less attracted by the shorn grainfields and meadows near the stream. Their metallic "clink" revealed their presence, and several specimens were taken. They are likely quite common in the creek bottoms in the fall migration. The bobolink of this region is now placed in the subspecies *albinucha*.

495. COWBIRD, *Molothrus ater* (Bodd.)

The cowbird was only occasionally noted in our lists, and then only at Crow Creek and the foot of Flathead Lake. One specimen, a young of the year, was taken at our camp at the outlet of Flathead Lake. This species seems to occur in smaller ratio in this region than might be fancied from knowledge of its wide distribution.

498. RED-WINGED BLACKBIRD, *Agelaius phoeniceus* (Linn.)

Common at suitable places near the head of Flathead Lake. It was found nesting in the reeds at Daphnia Pond, where a small colony had established itself. Very few specimens were seen near the pond in August.

501 b. WESTERN MEADOWLARK, *Sturnella magna neglecta* (Aud.)

This meadowlark was abundant in the prairie regions, especially in the neighborhood of the ranches and water-courses, everywhere from the foothills to the shore of Flathead Lake. It was most abundant near the stubble fields in the vicinity of the lake.

508. BULLOCK'S ORIOLE, *Icterus bullocki* (Swains.)

We found Bullock's oriole common in the groves at the foot of Flathead Lake. Nests of the year were observed, and several specimens of adult birds were taken.

510. BREWER'S BLACKBIRD, *Scolecophagus cyanocephalus* (Wagl.)

Abundant everywhere in the vicinity of the ranches and

water-courses. Flocks were forming for summer feeding and fall migration, and were much in evidence near the lake shore.

514 a. WESTERN EVENING GROSBEAK, *Coccothraustes vespertinus montanus* (Ridgw.)

Comparatively common in the vicinity of Swan River and Flathead River, in the swampy woods. Specimens were seen and heard every day during our visit in June, and it is very probable that it nests in the locality, though no evidence of such nesting was observed. Specimens were frequently taken, both in June and in August. The fruit ranches in the vicinity of the woods mentioned appear to offer unusual attractions to the birds of the neighborhood; our first specimen of this grosbeak was taken as it was being allured by the store of raspberries at hand. The call of this species is closely imitative of that of a young chicken; if intensified and greatly increased in volume it would resemble the cry of the osprey.

This handsome bird was common along Crow Creek, where a specimen was taken immediately upon our arrival, before our camp was established. The tall pines in the neighborhood were regular stations for this grosbeak, and frequently a troop of six or eight would take possession of a treetop and chirp cheerily for a few minutes. It is not likely that the grosbeak is found far from the streamsides in the prairie region of the Reservation, as trees and thickets are its usual resorts.

518. CASSIN'S PURPLE FINCH, *Carpodacus cassini* Baird.

This purple finch does not appear to be common in the Flathead Lake region. A male was taken at Swan Lake on August 3, 1901. It was resorting to the grounds around an unoccupied cabin, associating with pine siskins in gleaning from the dooryard. Only one specimen was seen.

521. AMERICAN CROSSBILL, *Loxia curvirostra minor* (Brehm)

Along the immediate shore of Sin-yale-a-min Lake, the crossbills were not often noted; but around the pond mentioned as being southeast of the lake, the American crossbills were abundant, frequenting the tops of the tall trees in small flocks,

and announcing their presence by their sharp chirps. Both adult specimens and young of the year were taken, always from the summits of the loftiest trees.

The American crossbill was regularly noted at Crow Creek and at the foot of Flathead Lake. Like the evening grosbeak, it is partial to the streamsides in the prairie regions, moving restlessly from place to place in troops of small numbers, and chirping merrily from the treetops.

It is common in the vicinity of the Station, frequenting the tops of the tall trees in small flocks, uttering short, sharp metallic chirps. It generally associates with the pine siskin and other frequenters of the upper story of the woods. It is represented more numerously in the fall, and during the latter part of August we found it abundant in the neighborhood of Daphnia Pond and Estey's Pond, moving about capriciously from one treetop to another and chattering its enjoyment in the liberty of its wildwood domain.

533. PINE SISKIN, *Spinus pinus* (Wils.)

The pine siskin was commonly seen in the tops of the tallest trees, though at Sin-yale-a-min Lake and McDonald Lake it is more generally heard passing overhead, uttering its goldfinch-like call, or chirping vigorously to its fellows. It is a social creature, and its familiarity will lead it to alight in the midst of the camp to glean refuse from the tables. The only specimen taken at Sin-yale-a-min Lake was shot in camp while it was picking up morsels of food near the cooking-tent.

This animated resident of the higher woodlands was abundant near the Station. During our visit in June, the pine siskin was one of the most noticeable birds of the neighborhood, flitting in sportive enjoyment among the treetops, and uttering a loud sibilant chirping as it bounded from tree to tree. Frequently specimens visited our camp and alighted at the door of our tent, to glean from the refuse of the table, manifesting all the familiarity of the chipping sparrow. One evening about sunset, while I was exploring the woods on the Helena Club grounds, a nest in the top of a small fir tree caught my attention. Giving the tree a vigorous shake to alarm any occupant of the nest, I was surprised to see a brood or flock of pine siskins, five or six in number, flutter out of the nest and away from the neighborhood, chattering with lively scolding at being thus rudely routed from their home.

The pine siskin is commoner up the mountain slopes than near the lake shore. We noted it at all elevations up to 9,200 feet. Its call is so much like the plaintive "pee" of the goldfinch, which it also closely resembles in appearance except when the latter is in nuptial plumage, that one unacquainted with the pine siskin might fail to notice it as a different species. The young of the year appear to show brighter yellow in their plumage than the elders, which further adds to its likeness to the goldfinch.

In August the pine siskins were observed clinging to the heads of the giant hyssop, which grew extensively along the roadsides near the Station. A small flock would thus congregate in a patch of the hyssop, feeding from the heads in the manner of goldfinches, the resemblance being increased by the bright colors of some of the young of the year and by the goldfinch-like chirps of the pine siskins. The horse mint, *Monarda fistulosa,* was also a favorite food of this species.

