	2:30 P.M	4/29/37	12:10 PM	4/30/37	
Station (arrivol point)	2:30 P.M	4/30/37			

Our general observations: Utah Lake supports several species of fish eating birds. If their activity is closely observed they should give some index to the activity and occurrence of the fish upon which they are partially dependent as a source of food. Since these birds are so intimately associated with fish, felt that a survey of the occurrence and numbers of these birds around the lake might throw some light upon the most favorable areas for these birds as well as the occurrance of the greater fish populations. The survey was conducted under variable conditions and at different periods of the day so the bird congregations may not be too significant. The survey does, however, give one a greater realization of the importance of the bird life on Utah Lake as an operative factor in the control of the obnoxious carp and as an index to the frequency index to fish congregation. Took particular notice of the fish eating forms. Notes on the <u>Western Grebe</u> are: Practically all the grebes (western) were found feeding on the outer edge of the new vegetation growth that fringes the entire circumference of the lake. They would invariably swim out into the open lake in front of the canoe or under water if too closely approached. Some may have gone into the confines of the vegetation as we frequently heard them call as we passed. These grebes were concerned with fishing because on several different occasions we observed them eating small fish about 2 1/2 inches in length. It would appear that from the presence of these grebes the fish favored the contact between the barren waters and the edge of the vegetation growth. The depth of the water at these points was about 3 feet. When stationed within the confines of the tamarox, willow and rush growth observed the grebe to be actively feeding several hundred feet from the outer edge of the growth. Again the numerous calls also indicated that feeding activity was going

| GENERAL LOCATION → | mouth Provo River | | | Promontory Point | | | | | | Geneva | | | | | | mouth Am. Fork River. | | | | | | mouth Jordan River | | | | | |

370426-28



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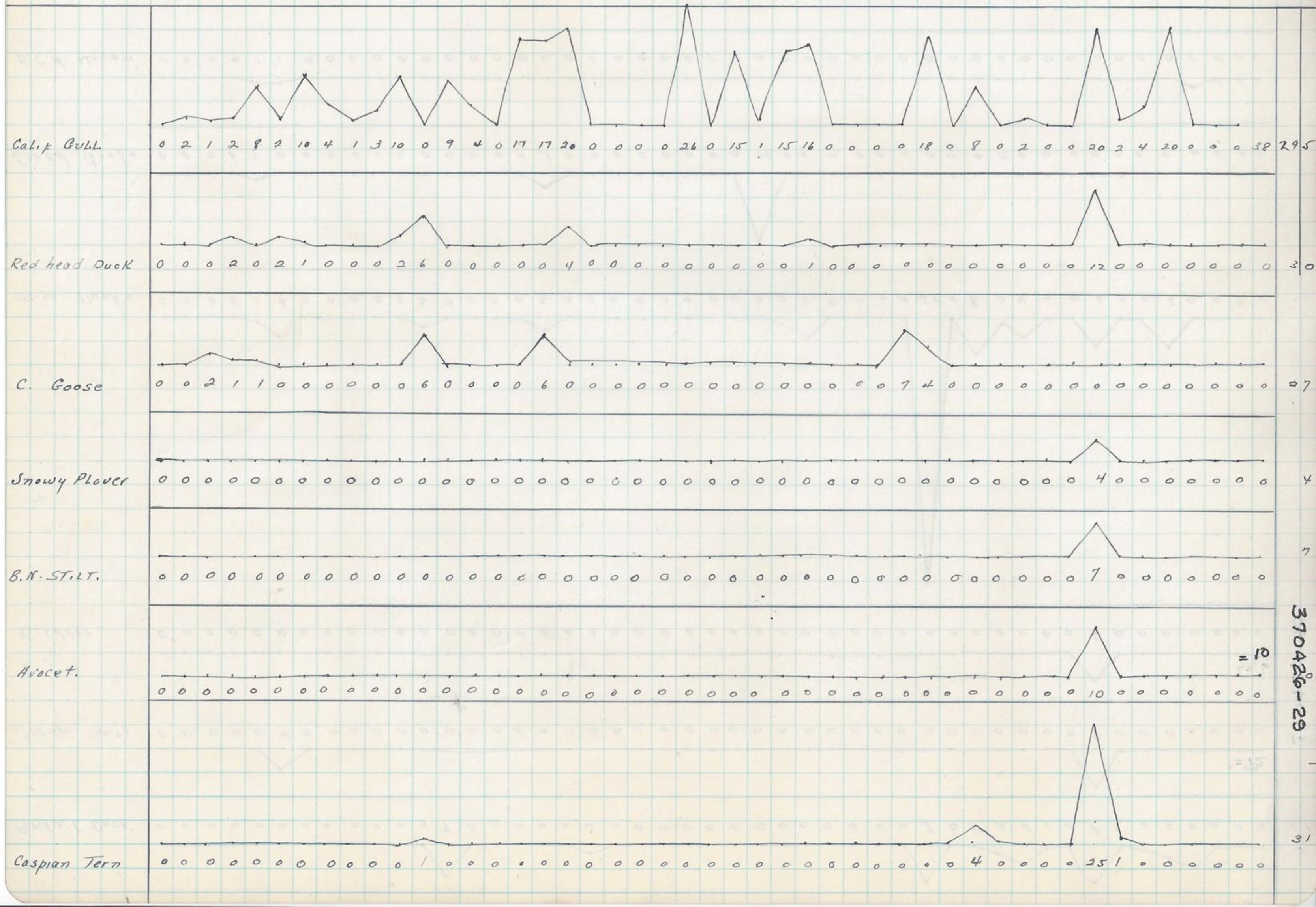
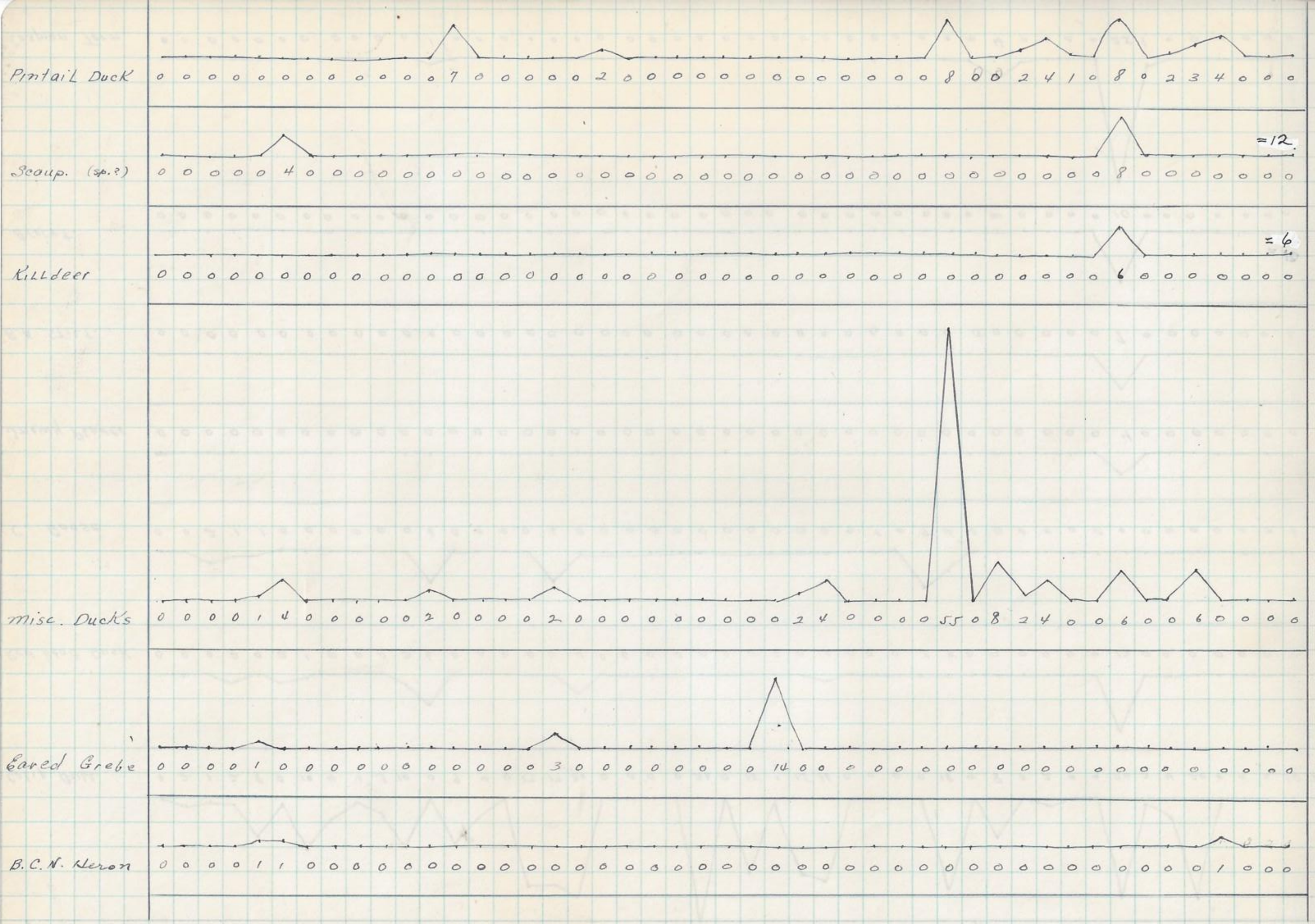

Calif Gull
0 2 1 2 8 2 10 4 1 3 10 0 9 4 0 17 17 20 0 0 0 0 26 0 15 1 15 16 0 0 0 0 18 0 8 0 2 0 0 20 2 4 20 0 0 0 38 295
Red head Duck
0 0 0 2 0 2 1 0 0 0 2 6 0 0 0 0 0 4 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 12 0 0 0 0 0 0 0 30
C. Goose
0 0 2 1 1 0 0 0 0 0 0 6 0 0 0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 7 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 27
Snowy Plover
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 4 0 0 0 0 0 0 0 4
B.N. STILT.
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 7 0 0 0 0 0 0 0 7
Avocet.
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 10 0 0 0 0 0 0 0 10
Caspian Tern
0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 4 0 0 0 0 35 1 0 0 0 0 0 0 31

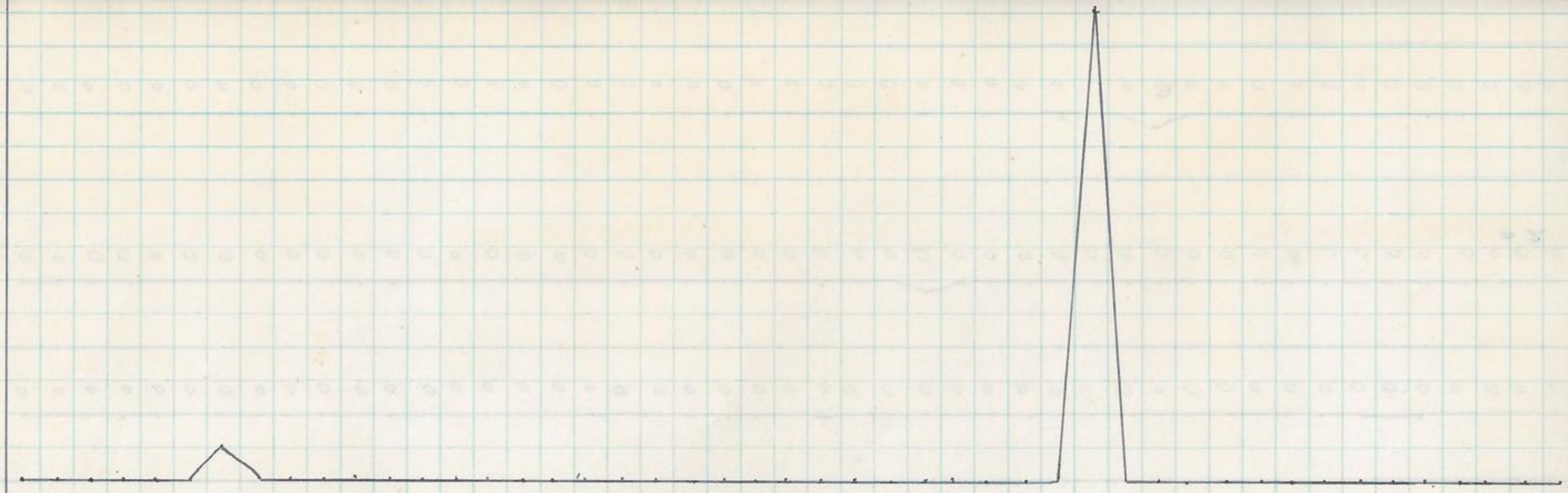
370426-29


Pintail Duck
0 0 0 0 0 0 0 0 0 0 0 0 7 0 0 0 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 8 0 0 2 4 1 0 8 0 2 3 4 0 0 0
41
=12
Scaup. (sp.?)
0 0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 8 0 0 0 0 0 0 0
=6
Killdeer
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 6 0 0 0 0 0 0 0
Misc. Ducks
0 0 0 0 1 4 0 0 0 0 0 2 0 0 0 0 2 0 0 0 0 0 0 0 0 0 2 4 0 0 0 0 55 0 8 2 4 0 0 6 0 0 6 0 0 0 0
95
Eared Grebe
0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 3 0 0 0 0 0 0 0 0 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
18
B.C.N. Heron
0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0
3

370426-30

Forster Tern	0 0 0 0 0 0 0 0 0 0 0 2 0 0 0 1 6 3 0 2 0 0 0 0 2 0 0 0 0 0 0 0 17 0 0 0 0 0 0 0 0 0 0 0 0 0 0	28
B. Egret	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2 0 0 0 0 0 0 7 0 0 0 0 0 0 7 0 0 0 0 0 0 0 0 0 6 0 0 0 0 0	22
W. Willet	0 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 5 0 0 0 4 0 1 0 0 0 0 0	14
L.B. Curlew	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 0 0 0 0 0	5
Marsh Hawk	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7
[illegible] Egret.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Gadwall Duck	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 = 2	
[illegible] Shoveller.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2 0 0 0 0 0 0 0 0 0 0 0	2

370426-31



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370426-33

on within the confines of the rushes. However, the greatest numbers were probably found at the contact zone between the lake & vegetation zone. Small estuaries, inlets and bays invariably supported the largest congregations of fish eating birds. The grebes were found the entire circumference of the lake. Some areas apparently devoid of fisheating birds suggest that these same areas were also devoid of fish life or of not sufficient numbers to justify good feeding grounds. The count varied from 6 in 2 hours to 50 in same period of time. In the approximate 60 miles covered by canoe a total of 337 grebes were actually observed. This is a conservative number because the calls of those birds concealed within the vegetation and the possibility of one of a pair were incubating were not included in the survey count. One can readily see the tremendously important part the grebe must play in the fish balance in Utah Lake. Assuming that one individual consumes 10 fish in one day for a period of six months. If we use 600 birds as representing the number of birds inhabiting the shore line, which is a excessively low figure when families come later on, we arrive at the startling ofigure of about 1,080,000 fish consumed. This perpetual operating factor alone plays an important role in the elimination of the weak, diseased and unfit fish. The percent frequency chart indicates occurrence record. The western grebe appear to be active day and night. The observations on the Caspian and forster Tern are: The feeding and flight lines of the Caspian & Forster Tern are almost sure to indicate the presence of fish. They conformed to the distribution of the grebe. They followed closely along the outer edge of the vegetation and hovered particularly over small inlets and bays. The birds were nodoubt concerned with feeding as they were actually observed catching their prey and performing their plunge dives. A total of 349 pelicans were observed. They appeared to be resting in a great many cases. Some were, however, feeding in waters adjacent to rushes. The N. E - S.W and S. E. sections of the lake supported greatest numbers. The numbers may be duplications but indicate that the entire circumference is used by these birds. It would be equally amazing to apply figures to the consumption of fish by these feeding birds. The Calif. Gull acts as a good scavenger! Several birds were observed feeding on dead surface fish. Nodoubt small fish in shallow water are subjected to these birds. The G. B. Heron was encountered daily. many fed at edge of vegetation where depth of water permitted but a greater number were found within the confines of the rushes. Their graceful movements always attracted and held our attention. The B. C. Night Heron became active at twilight. The Brewsters Egret fed in shallower waters near shore. Sixty six cormorant, with possible & likely duplications shared in the fish of the lake. Being summer residents with families to support makes

it even more important as a factor playing to check on the increase of numbers. These birds were found near the edge and flying in small flocks to and from their feeding grounds. The one lone merganser observed at the mouth of Provo River could have been either a breeding or crippled bird. On our first day found the G. Blue Herons flying high when going south and flying low when trending north. On first day examined 3 coot nests of 1, 8 and 3. Station 1 was in site of old hotel site of years ago. The fire-flies + mosquites active. The record for the first 4 section of the lake north of Provo River is as follows: The key to the conditions is:

1- in vegetation (in standing water)
2- bordering vegetation (in water)
3- Open water of lake
4. Took for cover
5- Left area by flight.
6- Left area by swimming lakeward.

Species	nos	Time	Location	Flight (Ft. above water)	conditions.	
Cormorant. D.C.	11	1:30 P.m	1	3'		
R. B. Merganser.	1	1:30 P.m	1		3	
Ruddy Duck	7	1:30 P.m	1		3	
Western Grebe	1	1:40 P.m	1		4	
Western Grebe	1	1:40 P.m	1		4	Paused at edge and then dove.
Western Grebe	1	1:45 P.m	2			Followed between canoe & vegetation
Western Grebe	1	1:45 P.m	2		2	
Western Grebe	2	1:45 P.m	2		2	
G. B. Heron (Treganza)	1	1:45 P.m	2	30'		Over land.
G. B. Heron	1	1:45 P.m	2	150'		
Mallard	1	1:45 P.m	2	20'		
Pelican	1	1:45 P.m	2	20'		
W. Grebe	1	1:50 P.m	2		3	
W. Grebe	2	1:50 P.m	2		3	
Common Teal	2	1:50 P.m	2	3'		
Cormorant	1	1:55 P.m	2	3'	3	Flying north.
W. Grebe	5	2:00 P.m	3	2-6	2-6	
Pelican	2	2:00 P.m	3	50'		
W. F. G. Ibis	1	2:00 P.m	3	20'		
W. Grebe	1	2:00 P.m	3		3	
G. B. Heron	2	2:00 P.m	3	50'		
G. B. Heron	1	2:00 P.m	3	50'		
G. B. Heron	2	2:00 P.m	3		1	
W. Grebe	1	2:00 P.m	3		2-6	
G. B. Heron	1	2:00 P.m	3	50'		
W. Grebe	2	2:00 P.m	3		2-6	
W. Grebe	2	2:15 P.m	4		2-6	
G. B. Heron	1	2:15 P.m	4	5'		
Calif Gull	2	2:15 P.m	4		2	
W. Grebe	4	2:15 P.m	4		2	
W. Grebe	3	2:20 P.m	4		2-6	
G. B. Heron	1	2:20 P.m	4	20'	-	
W. Grebe	1	2:20 P.m	4		2-6	
W. Grebe	3	2:30 P.m	4		2-6	
W. Grebe	3	2:30 P.m	4		2-6	
Pelican	2	2:30 P.m	4		2	
W. Grebe	2	2:35 P.m	4		2-6	
Pelican	1	2:35 P.m	4		2	
W. Grebe	4	2:40 P.m	4		2-6	
G. B. Heron	1	3:00 P.m	4	300'		
Am. Coot	9	3:00	4		2-6	

This above section constitutes the bay proper. This census included in report.

370426-35

4-4-28-37 Sid checking on the new storm approaching. These storms made abrupt appearances and without warning making it doubly important to keep canoe near shore at all times

5-4-28-37 Our improvised camp that we were forced to erect necessitated a 10 minute portage of the canoe. We anticipated the storm so moor canoe before hand. to illimated damage from wind.

6-4-28-37 Wind beginning to effect water surface. Portage nearly complete

1-4-29-37 The subsiding storm that blew us from our moorings at Lin. Beach.

2-4-29-37 Sid checking on equipment before leaving for our next cruise to s[illegible]on 4. apparently some of the varnish is being worn off the paddle by use. day clear off nicely with promise of a good lake surface for navigation.

3-4-29-37 Testing load in canoe. The size of the canoe and load carried made it necessary to propel the boat in a sitting position. Arabian hood used to keep sun and mosquoites off person.

370426-36

Found that the birds occurred in varying numbers. Some as indicated. Pelicans in flocks of 2-3-5-7-200 and single. Foster Tern of 2 and singles. Canada Goose, singles and 4. Mallards, 3-4-singles. Pintails, 2-2-singles Spoonbills, 2. Caspian tern, 2-5. Mixe ducks 2-3-4-5-6-singles. Red-heads, 4-2-singles. Pintails 6-singles. Grebes (W) 2-3-4-5-6 and singles Cormorants 2-5 and singles. Gulls mainly in singles. During the trip kept a personal pictorial record which is included as follows.

1-4-26-37. Sed in Canoe as we left our departure station at the mouth of Bravo River. Canoe heavily loaded but would still float. Weather perfect. (see p. 36.1 for enlargement).

1-4-27-37 Leaving our first nights camp at station 1. Sed loading canoe. Am. Fork river at this point shallow but could be navigated to lake. The picture impresses one as an Amazon setting.

1-4-28-37 Lunch stop on third day. The night before (last nite) was spent in tamarisk with midges hovering around our eyes & nose & ears like air itself. Tied canoe to tamarisk and slep in bottom of boat while afloat which was an act in itself.

2-4-28-37. Same as to left. This was our first occasion to visit land in the last 27 hours having spent the entire time in the canoe. The sand felt welcome. Water supply still adequate to carry us to station 4 another day away.

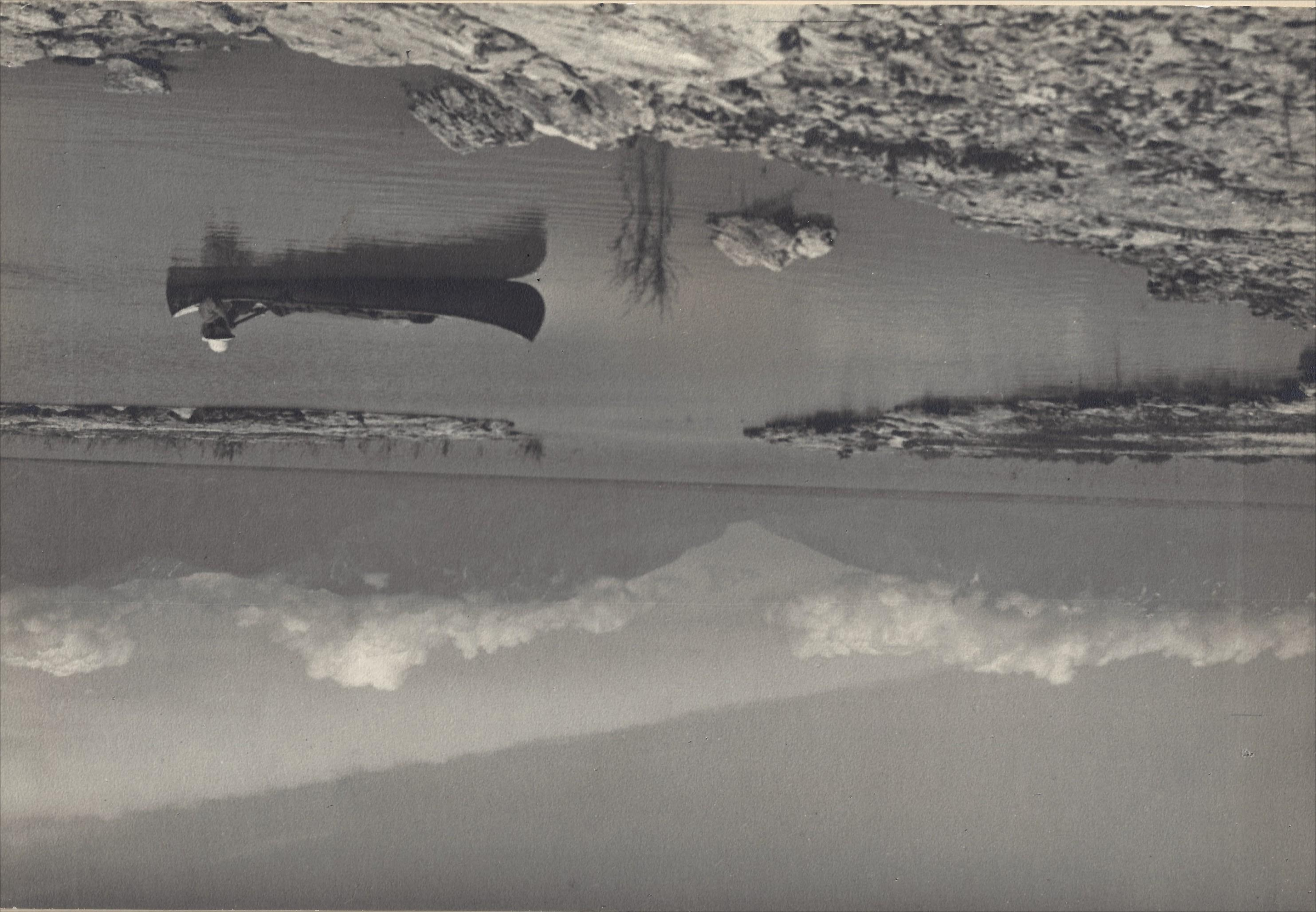
3-4-28-37. Station 3 at Lincoln Beach. Making camp that evening. Area easily accessible by canoe and made perfect camp except later that evening when a severe north wind blew us litterally off the partial island and raised the water level of the lake. In a half an hour our our island was inundated so we had to establish another one on the mainland where the mosquotes were were found in unwelcomed numbers.

1-4-26-37 JWB

370426-36.1

4-4-29-37 JWB

370426-36.2



370426-37

4-4-29-37. Ready to leave from station 3 at Lincoln Beach. The warm springs deposite has formed several of these harbors which can be used to land during windy weather. Timp, Cascade & Provo Peak in distance.
(see page 36.2 for enlargement)

5-4-29-37. Pelicans near the mouth of Spanish Fork river. These birds became reconciled to the presence of a canoe while they okey at man at same distance when not associated with the canoe.

The trip, we both acclaimed, was highly successful. We found that one soon adjusts to the paddling of the canoe for long periods of time. On our last day we were forced to leave in a rain and wind and found that by the time we arrived at Provo River were slightly fatigued in the regions of the arms and shoulders. An umbrella assists when going with the wind. One of our greatest problems which we soon found, but never anticipated, was the toilet problem in a moving canoe, but defeat did not down us in any of our endevors. Mosquotes and oil of citronella are important as well as sun burn salve in allowing for the maximum degree of comfort and enjoyment. Our rule from the first was to never expose our bodies to the sun roys with the result that we did not suffer from sun burn except on part of our hands and face. Sid used colored glasses as I lost mine overboard during the first part of the trip.

5-2-37

John Gessford and I spent the day in the Redden lake cirque and Elks Peak of Mt. Timpanogos. Timpanogas at this time of year is still very much in its winter robe with the snow slide problems and snow depth as great as ever. Skis necessary. Followed up the terraces along the base of the cliffs on south side. thus evading the more terrterous and dangrous exposure of the terrace area proper. The most interesting observation was the presence of a marmot 3/4 way up terraces. It hole and radeating runways in snow & ice indicated that it had be used regularly for some time. On return headed straight for it and never realized that it would refuse to move. As I made a Bristle across its hole I'm sure I must have pulled a few hairs from its tail as it darted into its hole. My approach and unpredictable speed probably confused the animal. This marmot was the only one observed and was located at base of the talus slope of

the peak to 370502-38 the right as one ascends the terrace slopes. Made a photographic record of the trip as follows.

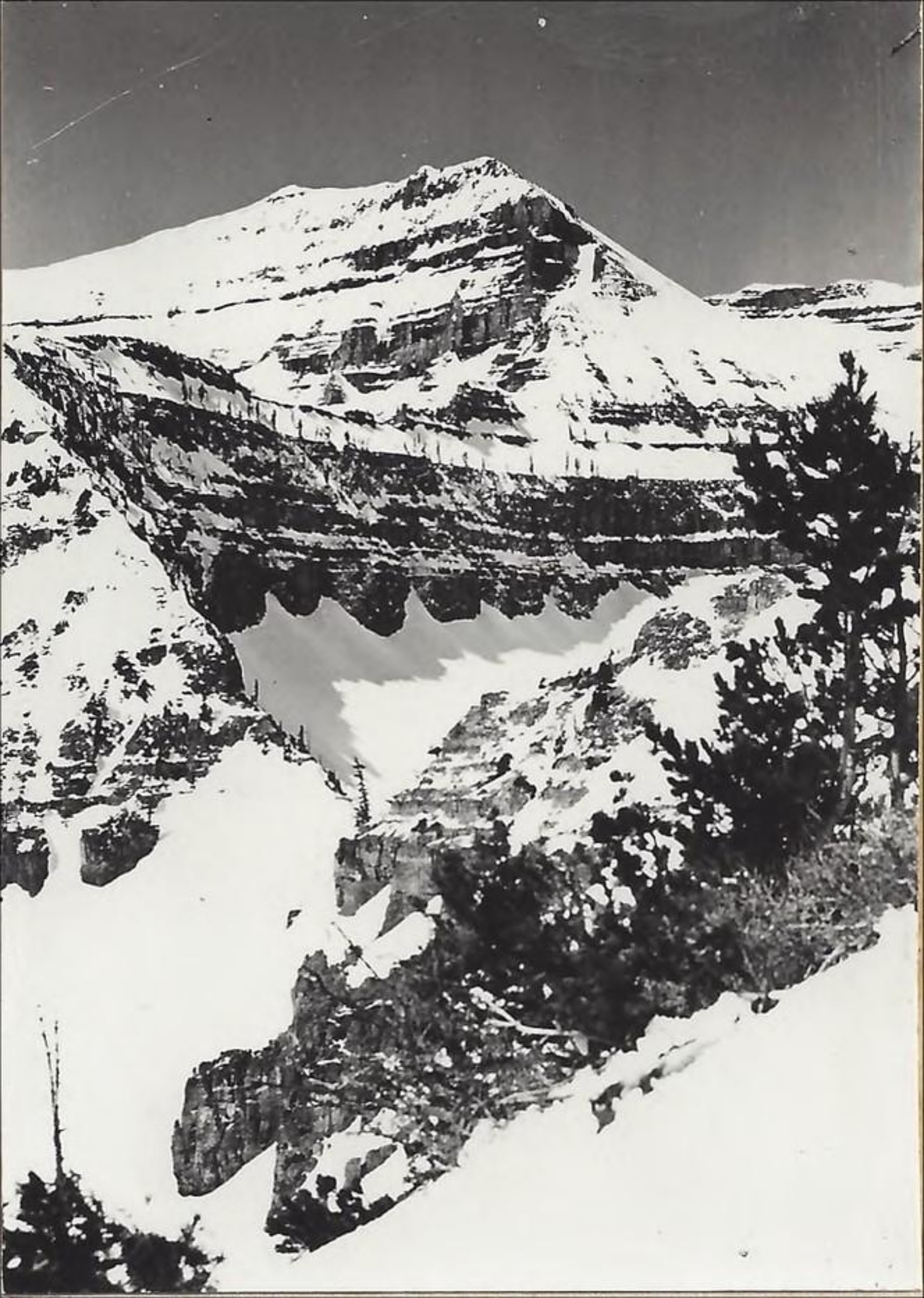
3-5-2-37. John on Elk Peak. Distant Cascades and south Stewart Cirque in foreground capped with rugged peaks above. 11:00 A.M. $\frac{1}{25}$ x 20 on verichrome. (see p. 38.1 for enlargement)

1-5-2-37. Divide at Elk Peak with percipitous cirque walls in the background. Winter still much in evidence.

4-5-2-37 Terraced scene from Elk Peak looking west into Emerald Lake and glacier valley. 11:00 A.M. Clear sky $\frac{1}{25}$ x 18 on verichrome.

2-5-2-37 Another view of Elk Peak with similar setting as above. Confining cirque wall lend a most unusual setting for the picture. About 10:00 A.M. Clear day $\frac{1}{25}$ x 18 with verichrome film.

5-5-2-37 Massive abutment S.E of Emerald Lake. Clear day 3:00 P.M $\frac{1}{25}$ x 18. Snow in good skiing condition.



3-5-2-37 JWB

370502-38.1

6-5-2-37 JWB

370502-38.2

7-5-2-37 JWB

370502-38.3

6-5-2-37 Cirque valley and lengthening shadows of Hidden Lake Cirque. Clear day. After noon – 1/25 x 18 slop on a verichrome film. (see p 38.2 for enlargement.

7-5-2-37 John dry & waxing skis for the descent. Am Fork Cirque in background. Taken at divide of Emerald Lake + Am. F. Cirque. West ridge on horizon. Clear day 1/25 x 18, afternoon (see p. 38.3 for enlargement.)

4/30/37 (late insertion)

Wilmer Tanner, Sidney Boyle, Burton Hunt and myself spent the day seining the Provo River and its tributaries near Vivian Park. The species collected are:

Provo River at Wildwood

1. Salmo fario
2. Richardsonius hydrophlax
3. Cottus semiscaber
4. Pantosteus platyrhinchus.

Provo River at Vivian Park.

1. Coregonus williamsoni
2. Salmo fario
3. Cottus semiscaber.

South Fork at Vivian Park

1. Salmo fario
2. Salmo iridius

Collected a brower at the mouth of Provo River, Utah Lake, that measured
length 41"
Tail 10 7/8"
Foot 6 1/2" (from where hairs end)

5-1-37

Eagle nest in Grove Creek on Mt. Timpanogos. First nest, middle position at loose rock cliff on south run of canyon. Nest consisted of a entire upper surface of Douglas fir boughs completely covering the nest. The green boughs are superimposed on last years dry structure of old mahogany branches, artemesia, douglas fir and oak. Skunk cabbage stalks and a paper like hornet nest material resting on edge of present cup on east side. Nest faces north. Excrement below nest on S west side. Food items found at nest are: Male Autosperm ophilis g. utah, 1 young marmot with hair picked off of leg, 1 male gopher, 1 marmots head with eyes and brains eaten.

5/13/37

Made 2 day trip of west side of Timp, between Battlecreek + Dry Canyon. Made a few observations. Watched sw Eutamias dorsalis utahensis in afternoon on cliffs at west side of Dry Canyon. Three of them were in

the process of copulation consisting of 2 male & 1 female. The ♀ was conspicuously larger in comparison. The ♀ led the way up the rocky cliff and at every pause would allow the ♂ to copulate. Occasionally the males would copulate themselves. The activity was not vegorous as in the case of white rats of the laboratory, although the males would scent the reproductive organs of the ♀ before copulating. The 2 males kept in close contact with the ♀ at all times. This occurred at the first prominent cliffs on west side of Dry Canyon near mouth. One chipmunk was observed on cliff on east side of Canyon only 20' below a nesting red-tail hawk. A mourning dove was flying at a high speed directly toward me when suddenly it turned and circled around and made it approach against the wind. It had intention of alighting with me. Had no idea why she wanted to join me. It came in as if lighting but at 15' it recognized me and flew away again. The red tail on the east side of Canyon was facing south in the direct sun rays. Next morning it was observed to be facing north at 8:30 A.M. Watched a pack rat run across the side hill to a rock slide. Observed 3 rock squirrels associated with the cliff area and 1 on bench to the west. Marmots also associated to the cliff areas. Seven W. T. Swift in Canyon.

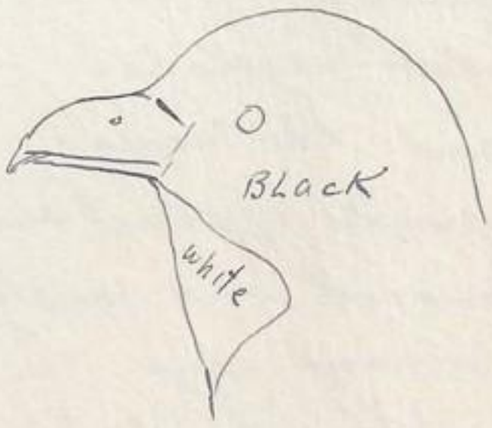
5/15/37

Trip to top of Y mountain. Left home at 6:00 A.M. Top of Bonneville level at 7:00 A.M. Sun at 7:00 just clearing upper B.Y.U. Campus. Arrived at Y at 8:00 A.M. 9:30 A.M Maple Flat turnoff in Slide Canyon. Continued to Bear flat and ate dinner at Springs. After dinner went to top of Y mountain and then down Rock Canyon Ridge to mouth of Rock Canyon. Made a few observations along the way. A marmot was resting in a conspicuous place on cliff about 7:30 A.M. no sunshine on cliff as yet. Another marmot resting on cliff but no sun as yet. Contact of quartzite and tillite along S.M. of Y. trail. Would imagine that the eagles might pick them up. The first active gophers mounds observed at head of Slide Canyon 2 block above maple flat turnoff. The new mounds were along a straight course of about 40' and near their winter Cone which remained upon the ground. A Sciurus or tree squirrel called like a feigning Wilson Snipe. It called continually. The E.R.Cr. kinglet, Thrush, Chipmunk, chickadee, junco and pine siskin called near the squirrel nest. Collected a set of Goshawk below Bear Flats Spring in Canyon at head of Slide Canyon among Aspens and conifers. The nest was placed in an aspen tree 30' from ground and eight feet from the top of the aspen foliage. The first material for the base construction was a branch of aspen with the leaves still on. 80% of the ground on the floor of the gulch and on the south & west side of canyon was covered with snow. The bird had typical narrow lined breast marks and remained near by at all times flying and calling from fir to fir top. About 5 attempts were made to ward me off. The closest approach being about 18'. It called continually increasing its volume and repidity as it made its power dives. The kinglet, chipmunk, thrush

3705) 5-41

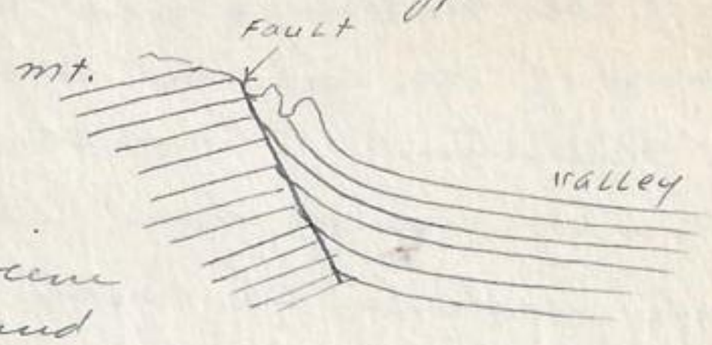
pine siskin and Junco called near nest. Left the bird still calling. Nest visible 200' away. Picture (1-5-15-37) shows the nest as association of other aspen etc. Aspen dormant at this time of year. An old grouse skeleton picked clean was found near by. The water at Bear Flat Springs flowing good. Snow entire way up canyon on both sides coming down to spring stream. Water from snow entering on S and west side of pond. N. & east side of pond clear of snow. Lone hill 200' north of spring clear of snow. 70% of aspen in right hand fork of Rock Canyon in blossom. While on top of Y. mt investigated eagle nest. Nest looked deserted and no birds near. On west side of Y mt saw a falcon with these characters: May be duck hawk. It had yellow feet, brown tail, black back, called like a falcon, head colors contrasting. It was about size of prairie falcon but appeared to be in a different plumage than I have been used to seeing in the Cedar Valley & Lake Mt country.

1-5-15-37



5/20/37

Geology trip to Maple Canyon, Wayne Wonderland etc. First nite at mouth of Right & left hand fork of ~~Box Canyon in~~ Maple Canyon. Box Canyon is main attraction. Visited scissor fault on road between Mayfield & Gunnison of the T. lake and Sevier faults. Faulting at mouth of Maple Canyon like this looking north along the drag. Stopped at oolite at monte. Saw gonoid scales & bones of early Miocene beds. Mountains N.W of Sigurd are tertiary and highly red colored. Several lava domes bordering along the fault line at base of mountain. Mr. Brian of Loa states that the season is pulling thru in excellent style. Plenty of moisture. No undue invasion of mice. Several beaver in creek near fish hatchery. Several porcupine near Loa fish hatchery.



6-9-37

Started summer work with University. For the next month C. Lynn Sagsward, myself and three other members, Harry Thomas, Merlin Kellpack & Lowell Miller were to work Mt. Timpanogas. The purpose of this Biological Field work was to collect mammals and birds of the region. Harry Thomas and I were to work the west exposure while Lynn started on the east side of Timp. Five station were established:

Station 1. Maple Grove Creek.
Station 2. Head of Grove Creek
Station 3 Timpanoogue Basin.
Station 4. Aspen Grove
Station 5 Hidden Lake Cirque.

Arrived at 6:12 P.M at Station 1 which was located at the mouth of Grove Cr. Canyon proper and camp set up by 6:40 P.M. Temperature on tent post 83° F. Calif. quail commenced calling at mouth of canyon at 7:00 P.M. At 20 minutes before sundown and with sun obscured by clouds the temperature was 66° F. wind down canyon at 7:05 P.M. Established trap line of museum special traps in canyon floor proper about 2 blocks up canyon. Description and map included in tomorrows notes. Finished trap line 8:20 P.M. 9:00 P.M wind up canyon, Temp 77°F. Temp. 8:45 P.M = 63°F. Temp. 9:15 P.M = 60° F.

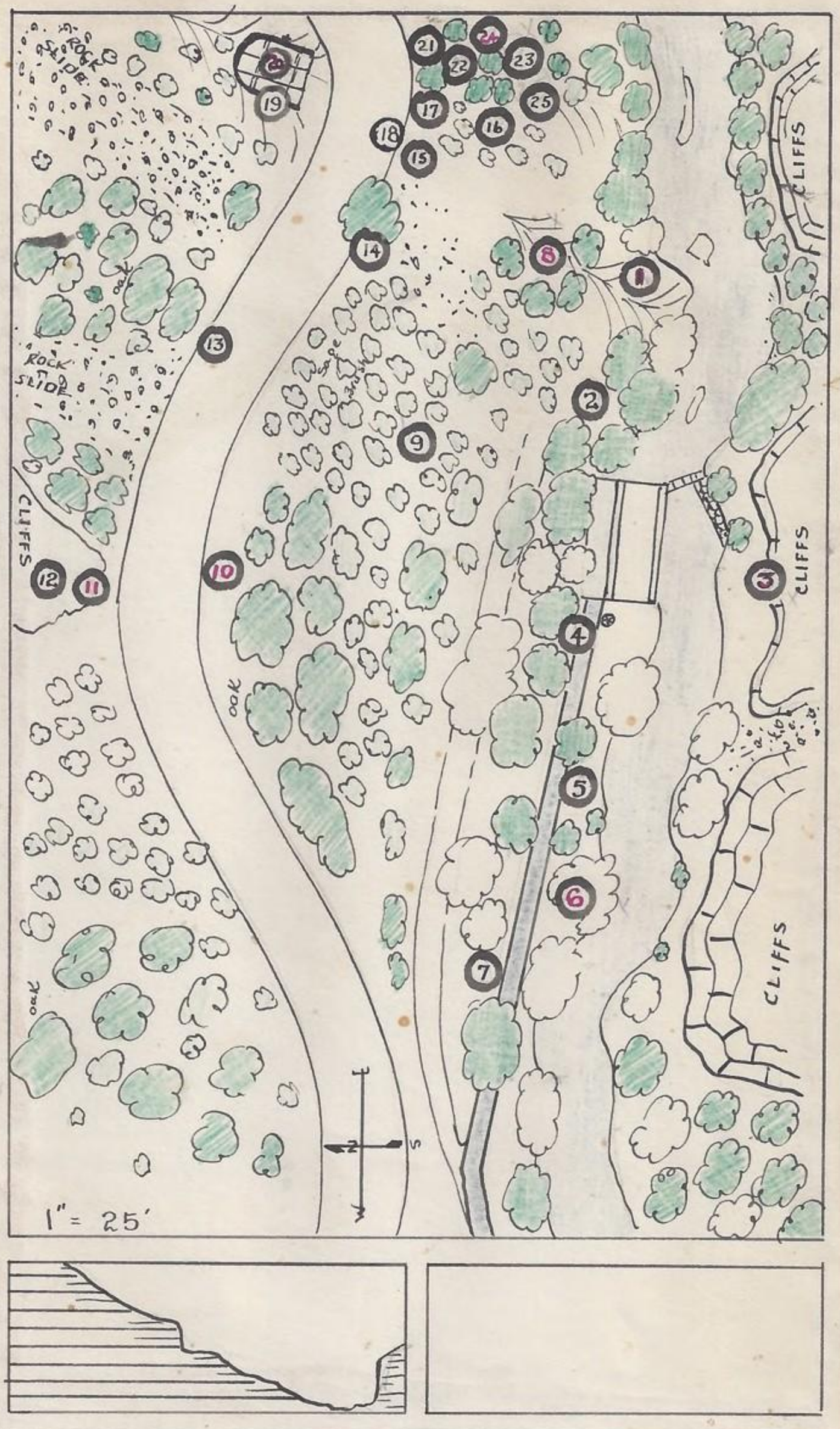
6-10-37 (continued.)