540 a. WESTERN VESPER SPARROW, *Poocaetes gramineus confinis* Baird.

This vesper sparrow occurs abundantly throughout the prairie regions of the Reservation. It frequents the grainfields and margins of the ranches in numbers, and is especially noticeable near the lake shore, where it visits the water's edge to refresh itself from the heat of the summer afternoons. Near the lake it appeared to be almost as numerous as Brewer's blackbird, at the time of our visit.

546 a. WESTERN GRASSHOPPER SPARROW, *Ammodramus savannarum perpallidus* (Coues.)

This sparrow was found to be common on the prairie localities of the Reservation, and several specimens were taken for identification. The males would frequently sit on a post of the rail fences and utter their queer songs, and also emit a sharp stridulating chirp or call, scarcely regarding our presence.

560 a. WESTERN CHIPPING SPARROW, *Spizella socialis arizonae* Coues.

The western chipping sparrow was found abundantly everywhere throughout our travels in the Flathead Reservation.

Everywhere we found it the same unsuspecting, social character, industriously caring for the wants of its younglings. It prefers the bushes and smaller trees for its resorts, and like the pine siskin, will frequently enter the camp in quest of morsels of food.

On August 24, the chipping sparrow was noted in flocks of twenty-five to thirty, near the borders of the ranches in the vicinity of the Station, probably preparatory to migration.

567 b. SHUFELDT'S JUNCO, *Junco hyemalis shufeldti* Coale.

This mountain form of the slate-colored junco is abundant in the vicinity of Sin-yale-a-min Lake and on Mt. McDonald to an altitude of 7,500 feet. It undoubtedly breeds in the neighborhood, as several specimens were taken while carrying food evidently for young birds. On one occasion the writer was convinced of the existence of a nest of this junco near a fallen log and adjacent brush, and searched closely for it, but was unable to discover it. The rattling ditty of the junco was heard regularly in the woods near Sin-yale-a-min Lake, a performance quite similar to that of the chipping sparrow, though uttered with more force and less rapid enunciation.

The junco is common on the wooded ridges near the Station, and undoubtedly breeds there. On June 20, a female was observed carrying food, and chirping anxiously at our presence, as if she had a nest or dependent young in the immediate neighborhood, but search for the nest was unavailing.

581 b. MOUNTAIN SONG SPARROW, *Melospiza fasciata montana* Hensh.

Common along the margins of Crow Creek. It was still in song, in accordance with its usual habit of singing throughout its entire summer residence. Several specimens were taken in the coverts near the water. The song sparrow was not noted at the foot of Flathead Lake, nor at the other lakes in the Mission Range.

The song sparrow was common in the brushy borders of the lake near the Station; also in the shrubbery along Daphnia Pond. Its melodious cadenzas were regularly heard in suitable surroundings, and specimens were frequently taken.

583. LINCOLN'S SPARROW, *Melospiza lincolnii* (Aud.)

This sparrow was not infrequently noted near the Station. A specimen was taken on July 3, from a troop of three flitting among the bushes along the road bordering the Station grounds.

584. SWAMP SPARROW, *Melospiza georgiana* (Lath.)

Though far to the westward of its regular range, a specimen was taken on August 11, in the bushes along the road bordering the Station grounds, that seemed to be no other than an undoubted swamp sparrow. It was in company with several other sparrows, apparently of the same species, but only one was secured. If the identification is correct, it will perhaps establish a record for the western range of the species.

585 c. SLATE-COLORED SPARROW, *Passerella iliaca schistacea* (Baird.)

This sparrow was found at our camp near Echo Lake, on July 12, where the loud, clear song of the males was heard in the vicinity of a small slough. Later a male yet in song was seen feeding young, and on the following morning a singing male was taken in the bushes bordering a small stream flowing through the slough. The slate-colored sparrow was not heard or seen elsewhere on our itinerary.

588. ARCTIC TOWHEE, *Pipilo maculatus arcticus* (Swains.)

Not uncommon near the Station in the shrubbery of the hillsides surrounding the ponds. It was noted regularly in the vicinity of Daphnia Pond, but was not observed generally in our collecting near the Station.

This towhee was common in the bushes of the mountainsides in the vicinity of McDonald Lake. Specimens of adults and young in first plumage were taken.

596. BLACK-HEADED GROSBEAK, *Habia melanocephala* (Swains.)

No specimens of the black-headed grosbeak were taken or noted along the shore of Sin-yale-a-min Lake, but this species appeared to be common in the vicinity of the pond southeast of

the lake, and there its rich notes could be heard in the warm July afternoons. On our visits to the pond we always observed it in the higher trees, though elsewhere it manifests a preference for the smaller and dwarf trees. However, when away from the immediate vicinity of its nest, it generally rises to a higher level to enunciate its song or to glean for its insect fare. We found it still in song at McDonald Lake.

Its singing was one of the enjoyable features of the swamp woods during our June visit to the Station, and upon our return in August it still regaled us with its melody as late as the 12th. The song is almost an exact counterpart of the rich performance of the rose-breasted grosbeak, which the black-headed grosbeak also greatly resembles in habits. Several nests were found in June.

599. LAZULI BUNTING, *Passerina amoena* (Say.)

Common in the shrubbery of the bushy hillsides and ridges. It was found nesting in June. Its song is very much like that of its congener, the indigo bunting, so that a person familiar with the eastern species will readily recognize the lazuli bunting by the likeness of its musical performance to that of its relative.

607. LOUISIANA TANAGER, *Piranga ludoviciana* (Wils.)

The Louisiana tanager is one of the commonest birds of the vicinity of Sin-yale-a-min and McDonald Lakes. It was seen and heard daily in our observations, and such specimens as were needed were taken. Its chirping whistle is a familiar feature of the evergreen woods, and its brilliant livery is in noticeable contrast to the sombre regions it inhabits.

It is abundant everywhere in the woods near the Station. Its song so closely resembles that of the robin that the difference is not readily detected except when both are performing within hearing. It breeds regularly in the neighborhood, nesting in June. In August the Louisiana tanager was observed feeding on the raspberries of the fruit ranches near the Station. On August 20 we noted that the tanager was no longer observed in our daily collecting, and it is likely that it departs rather early for its southern winter-quarters.