Inspected trap line of last night's setting and described setting of same. This typical canyon mouth habitat is located at the mouth of Grove Creek east of Pleasant Grove. Utah Co., Utah. The canyon proper is relatively new geologically speaking and has cut its channel thru the valley bordering ridge of mount. Timpanogos. Several distinct habitats are placed on the map representing growth and vegetation that is directly influenced by the stream bed in floor of canyon. Other habitats are: Removed vegetation of the recently eroded stream banks, the valley floor, and the confining sides of the canyon. The rankest and most luxuriant growth of plant and tree life is found in the first habitat representing the cottonwood, oak, maple and birch grouping. The birch and oak dominate the stream edge. The undergrowth is profuse being Oregon grape and Pachystima. This habitat appeared to me to look unfavorable for mammal life because of the dense and shade condition, nevertheless three Peromyscus were taken from among the dried leaf accumulation beneath the larger trees. The valley is in its juvenal stage of the seasonal cycle. The vegetation outside of the bordering stream bed consists of oak and sage brush with intervening spacing of bare soils and rock slides. There is a noticeable lack of any other types of vegetation. Rock slides in a gravitational repose line the north side of the canyon issuing from the cliffs above. Tongues of oak, cliff rose and shadscale penetrate the valley along the lateral edge of these slides. Two cliffs extend down into valley edge. This side hill is very hot during the greater part of the day. One climate factor that must certainly play an important role in the type of vegetation and animal population is the persistent canyon winds that chase up and down the canyon floor with rhythmical periodicity. Change of morning winds begins at about 77° F. at about 9:00 A.M while the afternoon winds change is effected around 4 o'clock. Invariably the winds blow upcanyon during the day and down canyon at night. The degree of wind was apparent when forced to chase and regain labels and cotton blown from the preparation table. The interchanging of warm valley winds with the cool mt. breezes no doubt affects the life to some degree. Unfortunately the area under observation is conveniently situated and accessible to motor car and accompanying fire arms. The animal life in turn suffers from the persistent influence of this annoyance, especially is it noticeable in the case

370610-43

of the rock squirrel which we found to be extremely nervous and seemed to keep out of our way. The rock chuck also was extremely wiery. The nights were clear and cool. The area used last night is taken directly from the field journal and indicates the area trapped and the trap placements. The key to the plate is as follows.

- cotton wood.
- artemisia
- cliff rose
- oak
- Birch
- mine entrance

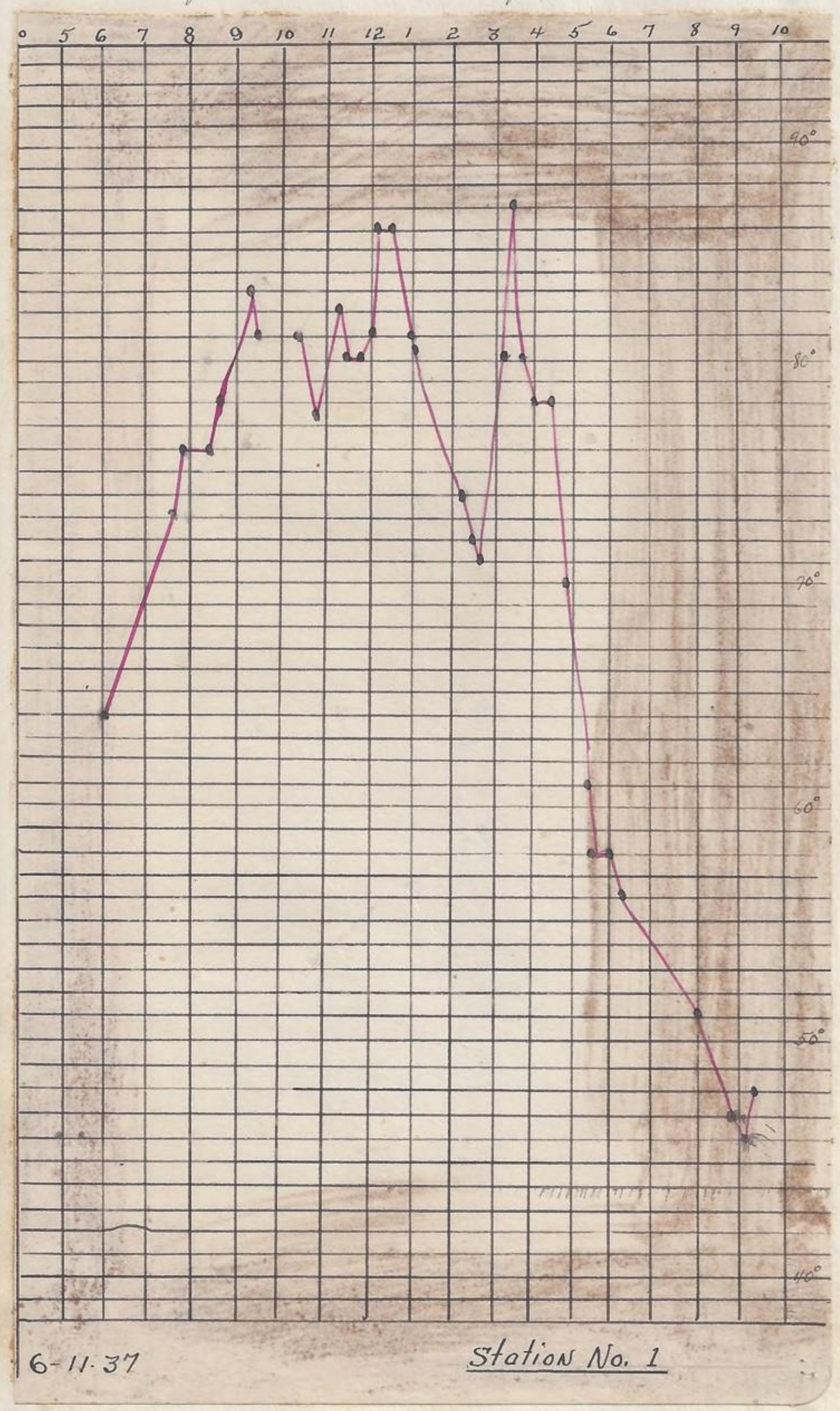


Mammals Collected.

Trap	animal	Col. no.
1	Peromyscus	1
2	Spring	
3	Peromyscus	2
4	unaffected	
5	unaffected	
6	Peromyscus	3
7	unaffected	
8	Rethrodontomys	4
9	Spring - bait gone	
10	Peromyscus	5
11	Peromyscus	
12	unaffected	6
13	"	
14	"	
15	"	
16	Bait gone	
17	unaffected	
18	Bait gone, sp.	
19	Bait gone	
20	Peromyscus	7
21	Bait gone - sp.	
22	Bait gone - spring.	
23	Bait gone	
24	Peromyscus	8
25	unaffected	

The definate location of the trap that produced results of the the above are: Trap no 1, along stream side habitat in dense growth among shady situation. The ground was thickly covered with a rich blanket of dried and decayed leaves and other vegetation. Trap no 3., near base of high cliffs about 10' from water. Taken from a well beaten path at base of cliffs. Trap no 6, at base of large cotton-wood tree near creek. Overflowing of stream banks evident on all sides

Trap no. 8, same situation as no. 1 trap. Trap no. 10. Directly below road in boulders used as foundations for road. Bordered on other side by dense oak. Trap no 11, In cliffs along ledge. This cliff was discontinuous with main cliff sections higher above on hillside. Trap no. 20. At entrance of old abandon mine shaft. Two traps were set in hopes that it might indicate how many mice inhabited the mine and which sex, if paired would venture forth first. The trap set in jarred door way held a ♂ while the other trap was sprung & bait gone. Trap no 24, was situated on a ridge with a rocky and precipitous west exposure. The ridge proper supported cliff rose. Six other traps were within 10' of this one but they produced no results. The Temperatures were recorded on a chart at several points throughout the day. The irregularities due to fresh winds and sun being obscured from passing clouds.

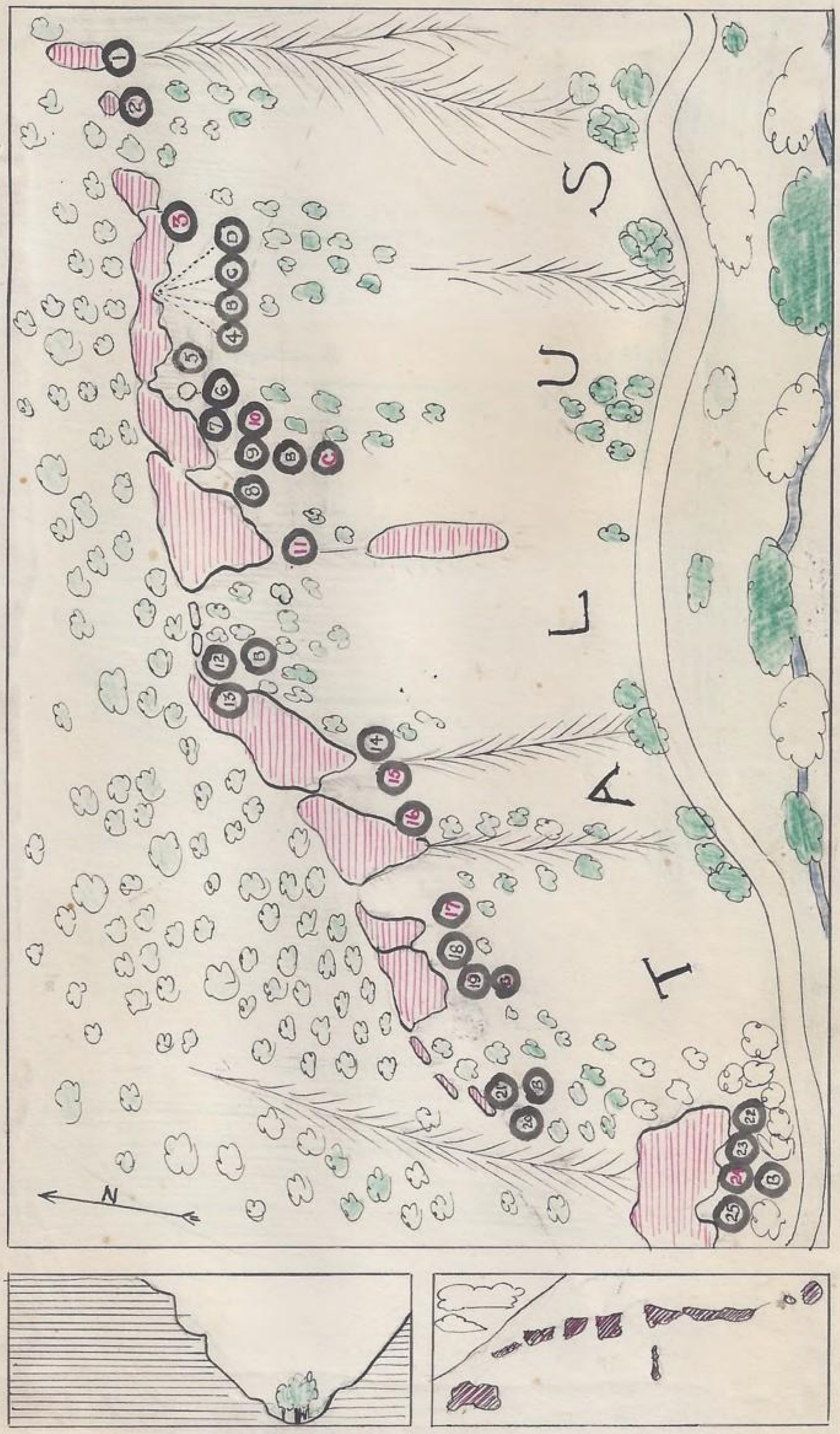


This chart to left is inserted here because of convenience but belongs with notes of 6-11-37 or for tomarrow. Collected tody a Pituophis near camp at 8:30 P.M. Snake form still visible. In canyon among oak, sagebrush, squawbush and Cottonwood. This evening set trap line in high cliff on north side of canyon. Set both museum specials and wood rat traps.

43

6-11-37 370611-45

Inspected this morning the trap line set last night. The area trap is situated about three hundred feet up north side hill from the floor of the canyon.



Trap set in a series of cliffs. The cliffs were seldom or 50' or 60' in heighth and covered a linear length of about 800'. They were not continuous but were separated in several sections by 60' or more. The vegetation directly above the outcrop is predominately sagebrush with a few cliff rose, oak and shadescale. Below the cliffs these were replaced by the oak and cliff rose. The talus slides occupied most of the area below the cliffs, remaining at nearly a gravitational repose. The cliffs proper were highly fractured and faulted and were of limestone. This weakness of the strata allowed for ideal habitats for Neotoma and Peromyscus t. truei. Nearly every cave or hole supported evidence of the presence of woodrat while the numerous droppings of the Peromyscus and marmots indicated their presence. The animals caught were not of as high percentage as would be expected from the evidence. All mammals captured were associated with the cliffs proper. The results of the trap line are:

Trap no.	Animal	Col. no.
1	Bait gone - sprung	
2	Bait gone	
3	Peromyscus t truei	10
4	Bait gone - sprung	
4B	" " "	
4C	Bait gone - sprung	
4D	" " "	
5	Bait gone	
6	" "	
7	unaffected	

370611-46

8- Bait gone - sprung
9 " " "
9B unaffected
9C neotoma c.m. (Col. no. 13)
10 Peromyscus m.s.(?) (col no. 11)
11 Peromyscus m.s.(?) (col no 12)
12 Bait gone - sprung
12B Bait gone
13 unaffected
14 "
15 Peromyscus m.s (?) (col no. 14)
16 " " " (col no 15)
17 Peromyscus t. truei (16 Col. no.)
18 Bait gone - sprung
19 " " "
19B Autospermophilus
20 Bait gone - sprung
21 Bait gone
21B "
22 Bait gone sprung
23 " " "
24 " " "
24B neotoma c. (immature)
25 Bait gone - sprung.

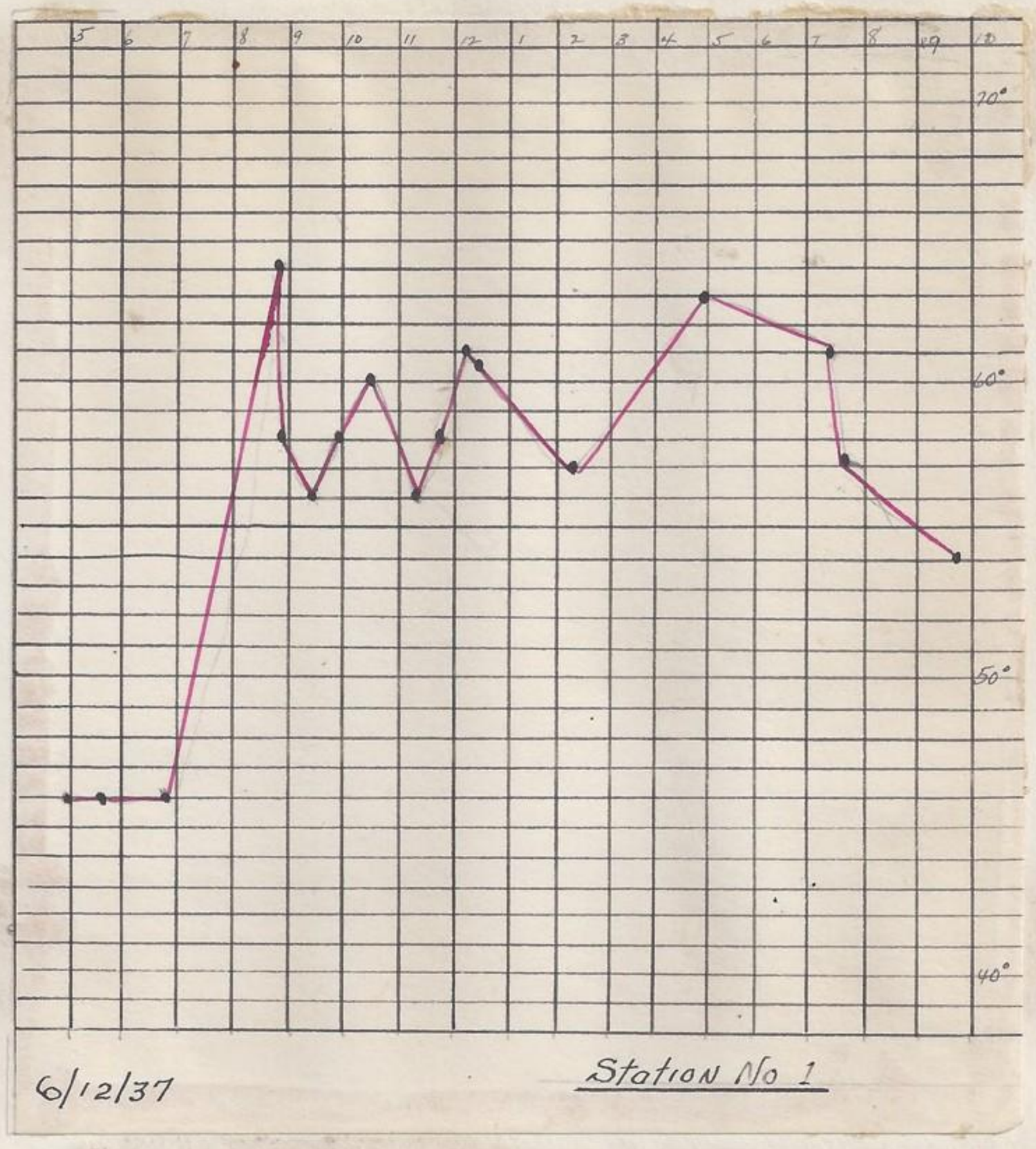
The results above seem to indicate that the neotoma may have set-off many of the museum Specials. Trap no 3 placed at entrance of a fissure at base of a cliff dry sage ~~and~~ at entrance. Trap no 10, and 9B.C. at same den. Trap no 16-17 at same hole. Immature in trap 24 ~~and 24~~. measured 228 m.m. in length.

6/12/37 (Continued)

Last night reset trap line used on the 11th. The numbers are not identical. Result of the cliff trap line examined this morning is.

1. unaffected
2 Peromyscus
2B neotoma (22 col. no.)
2C Sprung. bait gone
3 " " "
4 trap lost.
5 Sprung
6 unaffected
6B Peromyscus truei
6C Bait gone
7 Sprung
8 unaffected
9 Peromyscus (20 Col. no)
10 Peromyscus (21 Col. no)
11 sprung
12 Peromyscus
12B neotoma (23 Col. no.)
12C unaffected
13 unaffected
14 "
14B "
14C neotoma (immature (24 col. no.)
14D unaffected
14E "
15 "
16 "
17 Bait gone - sprung
18 " "
18B Bait gone
19 unaffected
20 "
21 "
22 "
23 Sprung
24 Peromyscus.
25. unaffected.

mammals caught: Col. no 22 captured in same hole as no 24 of trap last nite. Col. nos. 20-21 taken where the night before the trap had been sprung & bait gone, trap 12 & 13 of last light. Col. no 23 was second neotoma taken from same den no 9c of last trap line run of 6-11-37. Col. no. 24 taken from den where the night before had found all traps sprung & bait gone, nos 4. 4B. 4C. 4D of last nite. The temperature chart is indicated on opposite page. Tomte place traps on a knoll which was perforated with holes and used by the marmota during the day. The purpose was to check on other forms that might use the same holes.



6/13/37

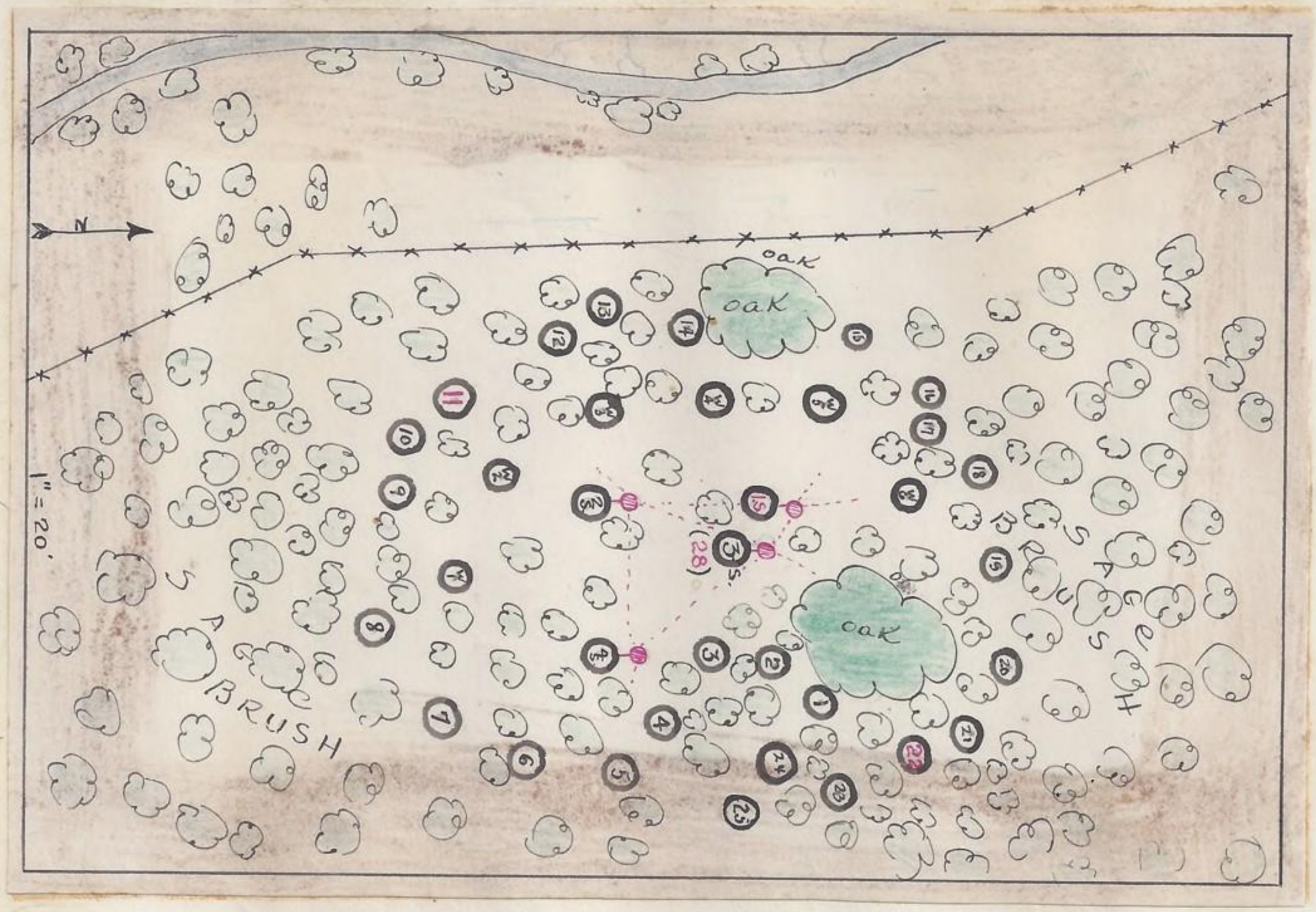
Investigated trap line of last nights setting. It is located 2 block north of the newly constructed erosional dam at mouth of Grove Creek. This area is a marmot colony on a round knoll bordered by cultivated fields to the west and sagebrush flats to the north and south and a continuation of the mountain slope to the east. The vegetation is dominantly sagebrush with oak trees represented near the dam proper. The hillside is a typical west exposure with little vegetation between the sagebrush. The ground is dry and rocky. The den is a slightly elevated portion of the hillside. The result of the catch as inspected this morning was as follows. Indicating only those captured.

Trap no.	mammal	Col. no
1 S	neotoma	25
2 S		
3 S	Cottontail.	
4 S		
5 S		
1 to 10		
11	Peromyscus	26

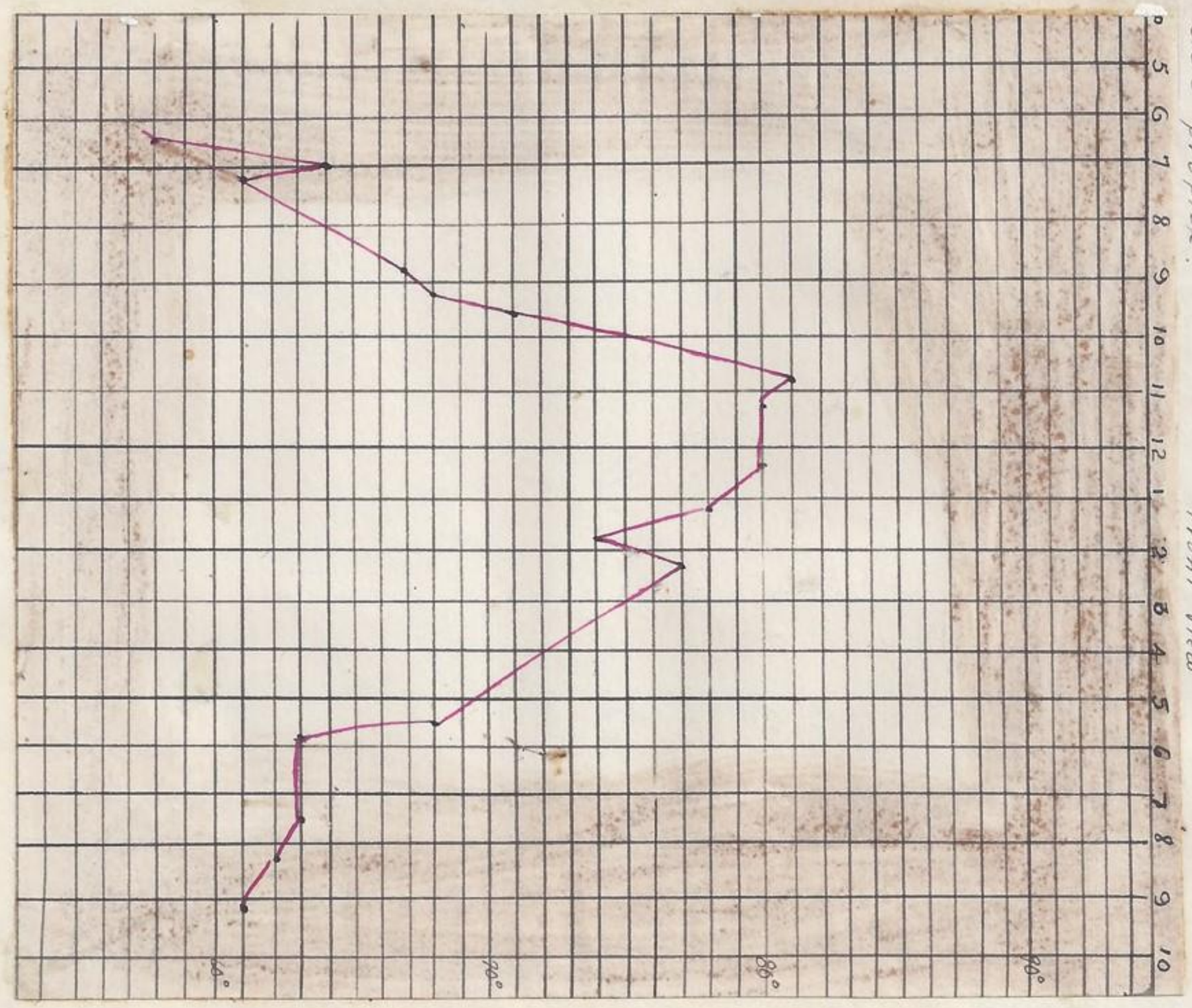
Trap no.	mammal	Col. no
12 to 21		
22	Peromyscus	27
23		
24		
25		
1. w		
2 w		
3. w		
4. w		
5. w		
6. w.		

(no check on conditions of other individual traps. S = steel trap) w = wood trap)

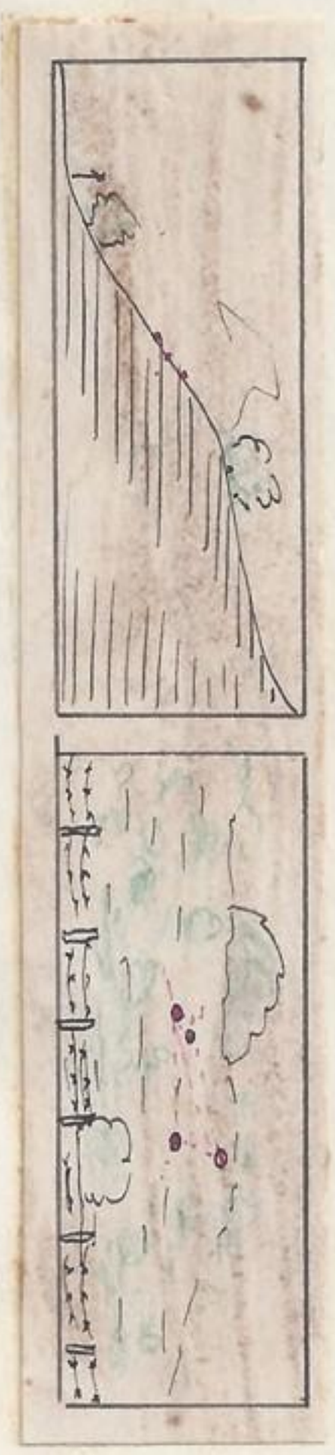
370613-48



Trapping area. (marmot Colony)



Temperature Chart 6-13-37



Side profile.

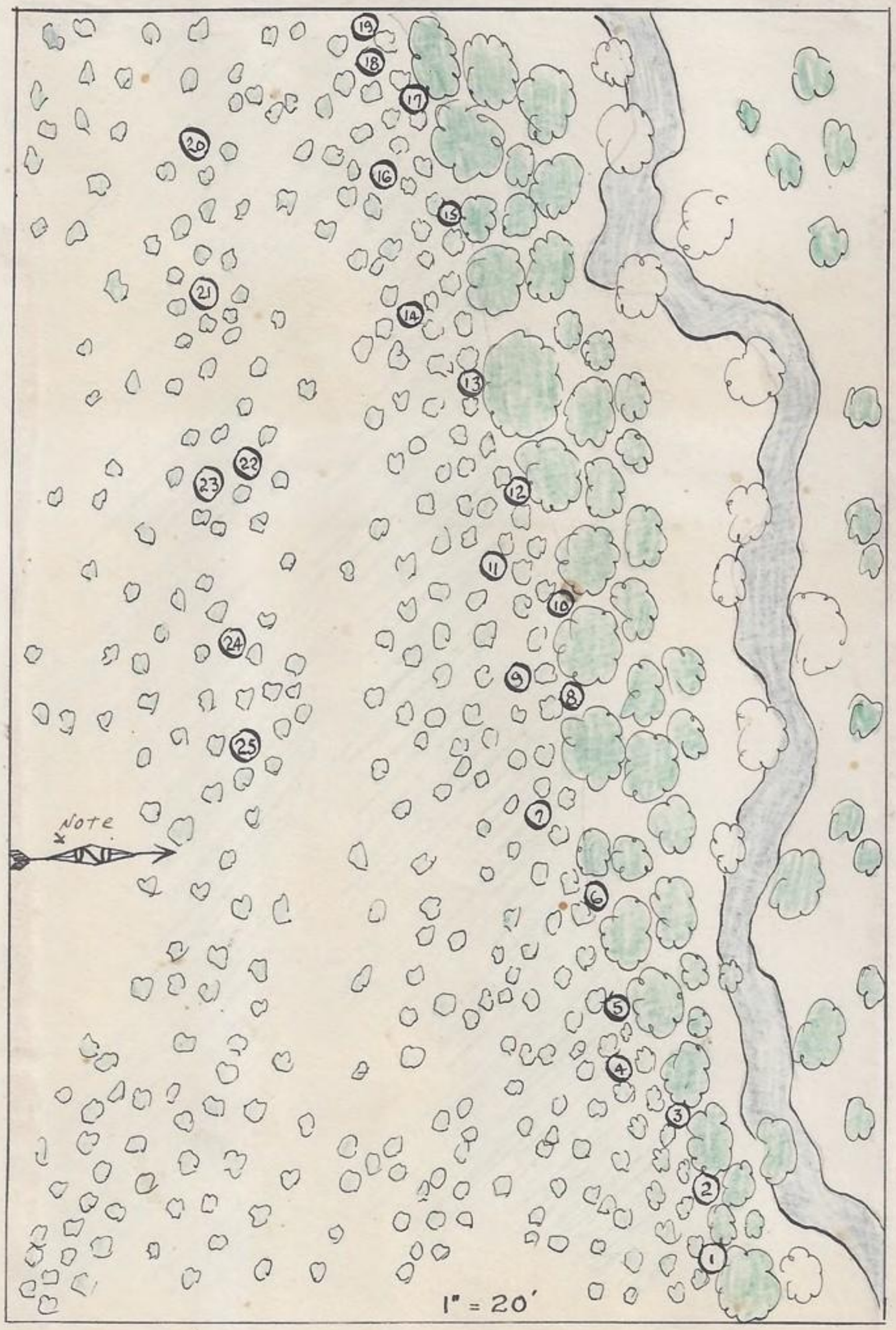
Front View

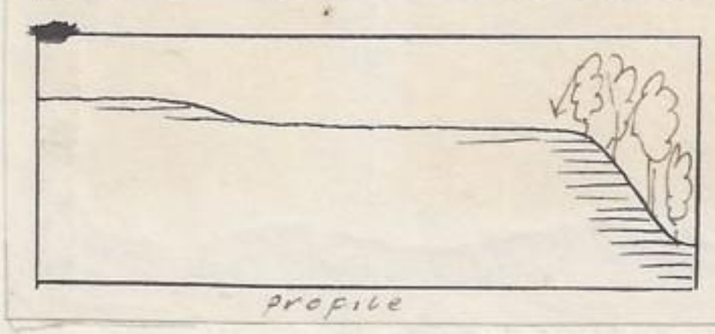
370613-49

This trapping area produced the following from the same hole in the colony, cottontail rabbit, neotoma, marmot (seen in daytime), and Perompscus tolsen near hole. One can only postulate as to what may go one under ground when the entire lot is congregated below. Set trap line this evening on delta at mouth of Grove Creek on south side.

6-14-37 (Continued)

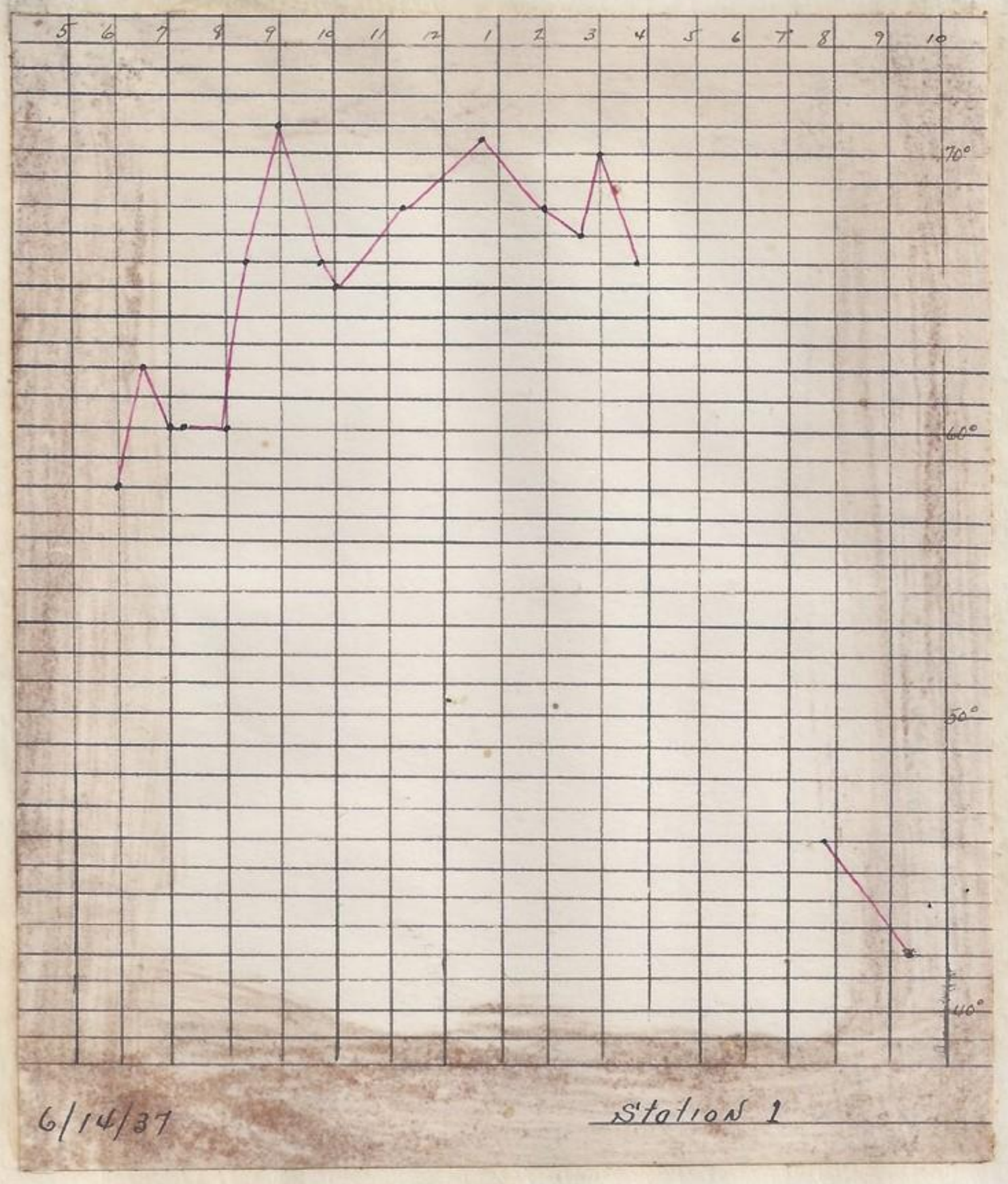
Inspected trap line set last night. This trap line is place on the confluence of the sagebrush delta and the adjacent steamside habetat. The traps were set at the edge of the oak growth on brink of the delta. I had often wondered if the mammals could have used these vegitational contacts as thoroughfare. The results of the catch was negative but the results significant.





Trap no.	Mammal	Col. no.
1	unaffected	
2	"	
3	"	
5	"	
6	"	
7	"	
8	"	
9	"	
10	"	
11	"	
12	"	
13	"	
14	"	
15	"	
16	"	
17	"	
18	sprung	
19	"	
20	unaffected	
21	sprung	
22	"	
23	unaffected	
24	"	
25	"	

The sagebrush flat supported several cottontail and one or two jack rabbits. Cnemodophrous were found in the same area as trap at edge of delta brink, especially among dry leaves of oak.



This afternoon took traps to head of Grove Creek to trap among the aspen and conifers in the swampy spring areas. Left station 1 at mouth of Grove Cr. Canyon at 3:50 P.M. Arrived at first spring on trail at 4:50 P.M. Arrived at head of Grove at 5:40 P.M. being 1 hour and 50 minutes on the trail. Thru trap line at 7:40 P.M. At 7:20 P.M at late twighlight saw a Zapus princeps. jumping around in high grasses. Temp at 7:45 P.M = 46°F. Temp. at 9:12 P.M = 42°F Camped this night near trapping area. Bed at 9:20 P.M.

6/15/37

Slept well and on trap route at 7:45. This spike camp is situated at a point where the broad upper drainage of Grove Creek enters the steep Grand Canyon proper. The area trapped was among aspen, maple, oak, birch, grass 1 foot high, service berry, Abies concolor, chokecherry. The traps were placed in swamp area bordering a spring stream that issued near by. The birch and willow characterized the supersaturated area. The results are as follows.

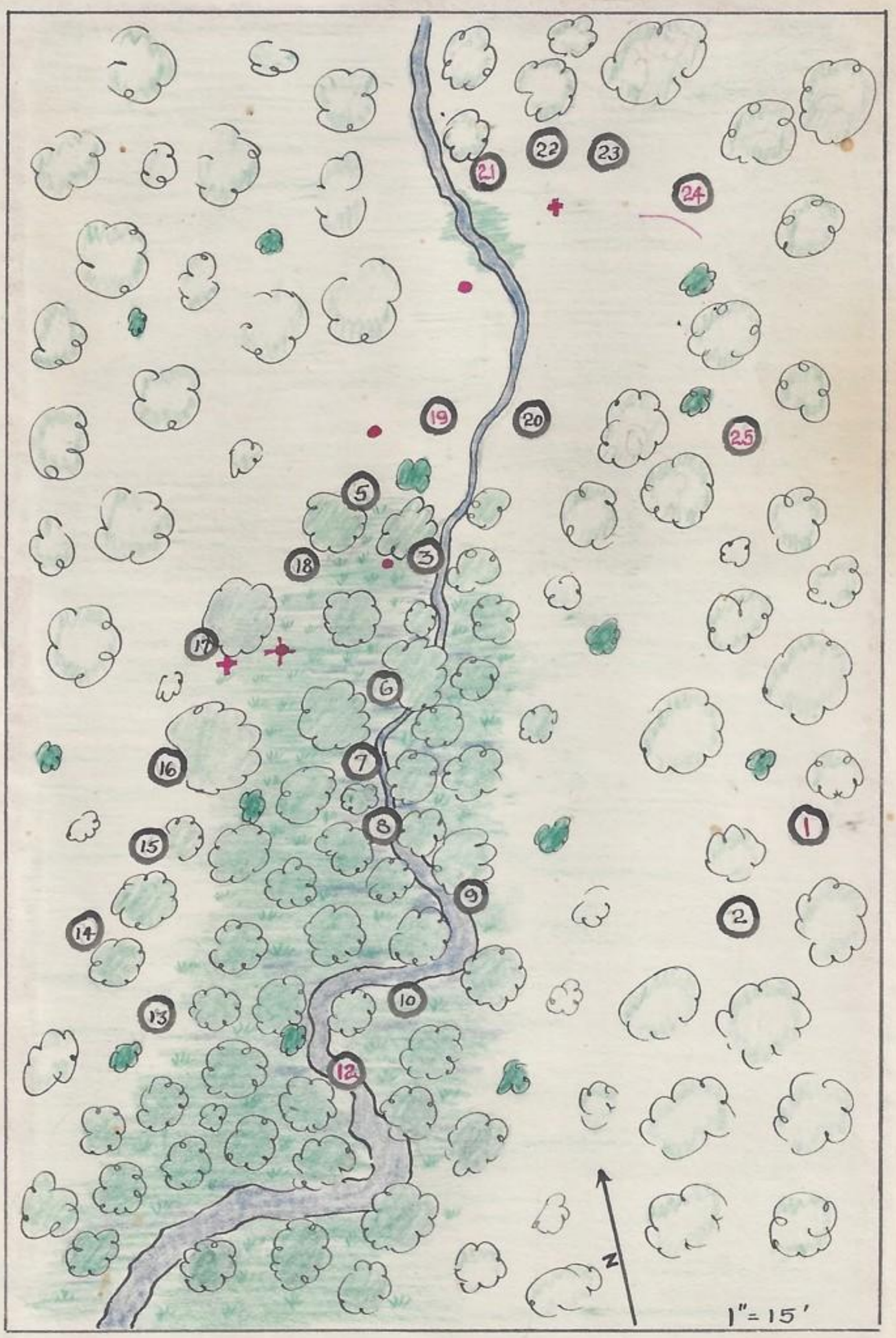
1- Peromyscus (30 col no)
2 to 11 unaffected
12 Zapus p.u. (31 col no)
13 to 18 unaffected
19 Microtus (32 col. no)
20 unaffected
21 Peromyscus (33 col. no.)

370615-51

22 unaffected
23 "
24 Peromyscus (col. no: 34)
25 Peromyscus (col. no. 35)
1 S. unaffected
2 S. "
3 S. unaffected
S. 1 Thomomys u. (col. no. 36)
S. 2 Thomomys u. (col. no. 37)

Steel set under aspens for gophers near creek stream.