612. CLIFF SWALLOW, *Petrochelidon lunifrons* (Say.)

This swallow was regularly noted near the creeks, where ranch buildings furnished it sites for its bottle-shaped mud homes. At the foot of Flathead Lake it was represented by a colony at Polson, and specimens were a-wing at all hours of the day, coursing over the meadows near the shore and above the haw groves in quest of the insects that swarmed the trees and ripened fruit.

613. BARN SWALLOW, *Chelidon erythrogastra* (Bodd.)

Small colonies of the barn swallow were noted at St. Ignatius, Ronan, and other settlements of the Reservation.

614. TREE SWALLOW, *Tachycineta bicolor* (Vieill.)

Small colonies of the tree swallow are found at suitable localities at Polson and near the Station. Valleys between hillsides denuded by former fires, where tall boles and bare spires are standing, are generally inhabited by this swallow, as well as the margins of ponds where naked dead trees are found. It was found nesting at the Cedar Islands, in McGovern's Bay, in cavities of the decaying cedars.

616. BANK SWALLOW, *Clivicola riparia* (Linn.)

The bank swallow was regularly noted at suitable places in our travels through the Reservation, mingling with the cliff swallow in aerial evolutions above the meadows and the water in about equal numbers. It was observed at Crow Creek and also at the foot of Flathead Lake.

This swallow breeds regularly in the vicinity of the Station, and the graceful aerial movements of the bird a-wing generally called attention to the presence of the species in the neighborhood. Specimens were regularly seen near the buildings of ranches, and near a house the only bank swallow taken, for positive identification, was shot as it flitted over the road with others in its restless pursuit of food and pleasure.

619. CEDAR WAXWING, *Ampelis cedrorum* (Vieill.)

This handsome bird, though lacking the power of song by which many of our avian friends call attention to their pres-

ence, was seen and noted in all our daily lists. Near the pond in the vicinity of Sin-yale-a-min Lake, this waxwing was very common, for above the stagnant water it found the hovering insects that furnished it a plentiful larder. Though the cedar waxwing has only the well-known lisping note with which to express all the scale of its avian emotions, it can vary its utterances of this feeble call to a considerable degree, even to such an extent that it sounds like another note.

The species was abundant in occurrence at the Crow Creek station and at the foot of Flathead Lake. At the latter place it was resorting to the haw thickets, where it feasted on the swarming insects, catching them among the branches in true warbler-like manner, and lisping its pleasure in the bounteous banquet spread for it by Mother Nature.

The cedar waxwing was found nesting in June at the Cedar Islands and in the woods adjacent to the Station grounds. At times it alights on oblique stems of low bushes, flies outward to capture passing insects, and returns to a similar station, acting greatly like a small flycatcher such as Traill's. On August 18 a cedar waxwing was taken which had the bill destroyed except the bases, as though the mandibles had been amputated while the bird was yet in the nest. The waxwing is very fond of black haw berries; it will generally swallow two or three berries, and then fly away with another in its bill. Between August 22 and 27, a medium-sized haw tree heavily laden with fruit was completely stripped by the waxwing, with the assistance of a half dozen western robins. Later in August the cedar waxwing was observed feeding on elder berries.

624. RED-EYED VIREO, *Vireo olivaceus* (Linn.)

Everywhere in our travels we noted the red-eyed vireo as quite common. Regularly we heard its emphatic monitorial song, and caught frequent glimpses of the performer as he gleaned industriously among the foliage near the branches which supported him. During our stay at Sin-yale-a-min Lake, the young vireos recently from the nest were claiming the attention of the parent birds, and upon hearing the harsh "gay" of the elder, we knew that one or more youngsters were crouched in the foliage nearby waiting for some dainty tidbit from the fond parent. This vireo breeds abundantly in the vicinity of the Station.

627. WARBLING VIREO, *Vireo gilvus* (Vieill.)

The warbling vireo was found regularly in all localities under consideration. Like the red-eyed vireo, it breeds abundantly in the Flathead region. The charming song of this vireo, which is not interrupted until the author takes its departure for its winter home, enlivened the bushy woods near the lake, and frequently regaled the ear of the collector when all other songs had been hushed by the mid-afternoon heat. It is interesting to watch this songster as it warbles forth its ditty while engaged earnestly in seeking its insect food, seldom lifting its head from its task, singing as it works.

652. YELLOW WARBLER *Dendroica aestiva* (Gmel.)

The yellow warbler was found abundantly in the haw thickets at the lower end of Flathead Lake, where its song was still heard, and its movements observed as it flashed among the branches in its active pursuit of insect fare. We also noted its common occurrence at Crow Creek, in the thickets fringing the streamside.

It is abundant in the swamp woods between Swan River and Flathead River, nesting regularly in the breeding season.

656. AUDUBON'S WARBLER, *Dendroica auduboni* (Towns.)

This handsome warbler was found to be common in the region under consideration. The clear, ringing songs of the males were regularly heard in the earlier part of the season, uttered from the middle and upper stories of the taller evergreens. It was observed on the sides of Mt. McDonald to 7,500 feet elevation.

Common everywhere near the Station in the higher woods, and nesting regularly in the earlier season. Very common in the woods in middle August, when the fall migration probably begins. In a day's collecting at Estey's Pond, August 27, the most active bird of the surrounding woodland was Audubon's warbler, and several specimens of adults and young of the year were taken by accident beyond what we needed, from difficulty in identifying them in the tall trees which they generally prefer.

668. TOWNSEND'S WARBLER, *Dendroica townsendi* (Towns.)

Whenever we entered a particular clump of small firs and bushes at Sin-yale-a-min Lake, a Townsend's warbler would appear and manifest great anxiety by chirping in nearby shrubbery. The place was searched repeatedly for evidences of nesting, but without avail. It is likely that the parent bird was feeding a youngster in the thicket, for before the end of our stay in the neighborhood the warbler had disappeared. We noted one or two other instances of the occurrence of this warbler at this camp.