After running trap line returned to Station 1 at mouth of Grove Canyon to prepare mammals. Left spike camp to use again this evening again. Took water temperatures on return trip. Main creek at 7:40 A.M = 45°F water from lateral spring running by spike camp at 7:00 = 48°F



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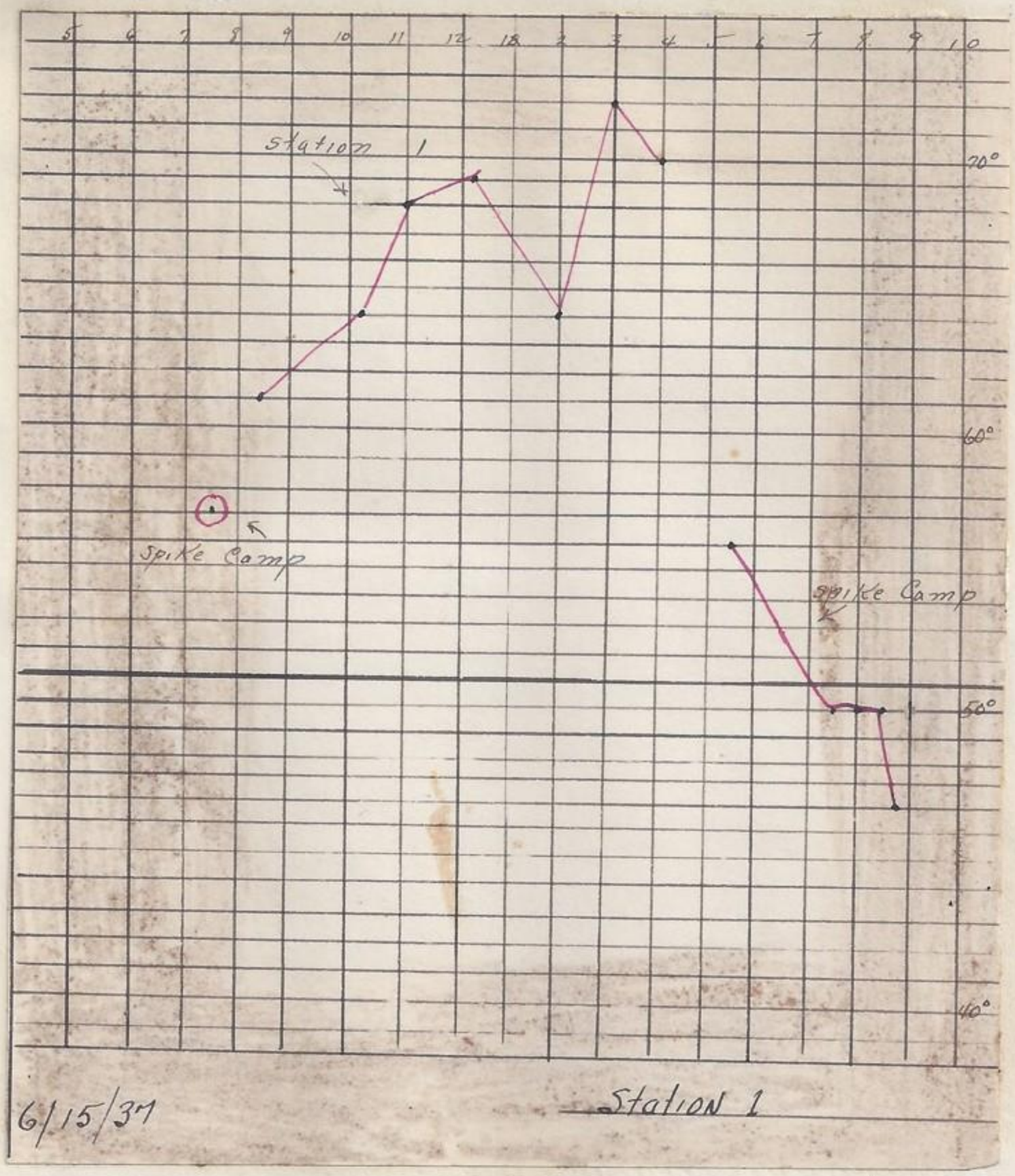


Temperature Chart for day. Two positions indicated on chart. This evening left station 1 at 4:00 PM and hiked to spike camp at head of Grove Canyon. At the first spring on trail arrived 4:50 P.M. Its temperature was 55-°F. Arrived at main stream crossover at head of canyon at 5:20 P.M. Its temperature = 51°F. The temperature of first creek east of crossing at 5:21 P.M = 46°F. Arrived at spike camp = 5:30 P.M. Air temperature then = 56°F. Left on trap line at 5:38 P.M. and set line in a variegated habitat situation including (1) spring habitat, (2) supersaturated water course. (3) confining slopes. Area in general conforms to set-up of the night before. A. H. Thrush and H Eut umbrinus (?) active while setting trap line. Found Indian artifacts around the springs. Back to camp at 7:30 P.M. Temperature then 50°F. Stars just coming out. Temperature at 8:20 = 50° F. Bed at 8:45 = 47°F. At 8:00 P.M heard the poor-will calling.

6-16-37 (cont.)

Spike camp, head of Grove Cr. Canyon. Temp 43°F at 9:00 A.M. A.H. Thrush ceased calling at the arrival of the sun at camp spot at 9:15 A.M but started up later. The results of this morning inspection of trap line are as follows:

370616-52

Gopher traps

1 G	Thomomys	(39 Col. no)
2 G	unaffected	
3 G	Trap covered	
1	unaffected	
2	Peromyscus	
3	Bait gone	
5	" "	
6	Zapus	
7	unaffected	
8	Peromyscus	(col. no. 40)
9	unaffected	
10	Peromyscus	(col. no. 41)
11	unaffected	
12	unaffected	
13	Peromyscus	(col. no 42)
14	Bait gone - sprung	
15	Zapus	(Col. no. 43)
16	Bait gone. sprung	
17	unaffected	
18	Bait gone - sprung	
19	" " "	
20	unaffected	
21	"	
22	Peromyscus	(col no. 44)
23	unaffected	
24	Peromyscus	(col. no. 45)
25	Zapus	(Col. no. 46)

Steel Gopher traps

1.5	Thomomys	(Col. no. 47)
2.5	Thomomys	(Col. no. 48)

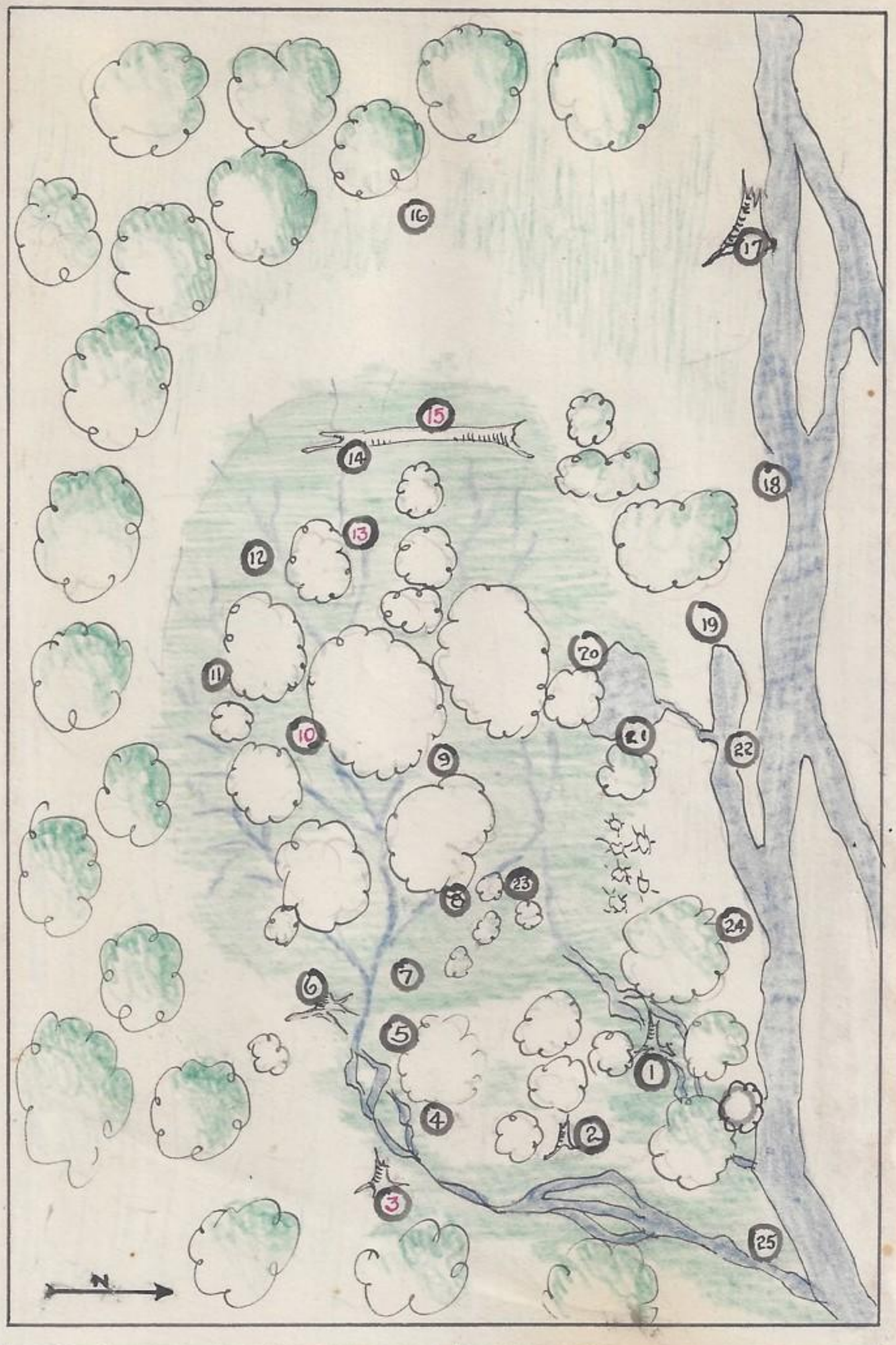
after collecting mammals and traps and breaking camp left at 11:45 A.M. Temperature then 50°F. On return trip recorded water temperatures of the several springs and creeks. First spring creek this side of trail crossover = 46°F 2nd spring water this side of crossover = 48°F. The main creek at crossover proper = 62°F. Porcupine alone trail. Arrived at station 1 at 1:00 P.M. The time correction of this morning recording is 3 hours and 22 minutes. Clock stopped and temporarily reset to be checked upon return to station 1. Spent the early afternoon preparing the mammals and then left station 1 at mouth of Grove Creek to establish station no. 2 at the Timpanoke Basin Camp on the N.E end of Mt. Timpanogos. Station no. 2 is a typical Canadian zone area with Hudsonian zone tonguing down from high alpine cirques above. Tonight set trap line in the confines of a intermoranic acid bog about 3 block west up canyon from Ranger Station of Timpanoke Basin. The canyon proper is divided by a medial ridge. This trapping area is on the north side of this small bisecting ridge.

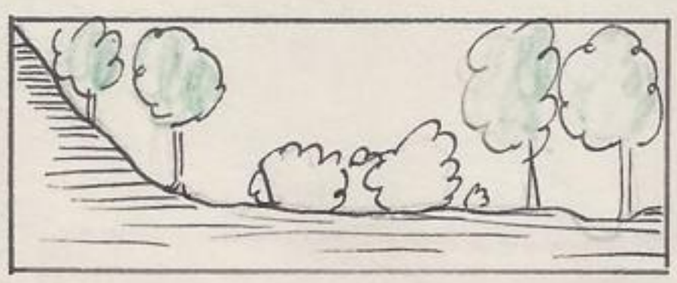
6-17-37 (cont.)

made early inspection of trap line established last nite. This area is just lateral to the main creek that flows down the canyon to the Am. Fork Cirque creek. It is confined by aspen covered moraine slopes in the south side and west side while more or less open to creek on north side. The willow trees mark the swampy area. Water issues from same. Grassy on peripheral areas. Entire area supersaturated and mainly standing water. Area unstable. Main creek runs by at edge. The result is:

peripheral edge:

C. 1	Thomomys	(50 Col. no)
C. 2	Thomomys.	(51 Col. no.)
1	unaffected	
2	"	
3	microtis (immature)	
4	unaffected	
5	"	
6	"	
7	"	
8	"	
9	"	
10	microtis	(52 Col. no)
11	unaffected	
12	"	
13	Zapus	(53 Col. no.)
14	unaffected	
15	Peromyscus	(54 Col. no.)
16	Bait gone	
17	Bait gone - sprung	
18	unaffected	
19	Sprung	
20	unaffected.	
21	"	
22	"	
23	"	
24	"	
25	"	





This evening establish another trap line in a similar situation as of last nite but less confining placing trap at several different point which looked more favorable. The areas included (1) super-saturated course of stream bed, (2) confining valley slopes (3) growth effected by stream course and typical intermoraine acid bog.

6/18/37 (Cont.)

Cold but clear last night respiration condensation visible. Check upon trap line of last night is.

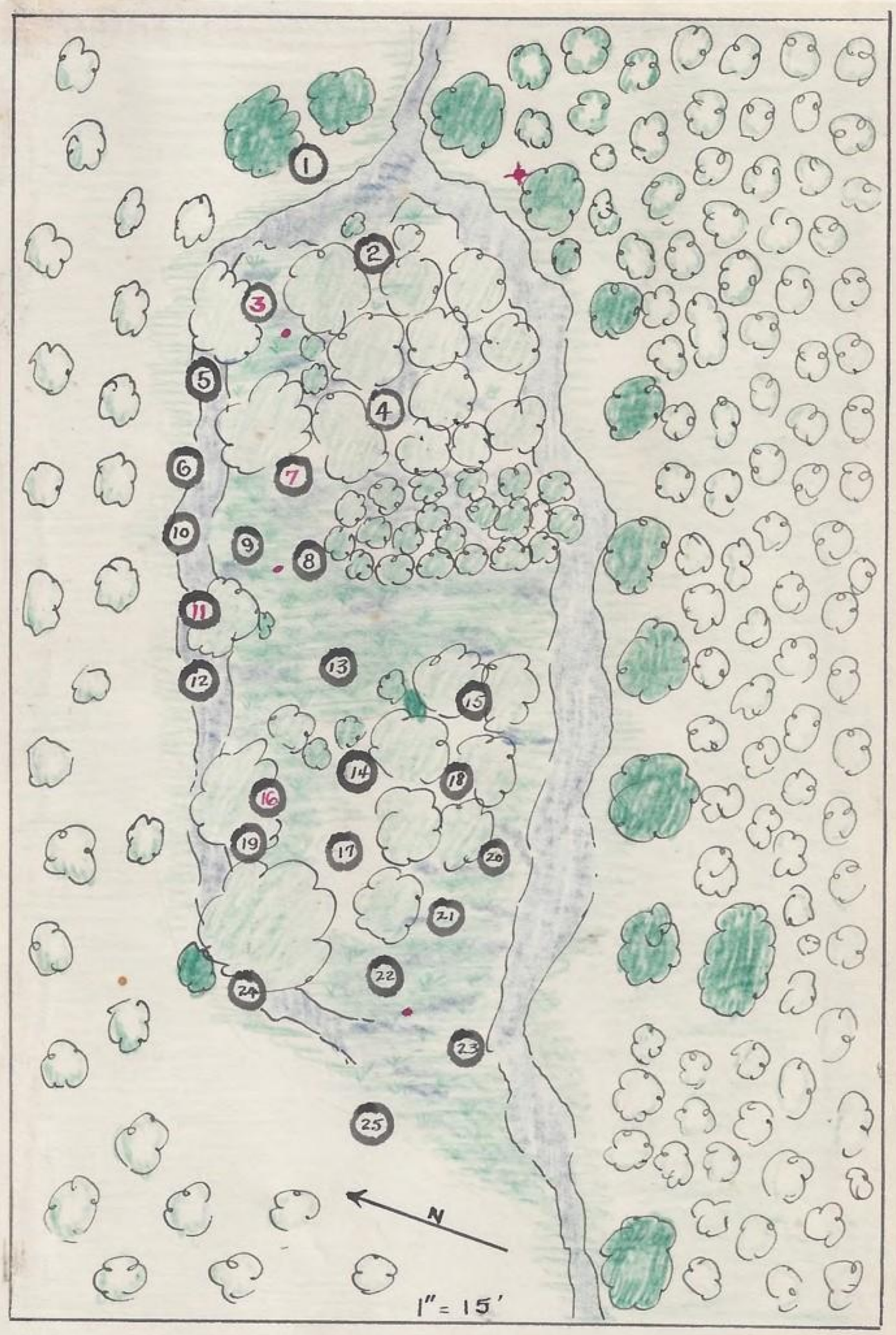
C.1 Thomomys (55 Col. no)
C.2 unaffected
C.3 "
' "

2. unaffected
3. Bait gone-sprung
5. Microtus
6. unaffected

7. Bait gone - spring
8. Peromyscus
9. unaffected
10. Zapus. (56 col. no.)
11 spring
12 Unaffected
13 Bait gone - spring
14 unaffected
15 Microtus (col. no. 57)
16 unaffected
17 Bait gone - spring.
18. unaffected
19 "
20. "
21 "
22 "
23 Peromyscus (Col. no. 59)
24. Peromyscus
25. Peromyscus (col no = 58)

One of the 2 microtus had 5 young in uterus.

This evening selected another intermoranic acid bog for trapping operations. This bog is more typical and is found several hundred feet from first bog trapped but on the south side of the medial moranic deposit. Aspens border on north while aspen and spruce are found on south border. Willow are dominant while a black huckleberry bush is found to play an important part in plant covering. Tall grass are growing generally thru-out area where waters impregnate soils. The central area is muddy & boggy and partially open from willow growth. Main creek on south side, minor one on north side of bog. The area originates at this point but continues down canyon with typical side bordering willows etc. This bog is the most typical one in the entire Timpanogos Basin. This area is illustrated to the right →



INTERMORANIC BOG

6/19/37 (cont.)

The results of last nights catch is as follows as checked this morning.

1. sprung
2. unaffected
3. Microtis
5. unaffected
6. "
7. Zapus p. u. (Col. no 63.)
8. unaffected
9. "
10. "
11 Sorex (col. no. 64)
12. unaffected
13 unaffected
14. unaffected
15. "
16 Peromyscus (col. no. 65)
17 unaffected
18. "
19. "
20 "
21 "
22. "
23 "
24. "
25. "

Microtis in no 3 trap had 5 embryos 1 m.m.L. Zapus had embryos in uterus 3 in one and 2 in the other. The sorex had 5 embryos 1/2 mature.

This evening set trap in varied situations but not associated with water or damp situations. The setting was in among aspen, near logs in open situation, among rocks, around brushy clumps of Symphoricarpus where holes were numerous. The entire area was more or less dry and in an open situation.

6/20/37 (cont.)

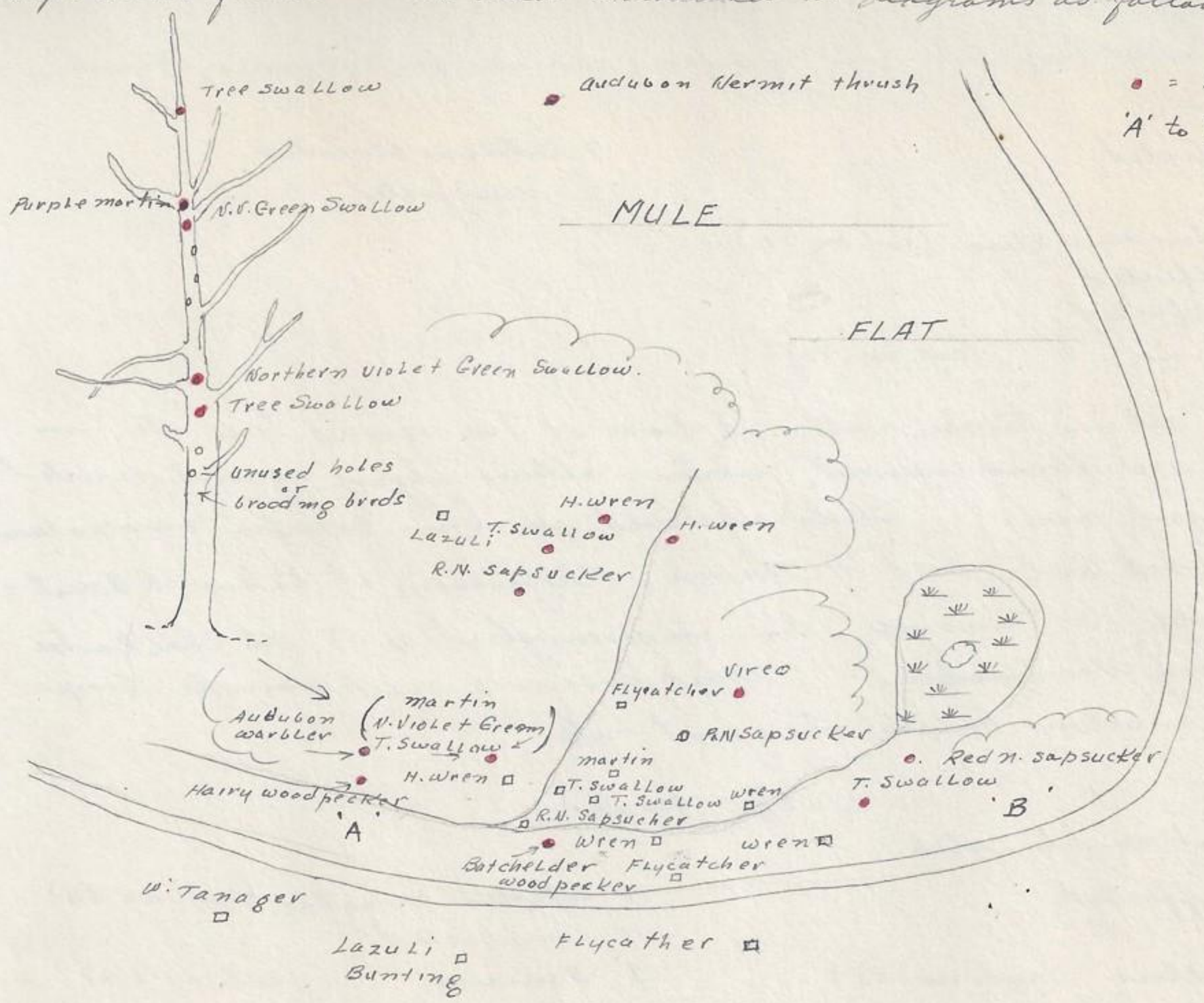
Results of last nights catch is as examined this morning.

1. Peromyscus
2. Unaffected
3. "
5. "
6. Peromyscus (67 col. no.)
7. Peromyscus (68 col. no.)
8. Peromyscus (
9. Peromyscus (69 col. no.)
10. unaffected
11. "
12 Eut. m. conso. (70 col. no.)
13. unaffected
14. "
15. "
16 Peromyscus (71 col. no.)
17 Peromyscus (72 col. no.)
18 Peromyscus (73 col. no.)
19. unaffected
20 "
21 Peromyscus (74 col. no.)
22 unaffected
23 Peromyscus (75 col. no.)
24 Peromyscus (76. col. no.)
25. unaffected.