Townsend's warbler was noted only occasionally in our collecting at the head of Flathead Lake. A specimen was taken August 6, on the Helena Club grounds, opposite the Station across the river, and an occasional note made thereafter regarding its presence in the woods in the neighborhood. It was generally observed in a lower story of the woodland than Audubon's warbler, frequenting about the same level as the smaller flycatchers or the yellow warbler.

680. MACGILLIVRAY'S WARBLER, *Geothlypis macgillivrayi* (Aud.)

Not uncommon near the Station, where it was found breeding in June, though only one nest was noted. Specimens were taken frequently in the woods during our August collecting. This warbler is a bird of the bushes, like the yellow-throat, but prefers bushes in low woodland to bushes near water. It was frequently noted in our lists at Sin-yale-a-min Lake; and a family just from the nest was found at McDonald Lake.

681 a. WESTERN YELLOW-THROAT, *Geothlypis trichas occidentalis* Brewst.

This yellow-throat was not uncommon in the bushes along Crow Creek, where its song was heard and specimens were taken. It was also frequently noted in the shrubbery near our camp at the foot of Flathead Lake, bordering the haw thickets.

Common in the bushes and weeds of Daphnia Pond, where it undoubtedly breeds, as it was regularly noted there both during June and August. It was also frequently observed in the bushes near the boat landing, in August.

683 a. LONG-TAILED CHAT, *Icteria virens longicauda* (Lawr.)

This western form of the chat was abundant in the bushy localities near the Jocko River at Selish. Apparently the nesting season was just beginning, June 16, as the males were in full song and persistently voluble; but though the bushes were thoroughly searched, nothing was found but structures in the first stages of erection.

685. WILSON'S WARBLER, *Sylvania pusilla* (Wils.)

This warbler, regularly making its summer home north of the United States, sometimes lingers in the Rocky Mountain regions along its northward course, and rears its brood within our borders. One note was made of its occurrence along our itinerary, where it was found nesting at McDonald Lake, June 24, 1901.

687. AMERICAN REDSTART, *Setophaga ruticilla* (Linn.)

Abundant in all suitable localities near the Station. In June it was found nesting in numbers in the swamp woods between Swan River and Flathead River. Not frequently observed in the higher woods. Its songs were heard until the middle of August.

This species occurs commonly in the trees and shrubbery along the streamsides. We found it abundant at the foot of Flathead Lake, frequenting the haw groves and willows.

701. AMERICAN DIPPER, *Cinclus mexicanus* Swains.

Along the dashing waters of the falls above Sin-yale-a-min Lake the American dipper finds a congenial home. Its dark gray attire is quite in harmony with the rocks upon which it stands in the midst of the roaring rapids, as well as the sombre light of the thick forests which surround its chosen domains. Though we searched diligently among the rocks along the falls, we were unable to find a nest. The American diper was also observed along the outlet of the lake, where the little stream dashes among the boulders on its way down the ravine. We also noted it at the outlet of Lake McDonald.

The American dipper occurs not uncommonly along Swan River, between the head of the rapids and the mouth. Very likely breeds, as it was observed both in June and August.

704. CATBIRD, *Galeoscoptes carolinensis* (Linn.)

We found several families of the catbird near our camp at Crow Creek, one nest containing three helpless young and an infertile egg. The low crooning of the catbird was frequently heard in the thickets, and occasionally the louder recitals at daybreak. At our camp near Polson we found it to be one of the common visitors to the haw thickets, and it is very probable that nests were in the adjacent shrubbery.

Regular summer residents near the Station. Nests were found on the Helena Club grounds and in the shrubbery bordering Daphnia Pond. No notes were made concerning its occurrence in August.

721 b. WESTERN HOUSE WREN, *Troglodytes aedon aztecus* Baird.

Not uncommon on bushy hillsides near the Station. It was regularly noted in June, and notes were made regarding its presence in August.

715. ROCK WREN, *Salpinctes obsoletus* (Say.)

The rock wren was regularly noted at Selish, where it inhabited the rocky mountain-side east of the Jocko River bottom. No specimen was taken.

722. WINTER WREN, *Troglodytes hiemalis* Vieill.

The dark shades of the arbor vitae forest at the head of Sinyale-a-min Lake, through which the inlet dashes in its tortuous course, is peculiarly suitable to the desires of the winter wren. There is whiles away its hours in happy content, pouring forth with astonishing persistency its little roundelay of song, and whirring from one side of the stream to the other at fancy's impulse. As in the case with the American dipper, we searched for a nest of this diminutive songster of the brookside. With equal result we tried to secure a specimen without its falling into the hurrying water. There is no doubt, however, that the winter wren is a regular summer resident at this place, rearing its young undisturbed by wandering collectors, and making melody unheard except by occasional visitors to the falls.

Noted regularly in the thick woods along the inlet and outlet of Lake McDonald. It was still in song. As at Sin-yale-a-min, we were unable to secure a specimen without destroying or losing it in the hurrying water. This diminutive hermit of the arbor vitae forest is wonderfully expert in dodging observation, whisking in and out of the observer's view with provoking restlessness, and generally perching upon branches extending over the water.

726 b. ROCKY MOUNTAIN CREEPER, *Certhia familiaris montana* Ridgw.

The Rocky Mountain creeper was not uncommon in the woods near our various camps. It occasionally visited the adjacent trees, and was generally noted in our daily lists. Specimens were frequently taken on the grounds of the Biological Station.

727 a. SLENDER-BILLED NUTHATCH, *Sitta carolinensis aculeata* (Cass.)

Common in the vicinity of the lakes and water-courses. Like the creeper, it frequently manifested its presence near our camp by its weak, penny-trumpet call.

728. RED-BREASTED NUTHATCH, *Sitta canadensis* Linn.

Quite common in the woods near the Station. On the first day of our return to the Station, a specimen of this nuthatch was taken on the Club grounds. We also noted its occurrence at Estey's Pond, and in all suitable localities included in our August collecting.

735 a. LONG-TAILED CHICKADEE, *Parus atricapillus septentrionalis* (Harris.)

Common throughout the Flathead region.

738. MOUNTAIN CHICKADEE, *Parus gambeli* Ridgw.

This handsome chickadee is doubtless a common resident of the mountainous regions in the vicinity of Flathead Lake, but

it was not noted by us until Aug. 11, 1901, when a specimen was observed on MacDougal Peak, at an altitude of 6,500 feet. No other note was made regarding its occurrence.

748. GOLDEN-CROWNED KINGLET, *Regulus satrapa* Licht.

The golden-crowned kinglet was rather common in the mountainous woodlands of our itinerary, and undoubtedly breeds here, as it was noted regularly in the middle of June, always active in the tops of medium-sized evergreens and birches.

749. RUBY-CROWNED KINGLET, *Regulus calendula* (Linn.)

This diminutive inhabitant of the evergreen foliage was not uncommon in the wooded mountains. It was noted at Echo Lake, near MacDougal Peak, in the middle of July, several individuals generally associating in restless movements as they foraged among the trees fringing the water. One specimen was taken.

754. TOWNSEND'S SOLITAIRE, *Myadestes townsendii* (Aud.)

A young of the year of this species was taken on the cliff at the lower end of McDonald Lake. The female parent bird was observed at the same time, but she was not secured. No other specimens of Townsend's solitaire were noted, but its calls were often heard near our camp.

756 a. WILLOW THRUSH, *Turdus fuscescens salicicola* (Ridgw.)

One nest was found in June, in the willow swamp between the two rivers. The female was taken with the nest. No other specimens were taken, or other notes made concerning its occurrence. Later it was found to be not uncommon in the willow swamp-woods.

758 a. OLIVE-BACKED THRUSH, *Turdus ustulatus swainsonii* (Cab.)

This thrush is common in the region near Sin-

yale-a-min and McDonald Lakes. It did not appear to be nesting as commonly elsewhere as at Flathead Lake, as no nests of the season were found. However, a nest was found along the trail beside Sin-yale-a-min Falls, on a horizontal branch directly above the head within reach of the hand, containing two eggs, July 11. The notes of the olive-backed thrush were regular features of the woods during our stay at Sin-yale-a-min.

Abundant in all localities near the Station, and breeding in numbers in June. Probably disappears from the neighborhood about the middle of August, as our last notes regarding its presence were made on August 9.

761 a. WESTERN ROBIN, *Merula migratoria propinqua* Ridgw.

We did not find the robin as common near Sin-yale-a-min Lake as might be fancied. With the exception of one family on the northern shore of the lake, we did not note the occurrence of this species. In this instance, the parents were feeding young still in the nest.

A nest was found on the cliff-side east of McDonald Lake in a clump of maple, with three eggs. The robin was observed visiting the water falls in the face of the cliff, to bathe and drink.

Abundant in the vicinity of the Station as a summer resident. In the second week of August, the robin was observed in small flocks of ten to twelve. During the last week of August, the robin was feeding greedily on the black haws, associating with the cedar waxwing at the plenteous banquet.

768. MOUNTAIN BLUEBIRD, *Sialia arctica* Swains.

Not common, but occasionally observed and noted in our lists.

A specimen was taken on Mt. McDonald at an elevation of 7,500 feet.

SUMMARY AND CONCLUSION

Of the one hundred twenty-eight species included in the foregoing list, it is probable that at least eight are fall migrants, breeding in the far north and entering the United States early toward the close of summer. It is likely that the remaining one hundred twenty species breed in the Flathead Lake region or near the northern border of the state. At least thirty of the birds listed are permanent residents of the region; the others are summer residents only, spending the colder months in more southern localities.

In this connection it may not be amiss to make a brief statement of facts, gathered from the preceding notes, which are considered as worthy of special emphasis. The long-tailed chat, *Icteria virens longicauda*, according to the A. O. U. Check List of North American Birds, ranges north to southern Montana; our observations continue the northward range of this chat to beyond the middle line of the state, as we found it common at Selish in the middle of June. The note relating to the occurrence of the swamp sparrow, *Melospiza georgiana*, may require revision, as the specimen passed from the hands of the collector, who was unable to obtain authoritative identification; the skin is now in the University collection, and will receive careful attention in due time. The same statement applies to the specimen labeled western gull, *Larus occidentalis*, as there is a doubt regarding its identification. If authentic, it may denote an unusual eastern range for this gull.

The abundance of the western evening grosbeak in the vicinity of the Biological Station should be remarked. From the middle of July the characteristic chirp of this grosbeak was especially noticeable, and at that time parent birds were generally observed feeding young of the year in the trees near the station. There is no doubt that this grosbeak breeds plentifully in the neighborhood, and I am of the opinion that it nests later than is generally supposed, thus causing its nesting to be frequently overlooked.

In conclusion, the writer desires to thank the Director of the University of Montana Biological Station, Prof. M. J. Elrod for the excellent facilities afforded and the opportunity of a thorough study of the summer birds of the region under consideration; also to thank the President of the University of Montana, Dr. O. J. Craig, for the neat and artistic manner in which this report is presented for public distribution.

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FOURTH ANNUAL SESSION
University of Montana Biological Station
FLATHEAD LAKE.

Postoffice, Bigfork, Flathead Co., Montana.

The laboratory work of the Station will open Monday, July 14, and continue five weeks, or until Saturday, Aug. 16.

For a week or ten days before the Station opens and for two or three weeks after the work closes some one of the Station staff will be at or near the Station, and will aid any who may choose to work during such time. The laboratory is at the disposal of students, if it is wanted, from June 15 to September 1st.

STAFF OF INSTRUCTORS.

Oscar J. Craig, President of the University.

Morton J. Elrod, Prof. of Biology, University of Montana, Director of the Station, General Zoology.

P. M. Silloway, Principal Fergus County High School, Ornithology, Elementary Botany.

Maurice Ricker, Principal Burlington, (Iowa), High School, Nature Study, Plankton.

Harry N. Whitford, Assistant in Botany, University of Chicago, Forest Ecology.

Mrs. Edith Ricker, Station Artist.

ORGANIZATION.

The Biological Station of the University of Montana was established in 1899, for the purpose of offering to the students of the University and to the teachers and students of the State an opportunity for study, collection, investigation and recreation during the summer. By providing the best facilities the state can afford, and making the instruction free to all, the summer work at the Station presents exceptional opportunities for study, and every encouragement is given to those attending to have both a pleasant and a profitable time. The situation of the Station on the largest fresh water lake in the Northwest makes possible a study of inland and cold water life not presented at any other locality.