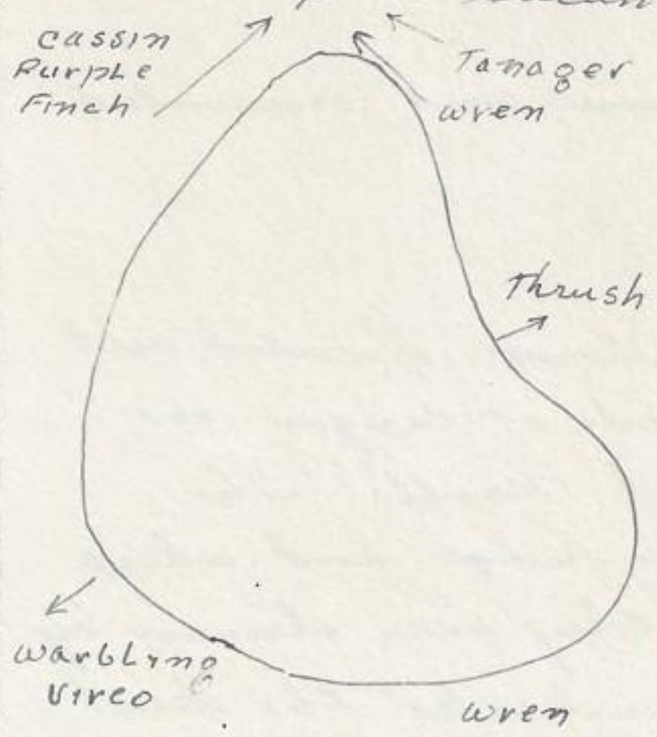
This morning moved from Tumpoonike to aspen Grove where we established station 3. Establish a series of steel traps in conifers on south side of canyon at aspen grove. During the main part of the day Hayward + our group visited Mule Flat and Salamander Lake. Arrived to Mule flat in 7 minutes by ~~car~~ from aspen grove or about 2.1 miles from aspen grove. At mule flat set up an experimental area for census of nesting birds. Mule flat is characterized by 2 main springs and associated damp and marshy areas. The aspen trees dominate the peripheral edges. Conifers are few and far between. For several years it has been the location of a sheep camp that remains there during a certain part of the year. There appears to be an unusual congregation of birds here no doubt due to the fact that the area is well supplied to water. Certainly the area is far from human interference. Presence of water is probably an

important factor The area examined is diagrams as follows

370620-56



Examined 2 nest of the Aud. H. Thrush. One nest had 2 young & 1 egg. Outer part of nest of aspen and conifer twigs. nest lined with aspen and bark and rootlets. In abies concolor 4' high. Tree 9' high. One bird on nest and approached within 2 feet. Other bird near by with worm in its bill. Examined an Audubon Warbler nest of 4 eggs. Nest placed in aspen tree 21' from ground. (see diagram above). Nesting tree placed in moderate growth of aspen stand on hillside 100' from road. It was placed in lower dead branches hugging trunk of tree. First visit saw bird near by. Second visit bird on nest. While examining nest the ♀ remained in upper branches. The ♂ did not show up at site. Nest 60' from martin & swallow tree. Left this area and walked up to salamander lake. and made a few observations.



The generalized map indicates direction of persistent singing birds. Citellus armatus around lake shore. B.T. Hummingbirds favored south end of lake. Robin, flicker, N.V. Swallow, Audubon Warbler, H. woodpecker, Phoebe, R. M. Creeper, martin, Mt. Blue bird, R.N. Sapsucker and western chipping sparrows presented themselves at the lake during our period of observation. Returned to aspen Grove and, as stated above, set trap line in conifers on south side of canyon.

Inspection of steel trap line in conifers, mainly on moranic bench, was as follows:

1. unaffected
2 "
3. Citellus armatus (col. no. 81)
4. unaffected
5 unaffected
6. Sciurus (col. no. 80)
7. Citellus armatus
8. unaffected
9. "
10. "
11. "
12. "

The traps were set in trails, holes, at base of Tree squirrel trees etc. in hopes of picking up flying squirrel, martin, albino flying squirrel reported to have been seen here. Birds observed in this conifer association included: Saw-whet Owl, Ard. H. Thrush, Flycatcher, W. Robin, R.B. nut-hatch, W. Phoebe, W. Tanager, B.T. Hummingbird (sp.?), Mt. Chickadee and R. Mt. Hairy Woodpecker. This evening reset sample traps in conifers of similar habitat to last nite.

6/23/37 (cont.)

Results of last nights catch:

1. unaffected
2 "
3 Citellus (col. no 85)
4. Unaffected
5. "
6. "
7 Citellus armatus (col. no 86)
8 unaffected
9 Sciurus (col. no 83)
10. unaffected
11. unaffected
12 unaffected.

6/24/37 (Cont.)

Today collected a few Citellus armatus at aspen Grove. and mounted them. They were taken by steel trap on peripheral edge of lawn in main park. Their numbers are 88, 89, 90, 91. Also took set of fly-catcher eggs no. 87. Some of these animals are exceedingly fat. They seem to prefer to feed on the grass of the open aspen park. When disturbed they scurry to the edge and remain near their hole in the protection of the weeds or near the large rocks placed around the lawn.

6/25/37 (cont.)

Collected 5 citellus armatus on the aspen Grove lawn and mounted same. Their numbers are. 92, 93, 94, 95, 96.

6/27/37 (Cont.)

Spent the day in the field making general observations: Located nest of the Audubon Warbler in aspen swail on north side of canyon on Deer Creek Ridge on the south side of the Pine Flat Knoll. The night before had placed 50 museum traps on this ridge and sheep had completely tramped them into the ground as they were driven by. The vegetation obeyed to their command and indicated the direction of herd movement. nearly 100% traps affected. The Audubon nest was located near here. It held 3 young and 2 eggs: nest placed in a

370627-58

Prunus melanocarpus 12' from ground and 2' from the upper limit of the foliage. Tree on an aspen covered hillside 50' from a meadow. Both birds present. Female fluttering down from limb to ground with tail outspread and wings moving rapidly. Male did not indulge in parental displays. Near by found a male & female O.T. Towhee. The ♀ had worms in bill. Examined an Aud. H. Thrush nest also near here with 4 young completely filling the cup. Merlin Killpack and Harry Thomas reported finding a nest of the Townsend Solitaire near the lower falls above aspen Grove. Nest in cliff in a very damp situation. These cliffs are continuations of lower falls cliffs. Nest 7' above base of cliff. Spring and cone issuing from base. Rocks completely surrounding nest damp. Water dripping from saturated mosses on all sides. Tree on upper talus at base of cliffs but rock slide lower down. The nest placed on shelf was made of fir twigs for base with small dried fibrous stems and fir axis of cones. Nest proper of dried stems. Nest damp on upper edge. In the afternoon visited Salamander Lake. Day clear. Temperature at 5:00 P.M = 67°F. At this time made the following observations: Audubon Warbler, R. Shafted Woodpecker, House Wren, Chipping Sparrow, Audubon H. Thrush, W. Warbling Vireo, Hummingbird, Robin, Hairy Woodpecker, Martin (purple), mourning dove, Northern Violet green swallow, Batchelders Woodpecker, Eutamias, nighthawk.

6/28/37 (cont.)

Today Prof. Hayward, Lowell Miller and myself made trip into the Sudden Lake Cirque of Mt. Timpanogos to check upon the feasibility of establishing a station of operation. Left our station 3 at Aspen Grove at 6:00 A.M. when the sun was just advancing across the head of the open field at the Grove. Met first snow about 1/2 block down from the first water falls. Snow more or less confined to creek of valley floor, with either side more or less freed from the winter blanket of snow. The south side of the canyon clear except in the many gullies which come off Elk peak. These gullies support snow and extend down 1/3 way down from the lowest main and prominent circle of cliffs. The falls were completely pack with snow and ice except where the falls proper kept it open. The water left a snow tunnel above at the brink of the falls and plunged out over the edge and down into another tunnel of snow below. The trail on the north side of the valley was quite free of snow up to the upper rock slides & terraces. The upper rock slide and terraces were difficult to navigate because of the snow upon the trail. At the rock talus at beginning of main upper terraces placed a marker at the end of a snow patch and on our return that afternoon, found the marker 4 1/2 feet from the receding snow bank. The Uintah mountains loom up vividly with an intervening mist blanket in the Weber valley. Some of the Bird and animal observations made along the way are indicated as we moved along the trail beginning at Aspen grove.

1. Brood tail Summer active at this early hour. 2. Western chipping sparrows pecking at branches at top of an Abies concolor. 3. Audubon Hermit Thrush singing just beyond field at Aspen grove. 4. Eut. m. consobrinus ran across trail. 5. Several pika and marmot in rock slides below first falls. 6. Macgillivrays Warbler twitting in dense covering near falls. 7. a Lazuli Bunting sang from top of an aspen tree. 8. B.H. Grosbeak flew up from edge of trail. Now nearing first falls. As we passed under an overhanging ~~maple~~ tree noticed a Hoary Bat resting in a maple tree about 400' below first fall. It was clinging upside down and facing the east. Trail directly below. We touched it and it left but flew around several seconds before leaving the area. The tent caterpillars very evident in mt. lilac along trail. While geranium near water, purple geranium ~~in~~ in a drier situation. Marmot in rock slide bordering a snow bank 100' below first falls. Magillivrays Warbler at first falls. A Eut. m. cinso evidently the object of a hummingbirds aerial display. Only 30' of lower falls exposed 9. a robin a second falls. 10. Noticed a Mertensia leonardii which was perfectly white in color. 11. Citellus armatus above 2nd falls. 12. Porcupine tracks in trail below Lecture ledge. 13. Arrived at lecture ledge at 7:30 A.M. Citellus, W. W Vireo, Magillivrays Warbler and deer tracks at lecture ledge. 14. Two Macgillivrays warblers singing. One ending with its typical chirp the other varied & not ending with the ~~p~~ Caution note. 15. G. T. Towhee on first switch-back cirque ward from lecture ledge. 16. ♀ B.H. Grosbeak on N. hillside flying by. Small animal tracks completely obliterating human track in trail. 17. Arrive at first permanent stream above lecture ledge at 8:10 A.M. Willows in catkins in hollow above the spring. 18. Grouse tracks in trail. Continuing on up terraced as approached brink. A fly catcher and citellus were found 300' below brink of the Hidden ~~Valley~~ Lake Cirque. 19. W. Crowned Sparrows feeding in vegetation recently exposed from the receding snow banks. 20. One robin at brink. Arrived at Hidden Lake Cirque at 10:15 A.M. Temperature then 64° F. The white Crown Sparrows were singing all along the trail from about 600' below the brink to the cirque proper. Observed many in cirque proper. 5 robins in Hidden Lake Cirque. The W-Cr. Sparrow fed among the marsh marigolds at the edge of the dwarfed conifers. 2 flickers and several bluebirds were present. A wood pewee fed on insects along the meadow and in the conifers. Yellow buttercups followed closely in barren areas at receding edge of snow. First lake just beginning to clear, otherwise quite wintery as yet. An adult marmot at this lake ran several hundred feet to its den. 2 young marmots at winter den near lake. Frequently heard Clark Nutcrackers. Pine siskins flying from tree to tree in pairs or groups of four. Watched a chipping sparrow feed through the marsh marigold eating & picking off the insects. ♂ & ♀ actively feeding

370628-60

Observed hummers without the accompanying rattling flight sound. → An Eagle (Golden) flew across cirque. Watched the adult Clark Nutcracker feeding its young. Considerable noise accompanied feeding and trailing of the young. The Clark nutcracker has two distinct calls, one a sharp warning call and the other a drawn out call that is offered when feeding their young. Watched a white Crown sparrow and a robin chase a clark Crow. At the divide of the Emerald Lake - Am. Fork Cirque found six leucosticte. They remained quiet for 3 minutes after giving their first warning calls or chips. They finally left and flew out across the cirque in typical goldfinch like flight. Am. Fork Cirque mainly covered with snow. 2 Rock Wren & several swifts pass by at same divide. Several peka in talus slopes near bottom just north of Emerald Lake. After making a ~~gong~~ general survey returned to Station 3 at Aspen Grove.

6/29/37

At aspen Grove observed a Wood Pewee flying some 200' above tree tops. Examined a R. naped Sapsucker nest in moranic bench among conifers on south side of Canyon at Aspen Grove. Nest of young placed in a live aspen tree 35' from ground and 20' from top of tree. Young called continuously especially when being fed. Spent the entire day preparing Sciurus, Peka and Marmot. The peka and marmot were taken from talus slope just west of brachypod gulch at base of Elk Peak. Their numbers are:

97	Sciurus h. ventorum	100	Sciurus h. v.
98	Sciurus " "	101	Sciurus h. v.
99	Sciurus " "	102	Marmota f. n.
		103	" " "
		104	" " "
		105	Ochotona
		106	Ochotona.

When these animals are fat and greasy they are most deficult to prepare. Worked until 2:00 A.M. next morning to finish up.

6/30/37

Continued preparation of large animal forms today including:

108	Marmota f. n.	Mammals taken at aspen Grove
109	Marmota f. n. (skull only.)	
107	Bufo t. b.	

7/1/37

Today prepared the following.

110.	Marmota f. n.	Taken from Aspen Grove.
111	Marmota f. nos.	
112	Callospermophilus.	From ledges S & E. of first falls.

Lynn, miller, Dr Stanford of A.C. at Logan made trip to Hidden Lake Cirque. Tonite was to be our first night for trapping in the Cirque. On way up this morning collected the Hoary Bat that was found in identical place as of our trip on the 28th Bat faced north. Snow banks had receded 92'. Arrived at Hidden Lake Cirque and established station 4 among large conifers at brink of cirque. I remained and set out trap line the first nite. Traps set mainly among stunted conifers and varied situations,

7/3/37 (cont)

Station 4 at Hidden Lake Cirque. Collected this morning the following.

114	Clethrionomys	118	Microtis
115	Microtis	119	Peromyscus
116	Microtis	120	Peromyscus.
117	Microtis		

Packed these well in among damp grasses and packed them down to aspen Grove where I prepared them at station 3. Lowell Miller met me half-way up trail this morning. He was to relieve me until tomorrow morning and carry on the trapping this evening.

7/4/37 (cont.)

Left Aspen Grove with stars still clear above. Arrived at Hidden Lake Cirque at sunrise. One Deer feeding on terraces. Lowell was just finishing trap route. He returned to Aspen while I made general observations and set trap line in evening. Yesterday at Aspen Collected a Pygmy Owl and Flammulated Screech Owl. The Screech Owl came from Mule Flat from hole in aspen tree near Census area of few days ago. The Pygmy owl came from conifers at aspen Grove on south side of canyon. In the evening they come down to creek among the cottonwoods where the robins disclose their whereabouts by dashing madly at them from every angle. The evening robin disturbance started about the same time every evening. It was by following thru these robin disturbances that I was able to acquire 2 other Pygmies. One taken on the 6/30/37 and 7/1/37.

7/5/37 (cont.)

From the following inspection of trap line in Hidden Lake Cirque acquire the mammals. Traps set as of first nite.

129	Microtis	136	Peromyscus
130	Microtis	137	Peromyscus
131	Microtis	138	Peromyscus
132	Microtis	139	Peromyscus
134	Thomomys	140	Peromyscus (alcoholic)
135	Eutamias	141	Peromyscus (alcoholic)
		142	Microtis (Alcoholic)
		143	Microtis (Alcoholic)
		144	Microtis (alcoholic)

7/8/37 (cont.) 370708-G2

Spent tonite at Station 4 at Hidden Lake Cirque. Trapped as usual among dwarfted conifers, along watery creeks, open situation. Watched a Sciurus go into a ground hole.

7/9/37 (cont.)

From trap line collected the following from Hidden Lake Cirque.

145 Microtus.
146 "
147 "
148 Peromyscus
149 "
150 "
151 "
152 "
153 Thomomys
154 "
155 Pika
156 Citellus armatus
158 Peromyscus (alcoholic).
159 Peromyscus (alcoholic)
160 " "
161 " "
162 " "
163 " "
164 " "
165 Microtus "
166 Peromyscus "
167 Thomomys (skull only)
~~168~~

7/10/37 (cont.)

Today completes our field work on Mt. Timpanogos. The field numbers of material collected are included here at this time representing mammals and birds prepared and placed in the University Zoological collection at the Brigham Young University. All specimens & collections made by myself. Each member kept his own collection record.

PRIVATE COL. NO.	NAME	DATE		LOCATION
1.	Peromyscus m.s.	6-10-37	Station 1	Mouth of Grove Cany.
2.	Peromyscus	6-10-37	Station 1	Mouth of Grove Cr. Can.
3.	Peromyscus	6-10-37	Station 1	Mouth of Grove Cr, Can.
4.	Reithrodontomys	6-10-37	Station 1	Mouth of Grove Cr. Can.
5.	Peromyscus	6-10-37	Station 1	Mouth of Grove Cr. Can.
6.	Peromyscus	6-10-37	Station 1	Mouth of Grove Cr. Can.
7.	Peromyscus	6-10-37	Station 1	Mouth of Grove Cr. Can.
8.	Peromyscus	6-10-37	Station 1	Mouth of Grove Cr. Can.
9.	Pituophus	6-10-37	Station 1	Mouth of Grove Cr. Can.
10.	Peromyscus truei	6-11-37	Station 1	Mouth of Grove Cr. Can.
11.	Peromyscus m.s. (?)	6-11-37	Station 1	Mouth of Grove Cr. Can.
12.	Peromyscus m.s. (?)	6-11-37	Station 1	Mouth of Grove Cr. Can.
13.	Neotoma c.	6-11-37	Station 1	Mouth of Grove Cr. Can.
14.	Peromyscus m.s. (?)	6-11-37	Station 1	Mouth of Grove Cr. Can.
15.	Peromyscus m.s. (?)	6-11-37	Station 1	Mouth of Grove Cr. Can.
16.	Peromyscus truei	6-11-37	Station 1	Mouth of Grove Cr. Can.
17.	Cnemidophorus t.t.	6-11-37	Station 1	Mouth of Grove Cr. Can.
18.	Sceloporus	6-11-37	Station 1	Mouth of Grove Cr. Can.
19.	Sceloporus?	6-12-37	Station 1	Mouth of Grove Cr. Can.
20.	Peromyscus m.s. (?)	6-12-37	Station 1	Mouth of Grove Cr. Can.
21.	Peromyscus m.s. (?)	6-12-37	Station 1	Mouth of Grove Cr. Can.
22.	Neotoma c.	6-12-37	Station 1	Mouth of Grove Cr. Can.
23.	Neotoma c.	6-12-37	Station 1	Mouth of Grove Cr, Can.

370710-63

24.	Neotoma	6-12-37	Station 1 Mouth of Grove Cr. Can.
25.	Neotoma	6-13-37	Station 1 Mouth of Grove Cr. Can.
26.	Peromyscus	6-13-37	Station 1 Mouth of Grove Cr. Can.
27.	Peromyscus	6-13-37	Station 1 Mouth of Grove Cr. Can.
28.	Cottontail	6-14-37	Station 1 Mouth of Grove Cr. Can.
29.	Autospermophilus	6-14-37	Station 1 Mouth of Grove Cr. Can.
30.	Peromyscus	6-15-37	Station 1A Head of Grove Cr. Can.
31.	Zapus	6-15-37	Station 1A Head of Grove Cr. Can.
32.	Microtis	6-15-37	Station 1A Head of Grove Cr. Can.
33.	Peromyscus	6-15-37	Station 1A Head of Grove Cr. Can.
34.	Peromyscus	6-15-37	Station 1A Head of Grove Cr. Can.
35.	Peromyscus	6-15-37	Station 1A Head of Grove Cr. Can.
36.	Thomomys	6-15-37	Station 1A Head of Grove Cr. Can.
37.	Thomomys	6-15-37	Station 1A Head of Grove Cr. Can.
38.	Bufo boreas	6-15-37	Station 1A Head of Grove Cr. Can.
39.	Thomomys uinta	6-16-37	Station 1A Head of Grove Cr. Can.
40.	Zapus p	6-16-37	Station 1A Head of Grove Cr. Can.
41.	Peromyscus	6-16-37	Station 1A Head of Grove Cr. Can.
42.	Peromyscus	6-16-37	Station 1A Head of Grove Cr. Can.
43.	Peromyscus	6-16-37	Station 1A Head of Grove Cr. Can.
44.	Peromyscus	6-16-37	Station 1A Head of Grove Cr. Can.
45.	Peromyscus	6-16-37	Station 1A Head of Grove Cr. Can.
46.	Zapus	6-16-37	Station 1A Head of Grove Cr. Can.
47.	Thomomys uinta	6-16-37	Station 1A Head of Grove Cr. Can.
48.	Thomomys uinta	6-16-37	Station 1A Head of Grove Cr. Can.
49.	Bufo b.boreas	6-16-37	Station 1A Head of Grove Cr. Can.
50.	Thomomys uinta	6-17-37	Station 2 Timpooneke Basin Camp
51.	Thomomys uinta	6-17-37	Station 2 Timpooneke Basin Camp
52.	Microtis	6-17-37	Station 2 Timpooneke Basin Camp
53.	Zapus	6-17-37	Station 2 Timpooneke Basin Camp
54.	Peromyscus	6-17-37	Station 2 Timpooneke Basin Camp
55.	Thomomys uinta	6-18-37	Station 2 Timpooneke Basin Camp
56.	Zapus	6-18-37	Station 2 Timpooneke Basin Camp
57.	Microtis	6-18-37	Station 2 Timpooneke Basin Camp
58.	Peromyscus	6-18-37	Station 2 Timpooneke Basin Camp
59.	Peromyscus	6-18-37	Station 2 Timpooneke Basin Camp
60.	Bufo b.boreas	6-18-37	Station 2 Timpooneke Basin Camp
61.	Bufo b.boreas	6-18-37	Station 2 Timpooneke Basin Camp
62.	Bufo b.boreas	6-18-37	Station 2 Timpooneke Basin Camp
63.	Zapus	6-19-37	Station 2 Timpooneke Basin Camp
64.	Sorex	6-19-37	Station 2 Timpooneke Basin Camp
65.	Peromyscus	6-19-37	Station 2 Timpooneke Basin Camp
66.	Bufo B.boreas	6-10-37	Station 2 Timpooneke Basin Camp
67.	Peromyscus	6-20-37	Station 2 Timpooneke Basin Camp
68.	Peromyscus	6-20-37	Station 2 Timpooneke Basin Camp
69.	Peromyscus	6-20-37	Station 2 Timpooneke Basin Camp
70.	Eutamias m.c.	6-20-37	Station 2 Timpooneke Basin Camp
71.	Peromyscus	6-20-37	Station 2 Timpooneke Basin Camp
72.	Peromyscus	6-20-37	Station 2 Timpooneke Basin Camp
73.	Peromyscus	6-20-37	Station 2 Timpooneke Basin Camp
74.	Peromyscus	6-20-37	Station 2 Timpooneke Basin Camp
75.	Peromyscus	6-20-37	Station 2 Timpooneke Basin Camp
76.	Peromyscus	6-20-37	Station 2 Timpooneke Basin Camp
77.	Ambystoma t.	6-21-37	Salamander Lake, Aspen Grove
78.	Ambystoma t.	6-21-37	Salamander Lake. Aspen Grove.
79.	Thamnophis v.	6-21-37	Mule Flat. Near Aspen Grove
80.	Sciurus	6-22-37	Aspen Grove.
81.	Citellus armatus	6-22-37	Aspen Grove.
82.	Thomomys uinta	6-22-37	Aspen Grove

370710-G4

83.	Sciurus	6-23-37	Aspen Grove	
84.	Sciurus	6-23-37	Aspen Grove	
85.	Citellus armatus	6-23-37	Aspen Grove	
86.	Citellus armatus	6-23-37	Aspen Grove.	
87.	Flycather (eggs)	6-23-37	Aspen Grove	
88.	Citellus armatus	6-24-37	Aspen Grove.	
89.	Citellus armatus	6-24-37	Aspen Grove.	
90.	Citellus armatus	6-24-37	Aspen Grove.	
91.	Citellus armatus	6-24-37	Aspen Grove	
92.	Citellus armatus	6-26-37	Aspen Grove.	
93.	Citellus armatus	6-26-37	Aspen Grove.	
94.	Citellus armatus	6-26-37	Aspen Grove.	
95.	Citellus armatus	6-26-37	Aspen Grove	
96.	Citellus armatus	6-26-37	Aspen Grove.	
97.	Sciurus h.v.	6-29-37	Aspen Grove	
98.	Sciurus h.v.	6-29-37	Aspen Grove.	
100.	Sciurus h.v.	6-29-37	Aspen Grove	
101.	Sciurus h.v.	6-29-37	Aspen Grove	
102.	Marmota f.n.	6-29-37	Aspen Grove	
103.	Marmota f.n.	6-29-37	Aspen Grove	
104.	marmota f.n.	6-29-37	Aspen Grove	
105.	Ochytomas p.	6-29-37	Aspen Grove	
106.	Ochytomas p.	6-29-37	Aspen Grove	
107.	Bufo boreas b.	6-30-37	Aspen Grove	
108.	Marmota f.n.	6-30-37	Aspen Grove	
109.	Marmota f.n.	6-30-37	Aspen Grove.	(Skull Only)
110.	Marmota f.n.	7-1-37	Aspen Grove.	
112.	Callospermophilus	7-1-37	Aspen Grove.	
113.	Bat	7-3-37	Aspen Grove	
114.	Clethrionomys	7-3-37	Hidden Lake Cirque	
115.	Microtis	7-3-37	Hidden Lake Cirque	
116.	Microtis	7-3-37	Hidden Lake Cirque	
117-	Microtis	7-3-37	Hidden Lake Cirque	
118.	Microtis	7-3-37	Hidden Lake Cirque	
119.	Peromyscus	7-3-37	Hidden Lake Cirque	
120.	Peromyscus	7-3-37	Hidden Lake Cirque	
121.	Pygmy Owl	6-30-37	Aspen Grove	
122.	Pygmy Owl	7-1-37	Aspen Grove	
123.	Pygmy Owl	7-4.37	Aspen Grove	
124.	Flammulated S. Owl.	7-3-37	Mule Flat.	Near Aspen Grove
125.	Marmota	7-3-37	Aspen Grove	
126.	Ochytoma	7-3-37	Aspen Grove	
127.	Ochytoma	7-3-37	Aspen Grove	
128.	Ochytoma	7-3-37	Aspen Grove	
129.	Microtis	7-4-37	Hidden Lake Cirque	
130.	Microtis	7-4-37	Hidden Lake Cirque	
131.	Microtis	7-4-37	Hidden Lake Cirque	
132.	Microtis	7-4-37	Hidden Lake Cirque	
133.	Bat	7-4-37	Aspen Grove	
134.	Thomomys uinta	7-4-37	Hidden Lake Cirque	
135.	Eutamias	7-4-37	Hidden Lake Cirque	
136.	Peromyscus	7-4-37	Hidden Lake Cirque	
137.	Peromyscus	7-4-37	Hidden Lake Cirque	
138.	Peromyscus	7-4-37	Hidden Lake Cirque	
139.	Peromyscus	7-4-37	Hidden Lake Cirque	
140.	Peromyscus	7-4-37	Hidden Lake Cirque	(alcoholic)
141.	Peromyscus	7-4-37	Hidden Lake Cirque	(alcoholic)
142.	Microtis	7-4-37	Hidden Lake Cirque	(alcoholic)
143.	Microtis	7-4-37	Hidden Lake Cirque	(alcoholic)
144.	Microtis	7-4-37	Hidden Lake Cirque	(alcoholic)
145.	Microtis	7-9-37	Hidden Lake Cirque	
146.	Microtis	7-9-37	Hidden Lake Cirque	

370710-65

147.	Microtis	7-9-37	Hidden Lake Cirque	
148.	Peromyscus	7-9-37	Hidden Lake Cirque	
149.	Peromyscus	7-9-37	Hidden Lake Cirque	
150.	Peromyscus	7-9-37	Hidden Lake Cirque	
151.	Peromyscus	7-9-37	Hidden Lake Cirque	
152.	Peromyscus	7-9-37	Hidden Lake Cirque	
153.	Thomomys uinta	7-9-37	Hidden Lake Cirque	
154.	Thomomys uinta	7-9-37	Hiddeh Lake Cirque	
155.	Ochytomys	7-9-37	Hidden Lake Cirque	
156.	Citellus armatus	7-9-37	Hidden Lake Cirque	
158.	Peromyscus	7-9-37	Hidden Lake Cirque	(alcoholic)
159.	Peromyscus	7-9-37	Hidden Lake Cirque	(alcoholic)
160.	Peromyscus	7-9-37	Hidden Lake Cirque	(alcoholic)
161.	Peromyscus	7-9-37	Hidden Lake Cirque	(alcoholic)
162.	Peromyscus	7-9-37	Hidden Lake Cirque	(alcoholic)
163.	Peromyscus	7-9-37	Hidden Lake Cirque	(alcoholic)
164.	Peromyscus	7-9-37	Hidden Lake Cirque	(alcoholic)
165.	Microtis	7-9-37	Hidden Lake Cirque	(alcoholic)
166.	Peromyscus	7-9-37	Hidden Lake Cirque	(alcoholic)
167.	Thomomys	7-9-37	Hidden Lake Cirque	(skull only)

LOCALITIES

Mouth of Grove Cr. Canyon. Mt. Timpanogos, Utah Co. Utah.
Head of Grove Cr. Canyon. West side Mt. Timpanogos, Utah Co. Utah.
Timpooneke Basin Camp, North end Mt. Timpanogos, Utah Co. Utah.
Salamander Lake, approx. one mile north Aspen Grove, Mt. Timp. Utah.
Mule Flat, Approx. ¾ mile north of Aspen Grove, Mt. Timp. Ut.Co.Ut.
Aspen Grove, East side Mt. Timpanogos, Utah Co., Utah.
Hidden Lake Cirque, Head of Aspen Grove Canyon or Little Prove Hole, east side of Mount Timpanogos, Utah Co.,Utah.

7/10/37

John Gessford reports 4 Grey Ruffed Grouse about 4 inches long. When released they flew. Observed on Maple Flat east of Provo, Utah.

7/16/37 to 8/13/37 (pagination under 7/16/37)

C. Lynn Hayward and myself spent about a month in the field from July 16, 1937 to Aug. 12, 1937. The area to be trapped and ecologically was in the main the Uintah mountains. Materials from this area were to be used for comparative ~~purposes~~ with our own Utah Co material. Several other geographical areas were investigated to tie in with the whole scheme of our problem. Our itinerary included the following: Provo, Heber, Strawberry reservoir, Duchesne, Myton, Roosevelt, Vernal, Jensen, Dinosaur Nat'l Monument, Douglas Cabin, Jensen, Vernal, highway to Green Lake, Greendale, Manila, Mc. Kinnon, Sonetree, Lyman, Fort Bridger, Carter, Fort Bridger, Evanston, Woodruff, Laketown, Lakota, Bloomington, Paris, Deep Lake; hence to Provo via Logan.

The stations established are:
Station 1 Herbundo Douglas Cabin, Dinosaur Nat'l monument, Uinta Co., Utah
Station 2 mouth Brush Cr. North Jensen, Uintah Co., Utah
Station 3 Gorge at Split mt, Dinosaur Nat'l monument, Uintah Co., Utah
Station 4. Elk Park, Daggett Co., Utah

Station 5. Fort Bridger, Uinta Co., Wyo. 3707 | 6-66 [See insertion following first page of pictures]
Station 6. Carter, Uinta Co., Wyoming
Station 7. Deep Lakes, Bear Lake Co., Idaho.

Unfortunately my notes on this trip were lost (but subsequently recovered). The only recorded evidence saved was a separate set of field numbers and a photographic record and also a letter written home as reproduced here, which included a little information at Elk Park. The field numbers of my collection for the trip is as follows.

Collection Nos.	name	Date	Locality.
168	Rana	7/17/37	Mouth of Brush Cr. North Jensen, Uintah Co., U
169	"	"	" " " " " " " " "
170	Bufo	"	" " " " " " " " "
171	Reithrodontomys	7/18/37	" " " " " " " " "
172	Peromyscus	" " "	" " " " " " " " "
173	Micratis	7/19/37	" " " " " " " " "
174	"	"	" " " " " " " " "
175	"	7/20/37	" " " " " " " " "
176	"	"	" " " " " " " " "
177	Cynomys	"	" " " " " " " " "
178	Dipodomys	"	" " " " " " " " "
179	Goldfinch	"	" " " " " " " " "
180	Bufo	"	" " " " " " " " "
181	Rana	"	" " " " " " " " "
182	Cnemodophorus	7/21/37	Gorge of Split Mt., Dinosaur Natl Mo Uintah Co., Utah
183	"	"	" " " " " " "
184	"	"	" " " " " " "
185	"	"	" " " " " " "
186	"	"	" " " " " " "
187	Scelophorus	7/20/37	mouth Brush Cr., North of Jensen, Uintah Co.
188	Cynomys	7/22/37	" " " " " " " "
189	"	"	" " " " " " " "
190	Weasel	"	" " " " " " " "
191	Blackbird	"	" " " " " " " "
192	Flicker	"	" " " " " " " "
193	Lesser yellow legs	"	" " " " " " " "
194	W. T. Jackrabbit	"	" " " " " " " "
195	Night Hawk	7/23/37	" " " " " " " "
196	Night Hawk (immature)	"	" " " " " " " "
197	" " "	"	" " " " " " " "
198	Savannah Sparrow	"	" " " " " " " "
199	Reithrodontomys	"	" " " " " " " "
200	Cynomys	"	" " " " " " " "
201	Bufo	"	" " " " " " " "
202	"	"	" " " " " " " "
203	Rana	"	" " " " " " " "
204	Scaphiopus	"	" " " " " " " "
205	Thamnophis	"	" " " " " " " "

206 = (125 C.L.H)	370716-67 Sturnus	7/25/37	Elk Park,	Daggett	Co.,	Utah.	
207 = (126 C.L.H)	"	"	"	"	"	"	"
208 = (127 C.L.H)	"	"	"	"	"	"	"
209 = (128 C.L.H)	Eutamias	"	"	"	"	"	"
210 = (129 C.L.H)	"	"	"	"	"	"	"
211 = (130 C.L.H)	Eutamias	"	"	"	"	"	"
212 = (131 C.L.H)	"	"	"	"	"	"	"
213 = (132 C.L.H)	Jay.	"	"	"	"	"	"
214 = (~~13~~119 C.L.H)	Sapsucker	"	"	"	"	"	"
215 = (120 C.L.H)	Jay.	"	"	"	"	"	"
216 = (121 C.L.H.)	Sapsucker	"	"	"	"	"	"
217 = (122 C.L.H)	Chickadee	"	"	"	"	"	"
218 = (124 C.L.H.)	Hairy Woodpecker	"	"	"	"	"	"
219 = (123 C.L.H.)	Nuthatch	"	"	"	"	"	"
220	Bendire Crossbill	"	"	"	"	"	"
221	" "	"	"	"	"	"	"
222	" "	"	"	"	"	"	"
223	Peromyscus	"	"	"	"	"	"
224	Microtis	"	"	"	"	"	"
225	Bendire Crossbill	"	"	"	"	"	"
226	" "	"	"	"	"	"	"
227	" "	"	"	"	"	"	"
228	" "	"	"	"	"	"	"
229	" "	"	"	"	"	"	"
230	" "	"	"	"	"	"	"
231	" "	"	"	"	"	"	"
232	Microtis	"	"	"	"	"	"
233	Microtis	7/~~26~~27/37	"	"	"	"	"
234	Thomomys	7/27/37	"	"	"	"	"
235	"	"	"	"	"	"	"
236	L. Crested Jay	7/28/37	"	"	"	"	"
237	Bendire Crossbill	"	"	"	"	"	"
238	" "	"	"	"	"	"	"
239	" "	"	"	"	"	"	"
240	Microtis	"	"	"	"	"	"
241	"	"	"	"	"	"	"
242	Peromyscus	"	"	"	"	"	"
243	Eutamias	"	"	"	"	"	"
244	Peromyscus	"	"	"	"	"	"
245	"	"	"	"	"	"	"
246	"	"	"	"	"	"	"
247	"	"	"	"	"	"	"
248	Eutamias	"	"	"	"	"	"
249	"	"	"	"	"	"	"
250 - to 260	= Hayward's numbers	155 to 165					
261	Thomomys	7/30/37	"	"	"	"	"
262	"	"	"	"	"	"	"
263	"	"	"	"	"	"	"
264	Eutamias	"	"	"	"	"	"

370716-68

265	Thomomys	7/30/37	Elk Park, Daggett Co., Utah
266	"	8/1/37	Fort Bridger, Uinta Co., Wyoming
267	"	"	" " " " "
268	Citellus	"	Carter, north of Fort Bridger, Uinta Co., Wyo
269	"	"	" " " " " " "
270	"	"	" " " " " " "
271	"	"	" " " " " " "
272	Sciurus	"	Fort Bridger, Uinta Co., Wyoming
273	Sylvilagus	"	Carter, Uinta Co., Utah.
274	Peromyscus	8/2/37	Fort Bridger, Uinta Co., Wyoming.
275	"	"	" " " " "
276	"	"	" " " " "
277	Zapus	"	" " " " "
278	Thomomys	8/3/37	" " " " "
279	"	"	" " " " "
280	"	"	" " " " "
281	Peromyscus	8/7/37	Deep Lakes, Bear Lake Range, Bear Lake Idaho
282	"	"	" " " " " " "
283	"	"	" " " " " " "
284	"	"	" " " " " " "
285	"	"	" " " " " " "
286	"	"	" " " " " " "
287	Microtis	"	" " " " " " "
288	Eutamias	8/9/37	" " " " " " "
290	"	"	" " " " " " "
291	Peromyscus	"	" " " " " " "
292	"	"	" " " " " " "
293	Microtis	8/10/37	" " " " " " "
294	Dendragapus ob.	"	" " " " " " "
295	Ochytoma	8/11/37	" " " " " " "
296	"	"	" " " " " " "
297	"	"	" " " " " " "
298	Thomomys	"	" " " " " " "
299	Microtis	"	" " " " " " "
300	Zapus	"	" " " " " " "
301	Callospermophilis	"	" " " " " " "
302	Eutamias umbrinus	"	" " " " " " "
303	Eutamias	"	" " " " " " "
304	"	"	" " " " " " "
305	"	"	" " " " " " "
306	Callospermophilus	"	" " " " " " "
307	Callo (skull only)	"	" " " " " " "
308	Citellus	"	" " " " " " "
309	Thomomys	"	" " " " " " "
310	Bat	"	" " " " " " "
311	Zapus	"	" " " " " " "

312	microtus 57016-69	8/11/37	Deep Lakes, Bear Lake Co., Idaho.
313	thamnophis	8/11/37	" " " " " "
314	"	"	" " " " " "
315	Bufo	"	" " " " " "
316	Reptiles	8/13/37	Elk Park, Doggett Co., Utah.

Including here a letter sent home ~~for~~ what information it may afford. written from Elk Park on the 28th of July. " It certainly seems like my chances to get news home is quite meager, especially now that we are stationed in the high Uintahs. Even now I am forced to prey upon the good nature of one of the few travellers the occasionally pass along this mountain road to play their part in connecting the link in our communication. Today I stood in the center of the road and 'hailed em' with a red trap marker and after politely excusing myself for the holdup shoved the letter to them with the remark that the mail must go through! Your chances of getting news is about 50-50 I think. While I always have honorable intention of writing I think that 50% of the chances is in mustering the courage to write and the other 50%, that the news may possibly not reach home. However I hope the letter will reach civilization for as I recall I held up a Kansas Car. I keep thinking to myself, while working over the bloody mass with flies so thick that one often wonders whether he is really preparing his specimens or by chance has picked up a dish rag to stuff, what an enjoyable visit you must be having with the folks & Max. I suppose by now you have all made the rounds of digging up Indians in Cedar Valley, picnicing in the Coal mountains and swimming the cold Provo River. Probably next year we will be able to include the long standing proposal to hike the Alpine Cirques of Mt. Timpanogos for Aunt Mil & Burnett; a day on the trap line for Cub & Ray and the dream come true of circumnavigation of Utah Lake by Canoe with Max. Our little reconnaissence trip so far has been most profitable and enjoyable; an undisturbed country for a mammologist, elogquent scenery on all sides as well as making new acquantences with the people who make their homes in such an environment. Our first station was located at the Dinosaur National Monument where we became intimately acquainted with Mr. A. C. Boyle the supervisor, Mr Hicks the lecturer and guide and others of the personel. They have a fairly good set-up at present with plans laid ahead for creating a wonder place of interest. They have at present a small museum where they keep the dinosaur bones and other fossils, office quarters and several houses for misc. use. They are now doing initial work on a 1/4 Million dollar museum which will be constructed over the bone remains

which remain intact. This will give people an idea as to the natural repose of the 200 ton creatures. Mr. Sicks must have given us extra courtesies for we spent the entire forenoon just visiting the fossils and bone fragments in the rocks on the grounds. We were shown the excavations where specimens measuring on hundred feet in length were taken out and also where the world's smallest dinosaur measuring only inches was also quarried. That night we camped in an old cabin that had quite a great deal of historical interest. It happened that Ferdando Douglass, the great archeologist and pioneer in the dinosaur field had lived here years ago. Not over a mile from our camp here was where Escalante crossed the Greenriver on his journey to Monterey California. Our next station was at Murrip's Ranch near Jensen on the Greenriver. The most interesting part of our stay here was enjoying the acquaintance with Mr. & Mrs Murry. These people are real people, have four ranches, two sections in the mountains and plenty of money. Their yard was crowded with all kinds of flowers and plenty of lawn. This may seem ordinary but when compared with all the other log and dirt roof homes throughout the desolate country will seem almost like a dream ranch. On our stay here we included in our menu fresh milk, fresh eggs, & fresh fruit. The ranch is located at the mouth of Brush Cr and has been a mammoth Indian City at one time in the prehistoric past. Hundreds of indian sites are on his place taking on the appearance of our own Utah Lake mounds, also a canal ~~so~~ is visible that skirts the side hill and allowed for quite extensive irregation of the bottom lands. This whole area has some of the most extensive and interesting pictrographs in the world. Here is found the evidence of at least 4 different people which brings back the old question of where did these people come from and what became of them. Quite a lot of the artifacts and skeletal remains in Thomes' private archeological museum in Vernal came from Mr. Murrys Ranch. One of Mr. Murrys son's is with the biological survey so we had many things to talk about in common. Drinking water seems to be the main worry concerning these people but they have overcome this little difficulty by storing ice in the winter and melting it for summer use. The ice water I'm sure helped us in our fight against the terrible desert heat. Leaving this land of gorges, sand dunes, bad lands and desolation we journeyed to our present station at Elk Park. Snow capped summits and

life in general indicative that the summer is far spent but just the time of year that is most favorable for camping at these altitudes. The natural wonders of these great forests and beautiful lakes remind one of the Kiabab forest. Tremendous expanses of yellow pine and aspen on all sides with these small parks like Elk Park. The most appealing thing in my nation is the primitiveness of the country as a whole. Just to give one an idea of the wild and wilderness state of the area am enclosing the observations of one of the rarest birds in the state, a bird that one sees only once or twice in a life time, at least in Utah Co area. This record is observations made from camp while preparing specimens and indicates the percent frequency of the Bendire Crossbill. The date of observation is 7-26-37:

Daylight - Heard birds to the north.
6:50 A.M = Heard birds
6:55 A.M = One lone bird flew across camp
7:00 A.M = Heard birds
7:15 A.M = Heard birds
7:30 A.M = Two birds flying by
7-27-37 ↓ 8:00 A.M = Heard birds
8:25 A.M Observed one lone bird flying across open to the west.
8:25 A.M = Heard large flock chirping as they flew by to the north
9:30 A.M = Heard a few passing overhead.
9:45 A.M Flock of 4 passed by
10:00 A.M Six passed overhead from east to west.
10:30 A.M Heard flock passing by to the north.
11:20 A.M Two birds chirping loudly as they flew across opening
11:25 A.M. Flock of 3 flying from west to east.
11:25 A.M Birds heard to the north.
11:30 A.M Flock of 40 birds stopped near by.
11:35 A.M Two birds flew directly over camp west to east.
11:45 A.M Two birds flying west
12:00 P.M. Heard birds.
12:45 P.M Small flock flying west
1:15 P.M Flock of 16 birds lit in Ponderosa pine by camp. Mr. Hayward collected 2 of them.
1:30 P.M. Small flock heard flying north of camp.
1:40 P.M. Heard birds
1:45 P.M Heard birds
2:00 P.M Six birds lit in pine at camp. Fed for short time and then left.
2:12 P.M Heard birds
3:00 P.M Two small flocks
3:30 P.M Heard birds

370716-71

3:40 P.m. Heard birds
3:55 P.m " "
4:00 P.m " "
5:10 P.m Five birds flying west.