LOCATION.

The field laboratory is located on the bank of Swan River at its outlet into Flathead Lake. This location affords a fine harbor for boats and a good camping site for the tents of those attending. The adjacent region contains forests, ponds, lakes, swamps, cultivated fields, mountains, rivers and ravines. It is rich in animal and vegetable life. The lake offers rare opportunities for collecting, and presents some beautiful scenery. East of the lake the Mission range comes abruptly to the water's edge. The range slopes from the Swan river on the north to the high peaks, ten thousand feet, at the southern end, and its scenery is wild, rugged and grand, truly Alpine in character, and rivaling the Alps in beauty and magnificence. West of the lake are the Cabinets. Near the Station Swan lake, Rost lake, Echo lake, and other waters, are easily accessible. Daphnia pond ,a few minutes walk from the Station, is rich in pond life, while Estey's pond, about as far again, is fully as productive.

EQUIPMENT.

The Station is in possession of three boats for use of students; a gasoline launch, Missoula; a 16-foot wood row boat, Culex; and a 14-foot canvas boat, Daphnia; the latter for use when it is necessary to transport a boat. The building is a convenient out-door laboratory, with tables for a dozen students. There is a dark room for photography. Microscopes, glassware, books, and utensils will be supplied from the University.

Botanical material, insect nets, pumping apparatus, and other collecting paraphernalia will be supplied.

Students in Ornithology must supply their own guns. Necessary ammunition will be supplied. Students in Photography will furnish their own cameras and plates. The necessary chemicals for development will be supplied. Students who live in tents will supply their own tents and bedding.

COURSE OF STUDY.

Zoology:

(a) Laboratory and field work, including dissection or microscopic study of type forms, with field work and instruction in collecting and preserving for laboratory use and permanent collections. Prof. Elrod.

(b) Field and laboratory course in entomology. Instruction in collecting, preserving and labelling insects. Dissection and study of type specimens. Prof. Elrod.

(c) A course in plankton methods. Collecting of microscopic organism, determination of quantity, examination of material. Prin. Ricker.

(d) Ornithology. A study of birds, with methods of collecting, making and preserving skins; habits and lives of birds of the rich avian region adjacent. Prin. Silloway.

Botany:

(a) Laboratory and field course; study of type forms. The course will consist of collecting trips in the field where common species of the different orders are found, classification of the more common species, study of structure, with methods of preservation, both dry and in liquid, for immediate and permanent use. Prin. Silloway.

(b) Forest Ecology: This course will consider the problems connected with forest botany. The work will be mainly in the field. Limited areas will be examined carefully to find out, if possible, the order of succession of different forests and to determine the relations of other plant societies to forest societies. More hasty surveys of larger areas will be made to verify and, if need be, to change the conclusions.

The following lectures, and possibly others, will be given in connection with the field work.

Factors controlling distribution of plants.

The tension zone between the prairie and the forests.

The genetic relations of plant societies in an alpine region: Mr. Whitford.

(c) Laboratory course, work to be arranged.

Photography:

No regular course will be given in this subject, but every aid which the station can give will be given those who wish to become proficient in this art. Students in photography must supply their own plates or films and paper. There is a dark room at the laboratory and the scenery in the vicinity gives ample scope for a series of negatives either in landscape or of scientific subjects.

Nature Study:

For those who may desire it a course of study and practical work will be outlined which will afford both a fund of information on which to draw during school work and at the same time secure a collection of material to be used in illustration. The scope of the work will include zoology, botany, geology, and physiography of the region. Prin. Ricker will direct the work.

METHODS OF INSTRUCTION.

The work will consist very largely of field collecting and observation, study of relation to environment supplemented by laboratory dissections and microscopic examination. The general courses will enable teachers to familiarize themselves with methods of field work, and give a store of information from which to draw in nature study subjects. The general courses also give opportunity to students and others to pursue lines of study with better facilities for out door work, with fresh material, than is generally to be had in regular university work. For this work students may receive credit on regular university and preparatory courses which are an equivalent.

Five days in the week will be devoted to laboratory and field work. The sixth will be given up to excursions. For the past three years it has been the custom at the Station to have campfire discussions. These have proven helpful and valuable, and will be continued.

The work of the Station is materially advanced by co-operation with the University of Chicago. Mr. H. N. Whitford will arrive at the Station about August first with a class, and will prosecute botanical study in the region. Students from the state may join his classes and receive all benefits therefrom.

CREDIT FOR WORK.

Students attending the station may have credit on the University of Montana books for such work as may be done, either as college or preparatory, whichever may be proper. Students in work of Mr. Whitford may have credit on the University of Chicago books on payment of tuition fee.

LECTURES.

During the session the lectures following will be given at the laboratory. They will be given daily, at least one each day. The list will probably be increased, and may be slightly modified. They are free to all students attending, and to any others who may choose to hear them.

Natural Counterfeits, Mimicry and Protective Resemblance, illustrated by water color drawings; The Life History of a Dragonfly, illustrated by specimens; The Life History of an Oak, illustrated by water color drawings; The Anatomy and Distribution of the Hydra, illustrated by specimens; The Entomostraca, their Numbers, Distribution and Utility; Some Animal Allies of Common Plants, stories of adaptation for cross fertilization, illustrated by water color drawings; Recognition of Birds in the Field; Types of Nests of Birds, with special reference to the region; Physiography of the Region Adjacent to the Station; Daphnia Pond, a Study of Environment; How to Study a Bird; Bird Songs and their Significance; Migration of Birds, causes, direction, distance, etc.; Natural History in the Graded Schools; Insects as Friends and as Foes, with practical illustrations; The Game Birds of Montana, recognition, number, habits, etc., Photography, Its Use in the Class Room and in Science; Factors controlling the Distribution of Plants; The Tension Zone between the Prairie and Forests; The Genetic Relations of Plant Societies in an Alpine Region.

EXCURSIONS.

The following excursions will be taken during the session of the Station work, unless the weather is unfavorable.

1. A trip to Swan Lake, through the forests, with stop over night at the lake. This is a beautiful lake in the mountains, of great interest biologically and geologically.

2. A trip to Rost Lake, at the base of the Kootenay Mountains. This is a lake almost filled up, a fine collecting field. It is in an admirable location for camps.

3. An ascent of MacDougal Peak via an Indian trail, to an altitude of 7,650 feet. This will afford opportunity for alpine collecting, and will present some of the most sublime scenery in the world.

4. A trip around Flathead Lake, making study of its banks, bays, and swamps.

These trips will be under the personal supervision of Director of the Station. Those taking the trips must bear a proportionate share of the expense necessary. Such will prove of great value and interest biologically aside from the pleasures they bring.

RECREATION.

Many will wish to combine an outing with study. Fishing near the laboratory is excellent. There are many boats besides those of the Station, and rowing may be indulged in. The field is excellent for photography. Bathing in the lake is always a treat and the beach is fine. The region has an abundance of fruit of all kinds. The hills and forests afford quiet retreats for study or for strolls. Few places have more natural attractions. At the proper season hunting is good. Deer have been seen a few rods from the laboratory. Grouse and pheasants abound in the hills. In season duck shooting is fine. Most of the country affords good wheeling for bicycles.

FEES AND EXPENSES.

There are no tuition fees. Students attending will be charged for material consumed, for breakage, for a share of the expense for excursions, and like necessary expense. Necessary books, chemicals, micro-

scopes, and glassware will be supplied free. The intention is to give the best facilities possible, so as to make it worth while for students to attend.

Good board may be had convenient to the laboratory for $5.00 per week, with room extra. It is customary for most of those attending to sleep in tents, on the Station grounds, taking meals only. For those who wish to tent and cook in regular camp style there will be every opportunity given for comfort, the region affording a bountiful food supply of everything necessary, but those attending will be expected to supply their own tents and bedding.

AFTER THE SESSION.

Mr. Whitford's students will spend two weeks at the Station, after which two weeks or more will be devoted to study of mountain flora and environment, under his guidance and direction.

The Director and some of the staff will continue investigations on Flathead Lake and Echo Lake for three or four weeks after the regular work of the Station closes, using the laboratory as headquarters.

The laboratory building and grounds may be used by those who wish to carry on investigative work at all times during the season. It makes an excellent place for headquarters. Correspondence in regard to above work is invited.

DATE OF OPENING.

The course of instruction will open Monday, July 14, and continue five weeks. It will be most satisfactory to enter at the beginning, but from the nature of the work students may enter at any time.

Applications should be made as early as possible, as the accommodations are limited, and the material taken from the University will of necessity be only enough to supply those in attendance.

A collecting trip will be taken after the Station closes. It will be possible for a very small number to accompany this expedition on payment of a share of the expense. For details see "After the Session."

HOW TO REACH THE STATION.

Students via Northern Pacific will get off at Selish. Stage triweekly runs to Flathead Lake, (35 miles), connecting with steamer Klondike, which runs across the lake. Stage fare, one way, $3.00, round trip, $5.00, trunks extra. Boat fare across the lake, one way, $3.00, round trip, $5.00. Stage leaves Selish on Mondays, Wednesdays and Fridays, connecting with the steamer, returning the same day.

Students via Great Northern will get off at Kalispell, connecting by stage with the steamer Klondike at Demersville, a short distance from Kalispell.

OPPORTUNITIES FOR INVESTIGATION.

Any one wishing to engage in investigation of biological problems pertaining to the life of the locality, before or after the regular work, will be given the freedom of the building, boats and apparatus, and will be offered every facility possible. In such cases no fees will be charged, except for special material or reagents which may be needed.

WHO HAVE ATTENDED.

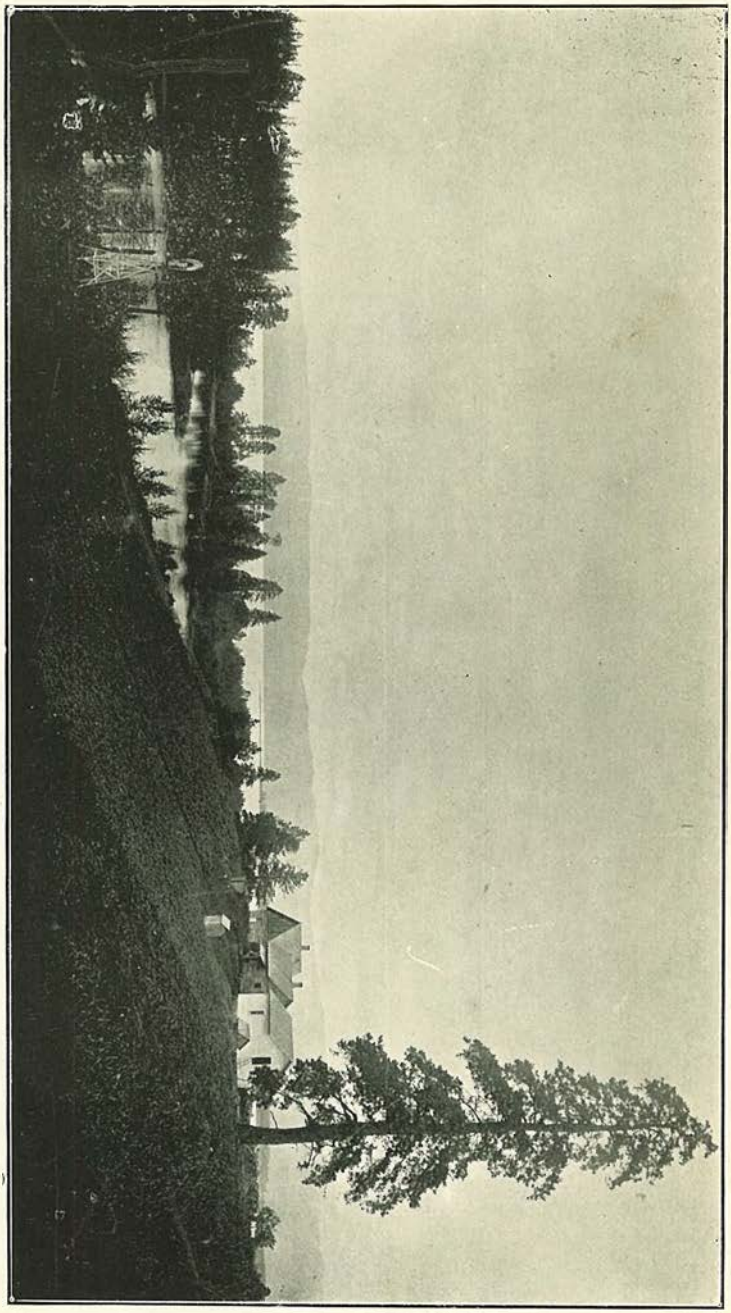
During the three years the Station has been opened the attendance has been from many states other than Montana, eight states having had representatives, representing colleges, academies, private schools, high schools, principals of public schools, students of different educational institutions, teachers of graded and country schools, and people in professional and private life. As a place where maximum work may be accomplished with minimum loss of time in a new field, under competent guidance in finding material and localities, the Station will appeal to any one interested in the work it is doing.