So goes a daily record of a rare bird that becomes common here. It is probably that there is no duplications of numbers because they appear to always be on the go, covering great distances. These birds are extremely nervous and restless but can be approached. When you also include in your notes on the same day of watching the Western Evening Grosbeak feeding its young you can't help but feel the primitiveness of this forested area. The larger mammals found in the forest, so they report, are the mule deer, elk, antelope, black bear, mountain sheep and also sage hens. The scenery here is singularly wild and picturesque in both form and coloring. The country in general supports a heavy growth of coniferous trees and the view of one of the numerous lakes with its deep green water and fringe of meadowland set in the somber frame of pine forests form a picture of rare beauty, a real place for rest and recreation. This place is also a fertile field for study by a botanist. Within a comparatively short distance he may find plant life typical of the Upper Sonoran to Artic Zone. Our birds and mammals also are unusually prolific in numbers in fact I have never witnessed such profusions of bird life as we find right around camp. Our next station will be at Fort Bridger in Wyoming and we expect to be located there about Saturday until Tues morning. Fort Bridger will be an interesting place to camp for many of the type locality material came from there. Our mammal and bird material certainly looks new and can hardly wait to work with it this fall. Well, I feel I must close for the life of a naturalist does not allow for much dissipation; from daybreak to dark with no time for novels in camp. Wishing Max and the folks a pleasant vacation & safe journey homeward, I remain your rat skinner Jim."

The other form of evidence was salvaged in the pictorial record. Field work for a mammal preparator does not allow for time in the field during the day except on occasional collecting trip with the gun. Otherwise he is only out during the early morning and late afternoons and evenings when lighting conditions are unfavorable. The pictures prepresented are mainly for record only and do not possess a pictorial value. Taken on Verichrome with average exposures of $\frac{1}{25}$ x 16 stop. The few pictures taken are represented here as:

1-7-26-37

Savannah of Elk Park, Daggett Co., Utah. These opening characterize this section of the Uintahs. Aspen and Ponderosa Pine dominate the area with extensive willow patches following stream-bed and moisture situations.

3-7-26-37. Evening view of Elk Park Savannah taken near camp. Life and death in profile.

2-7-26-37. Typical storm clouds that regularly appeared nearly every day, generally raining at a scheduled time. Typical conifer and savannahs. Elk Park. ibid.

1-8-2-37. Mr. Donahoe at Fort Bridger. He graciously extended camping preveledge on his property a few block north of Bridger proper. Watering his horses after a days work on the feed. Creek ran by camp.

1-8-11-37. Station at Deep Lakes in Bear Lake Co. A beautiful setting for our camp

2-8-11-37. Prof. C. Lynn Hayward. Deep Lakes Station, Bear Lake Co..

370717-73
(date separation of July 16, 1937 entry)

Provo, Utah County, Utah (Trip to Uinta Mountains)

July 17, 1937

The following information is from a notebook of original field notes rediscovered. Some information is duplicated previously. Left Provo today with Vernal as destination. Mileage at home 44679. At Dinosaur Natl Monument met Dr. D.C. Bayle & Mr. Sicks. 13 different dinosaurs here. From 100 trap along Colorado River below Monument caught 4 mus musculus. Birds observed from Jensen to Dinosaur natl monument. Eng sparrow, pale goldfinch, yellow warbler, ring-necked pheasant, Says phoebe, meadowlark, Brewer's blackbird, rock wren, mourning dove, w. robin, cliff swallow, lark sparrow, Arkansas kingbird, house finch, raven, red-shafted flicker, Bullock's oriole, spotted sandpiper, barn swallow, killdeer, turkey vulture, red-winged blackbird, house wren, Calif. quail, nighthawk, great blue heron, mallard, western yellowthroat, broad-tailed hummingbird, red-bearded woodpecker, Lewis woodpecker, tanager, Canada goose, mt. chickadee, lesser yellowlegs, red-tailed hawk.

Elk Park, Uinta mts., Utah

July 26, 1937

Crossbills in area and groups of from 3 or 4 to 12 flew lower opening of Elk Park. They have a very characteristic call as they nervously flew back and forth across the open field from east to west. At 9:00 A.M noted one flock of approx 60 birds, some feeding on the ground while others fed near the top of the ponderosa pine. On my approach the birds on the ground became nervous and flew up to the upper branches. Even though I collected 1 from this tree they remained in the same area.

July 27, 1937

While at camp at Elk Park, made the following observations on the crossbills: 8:00 A.M heard first crossbills; 8:25 lone bird flew across opening; 8:25 A.M heard large flock to the north of camp; 9:30 heard a few passing; 9:45 4 pass by; 10:00 shot passed overhead from west to east; 10:30 heard birds to the north; 11:20 two birds chirping loudly as they flew across clearing; 11:25 small flock of 3 or 4 from west to east. 11:25 bird heard to the north. 11:30 heard several birds to the north; 11:35 Two birds flew directly over camp from west to east;

11:35 1 bird cross clearing to north and chirped.
11:45 2 birds flying west calling; 12:00 heard birds; 12:45 small flock flying west and calling; 1:15 16 birds alighted in top of a ponderosa pine at camp from the west. Two birds were shot from this flock, the others left but 6 returned to the same tree and then left; 1:30 small flock heard flying & calling to the north of camp; 1:40 heard birds north of camp; 1:45 heard birds; 2:00 heard birds; 2:10 six birds lit in ponderosa pine at camp, remained 2 minutes and then left after their feeding; 2:12 heard birds; 3:00 two small flocks; 3:30 heard birds; 3:40 heard birds; 3:55 heard birds; 400 heard birds; 5:10 5 birds flying west

While at Elk Park observed the following birds: E. mt. chickadee; crossbills, Townsend solitaire, mountain bluebird; red-tailed hawk; gray-headed junco, red shafted flicker, hairy woodpecker, downy woodpecker, Clark crow, red-breasted nuthatch, white-breasted nuthatch, Audubon warbler, western evening grosbeak, nighthawk, Audubon hermit thrush, robin, western tanager, long-crested jay, chipping sparrow, owl sp?, red-naped sapsucker, ruby-crowned kinglet, black-tailed(?) hummingbird, pine siskin, mourning dove, purple finch, Lincoln sparrow, ~~purple finch~~, Brewer's blackbird, tree swallow, sparrow hawk.

Located a nest of the grey headed junco young. Nest 10 feet from willow-lined stream in open meadow. Nest in small bush 5 inches above ground. This evening observed a western evening grosbeak feeding young on top of ponderosa pine. Are flock of 40 ♂♂ & ♀ crossbills in one flock in mixed stand of ponderosa pine and aspen. Several nighthawks flying quite high this evening.

Elk Park, Uinta mts, Utah

July 28, 1937

Observation of crossbills at camp at Elk Park. Birds startled flying by camp at daylight. At 6:48 heard birds, 6:56 one bird flying west, 7:05 heard 3 birds; 7:15 heard birds; 7:28 two birds flew by; 7:35 heard birds; 8:10 3 birds flying west; 8:20 heard birds; 8:35 heard birds; 8:40 saw 2 birds fly by; 8:45 heard large flock; 8:50 lone bird flying east; 9:00 heard birds; 10:30 heard birds; 10:40 heard birds; 11:00 heard birds;

11:00 heard birds; 12:15 flock of approx 30 in ponderosa pine just east of camp Collect 3 a female remain on a cone when after a male was shot 2 feet from her; 12:20 heard birds; 12:35 heard birds flying by; 12:40 heard birds flying by; 1:00 large flock passed by; 1:45 lone bird from west; 1:50 small flock east of camp; 155 small flock south of us; 3:00 heard birds; 3:40 heard birds flying overhead.

Elk Park, Uinta mountains, Utah

July 29, 1937

Continued census of crossbills from camp at Elk Park. First bird heard 5:00 A.M, 6:00 heard birds; 7:00 heard birds; 7:20 heard birds; 7:30 lone bird flying by; 7:40 heard birds; 7:50 heard birds; 8:00 2 birds perched in ponderosa pine at camp; 8:15 bird flew by [in field until 12:00 but heard birds occasionally]; 12:00 heard single bird flying by at camp; 12:05 5 birds flying by to east; 1:00 P.M 8 alighted in tree at camp and remain 4 or 5 minutes while it rained during that period of time; 1:05 heard birds to the north; 1:30 heard birds; 1:40 heard birds; 2:00 heard birds; 2:45 large flock flew by; 3:30 heard birds flying by; 3:40 heard large flock; 4:30 heard birds; 5:30 heard birds; Unfavorable weather from 3:00 PM to 6:00

Elk Park, Uinta mountains, Utah

July 30, 1937

Continued observations on crossbills from camp. at day-break heard a large flock (about 6:00 A.M); 6:30 heard birds; 7:00 2 birds flew by; 7:35 two birds flew by, one remained; 7:50 scattered flock flew by; 8:00 flock of 15; 8:15 group of 10 flew by; 8:20 flock of 10 flew by; 8:25 lone bird flew by; 8:30 30 birds feeding in ponderosa pine at camp [in field to 11:40]; 11:40 heard birds north of camp.

Elk Park, Uinta mountains, Utah

July 31, 1937

Left Elk Park and counted the number of Calcospermophilus between here & manila: 12. Camped at Fort Bridger.

Bear Lake, Idaho

Aug. 3, 1937

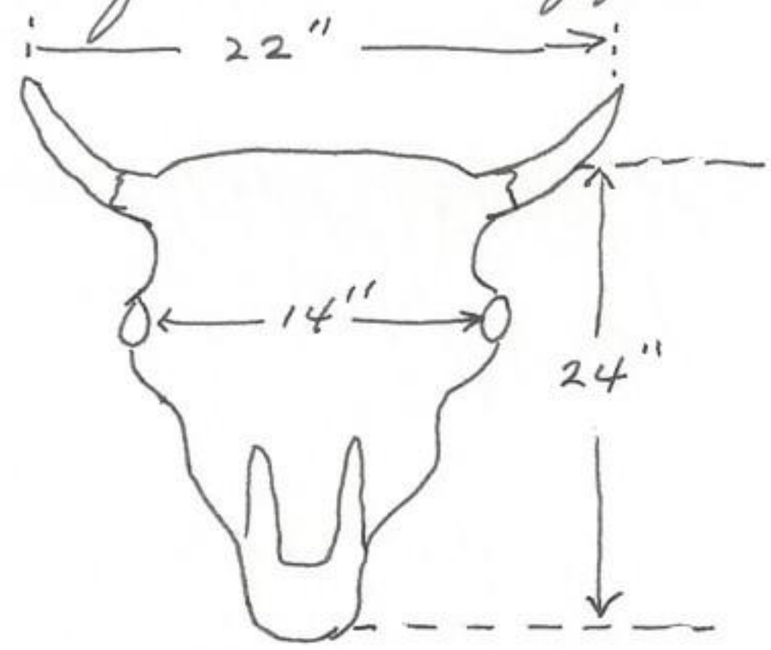
Camped at Bear Lake while Hayward visited family. Lynn showed me cabinets he built for specimens.

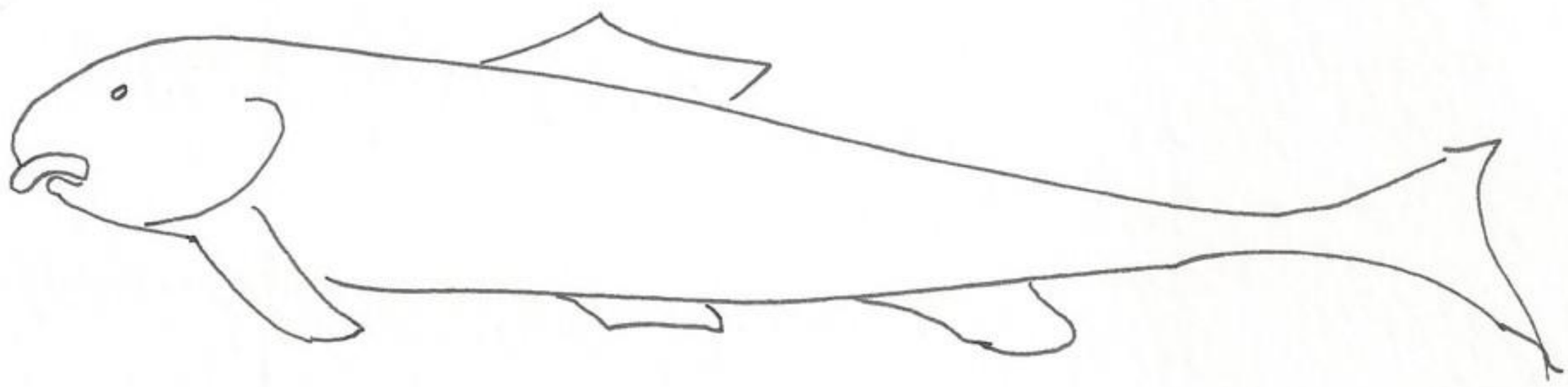
370804-76

Bear Lake, Idaho-Utah

Aug 4, 1937

Packed and hiked around the circumference of Bear Lake from N end, clockwise back to N end. Camp enroute 2 nights, one on E side & one on S. end. On east side of lake at about 1/2 way down lake found a buffalo skull in shallow water. There was other bone in the water but not easily accessible. I would judge that other buffalo skull could be located in periods of shallow or low water level of the lake.





This fish was found dead along shoreline: 12 rays in dorsal fin; 9 rays in anal fin. mouth inferior. Head 1/5 total length. Width of width into length is 5 times, 12 uppers, scales 1/4 inches long, 64 scales on lateral line. South end of lake with considerable beach and impounded water beyond of cattail. Returned to Haywards home at near Paris Idaho on NW end of lake.

Deep Lakes, Idaho (west of Bear Lake)

Aug 7, 1937

Set up camp a Deep Lakes, one of the most beautiful camp sites to date. Trapped and prepared representative mammals & birds from this area. Left the lakes on Aug. 12 for Provo, Utah, having encircled the Uinta Mountain on a collecting expedition.

370811-77

6-8-11-37 Lynn getting ready for some last minute preparation before setting out on evening trap line. Camp at Deep Lakes.

3-8-11-37 mood one

7-8-11-37 Deep Lake. Taken from south shore looking north. Camp at outlet of lake. The Forest Service has planted several species of trout in this lake.

4-8-11-37 Second stage

8-8-11-37 Typical shore view of Deep Lakes with afternoon ripple reflection which so characterizes the lake.

5-8-11-37 Third stage of variable mood of Deep Lake. These progressive movements of rippling agitation of the water surface became a permanent picture to me as I watched them play upon a smooth lake from morning to night from the preparation station along the shoreline. This lake is certainly a gem for beauty and should be preserved ~~and~~ in its pristine beauty for those individuals who care to see nature in here primitive state. An extensive fire has already wiped out an adjoining area. Overgrazing has also produced some undesirable effects.

370820-78 8/20/37

Vivian Park, Utah Co., Utah. Geological pictures of overturned fold.

1-8/20/37. This fold is found on the north side of canyon about 2 blocks up Provo Canyon from where the south Fork enters the main Provo River. It will be noted that the overturned strata angle off to the horizontal without a fault although it appears as if it does in the picture. The rocks are probably Pennsylvanian in age and support many Brachypods and a few honey combed corals.

2/8/20/37. Same as to left. Rupture fault at top of exposure. This overturn is very noticeable in North fork of Provo Canyon. Probable Indian cave at base of the most conspicuous overturned stratum.

9/8/37

Trip to Donkey Lake on Aquarius Plateau. Visited many lakes and reservoirs west and adjacent to Donkey Lake Reservoir. Left Calton Ranch at Teasdale and packed in with equipment on Back. Collected a few (Sciurus ?) mammals near the Donkey Lake proper. but the original plan was for recreation and particularly for fishing. The fishing proved to be like a hatchery set-up with scores like 52 fish with 53 casts of the fly. Some fish ranged 18" long. Harry Thomas, Marcus Hitchcock, Ray Snow made trip with me. Victoria, record only. of our 5 day trip.

1-9-8-37 Along trail. Donkey Lake at base of lava cap in distance.

2-9-8-37. Took N.E. toward Wayne Wonderland.

370908-79

3-9-8-37 Open savannahs. Donkey Lake at base of lava cap. The tree are most interesting and luxuriant on the long slopes from base of lava plateau. Conifers and aspen dominant.

4-9-8-37 The group at shore of Donkey lake. Best fishing on far shore where water spring cascode down into the lake. A limit of fish is a sinch.

2-9-8-37 Fish in camp. Plenty to eat and time to loaf.

1-9-8-37. Open tent camp. Nights too cold for comfort even with bags.

1-9-10-37 Donkey lake from talus slopes to south. Harry Thomas in foreground. At this time of evening the lake below became alive with fish with the surface of the lake being completely agitated. Their constant jumping & feeding coned be heard from this distance.

2-9-10-37 Andesite lava cap of the Aquarius Plateau. Moraine studies of both rock flow and of ice age present themselves here. Area characterized by large boulders, some 20 tons balanced in talus accumulations like a scale, when, with the least pressure tumbles over. Beka present.

3-9-10-37 Donkey lake again with group silhouetted in foreground. A good bunch of fellows.

4-9-10-37 In meditation over a most gorgeous and elegant country, not yet spoiled by civilization.

Oct 2, 1937

Dad and I took several photos of archealogy sites W of Provo, Utah. (see pages 176 to 181 of 1934 for these photos)

Oct. 20, 1937

(see opposite page for 10/20/37

11/2/37

1-11-2-37

Mother at piano at home. Provo, Utah Verichrome film. Picture (1-11-2-37)

11/6/37

Placement of copper Honor Hiker Plaque at head of Pole Canyon by Troop 51. This plaque will be regained by Chosen Honor Hikers during later part of Feb. of next year. The purpose also of this trip was to place cache of water proof cans of equipment & food to be used during the 5 days next February when the plaque is regained.

1-11-6-37 On trail. Overlooking Utah Valley. Scouts carrying cache on pack sacks.

2-11-6-37 Pause for rest and refreshments near head of Pole Canyon.

371106-81

3-11-6-37 Gareth Lee posing with cache can on back. Lofer and Nebo in distance.

4-11-6-37 Plaque Placement ceremony on peak. Gareth Lee, Blaine Carlson, Buckley Taylor and Wayne Dreydale from left to right.

see next page for 12/2/37
12/10/37

Rush fire in Provo Bay area south of Provo, Utah. These fires are annual affairs probably started by sportsmen or at least intentional. It is far better that these fires are started in the fall and winter rather than during the spring nesting period. However many spring fires have been started when the ducks, geese, grebe & heron are nesting or attempting to raise their young. The 3 smoke columns indicate a danger signal for the wildlife regardless of season.

1-12-10-37

(INSERT) 10/20/37 Entered 12/11/37

Deer trip to Indian Spring in Indian Canyon S.W of Strawberry Reservoir. Trip as usual. Dad & I made trip. Took four pictures.

1-10-20-37 General area looking west, Nebo in distance left.

2-10-20-37. View to east. Camp in mouth of foreground Canyon.

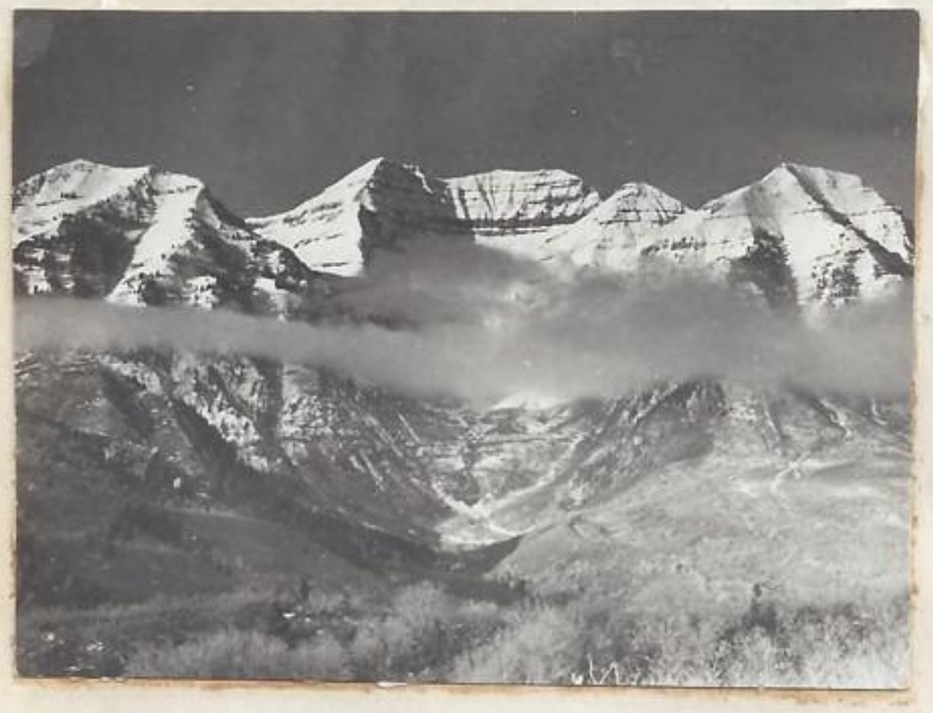
3-10-20-37 View to north from lone sheep peak. Streaper Creek and cloud shrouded Strawberry in distance

4-10-20-37. deer prize of trip from aspen park about 2 miles N.W of camp. 2nd one near here.

made of few observation on arrival at camp site at Indian Springs. Four G. Ruff Grouse near camp in evening. Small flocks of Juncos present. 3 Rocky Mt. Jays visited camp upon arrival. The L.C. Jay more in evidence than R. Mt. Jay. Microtis(?) active in sagebrush at 5:30 P.M. Sciurus calling in trees at camp. One robin visited us and the chickadees not uncommon. (see photo opposite page)

(insert) 12/2/37 (see previous page for proper entry)

Including here at this date two pictures taken sometime during the spring of 1937 but do not have date. They are both of the east



1-12-2-37

2-12-2-37

exposure of Mt. Timpanogos and taken from the Deer Creek Ridge Picture (1-12-2-37) (see p. 82A for enlargement) shows the morning fog clouds lifting from the Stewart Flats. Alpine heights and winter above with spring creeping up the base of the mountain. Picture (2-12-2-37) of a similar setting.

1-12-2-37 JWB

[INSERT] 371211-82.1

INDIAN SPRINGS, INDIAN CANYON, S.W. STRAWBERRY RESEVOIR, UTAH
OCTOBER 20, 1937
(same as photo 4-10-20-27)

[INSERT] 371211-83