For further information relative to courses, routes, expenses, necessary outfit, etc., address,

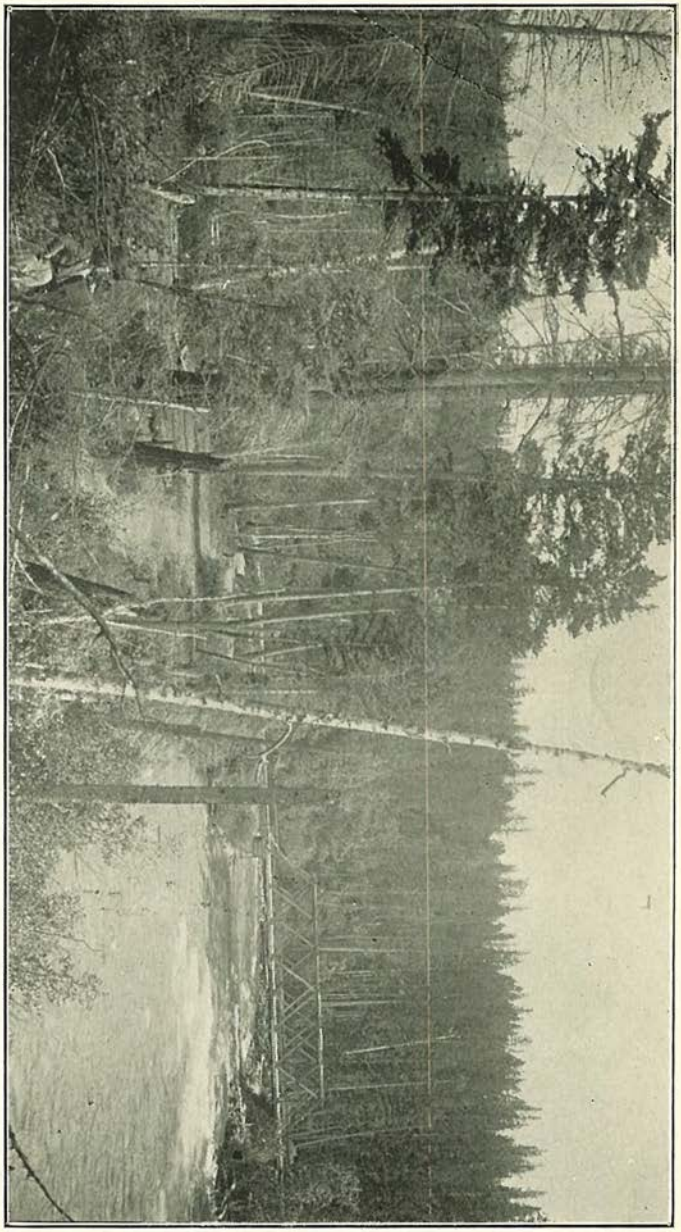
MORTON J. ELROD,
Missoula, Montana.

For any information concerning the University of Montana, its departments, courses of study, etc., address,

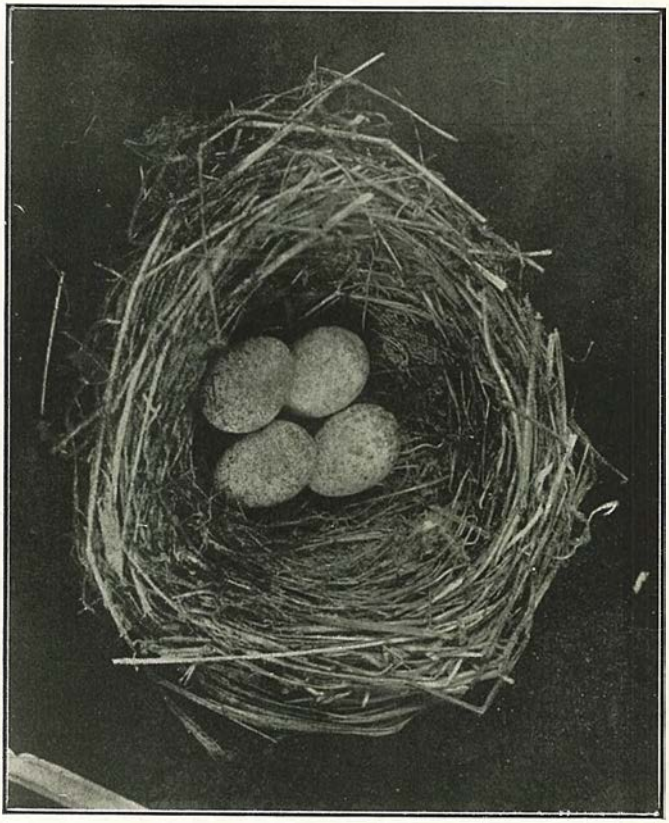
OSCAR J. CRAIG, President,
Missoula, Montana.



View of the Outlet of Swan River and the Upper End of Flathead Lake at the Biological Station.



Swan River, at the Biological Station, Showing characteristic Forest of the Region.



Nest and Eggs of Olive-backed Thrush.

FIG. 1. Nest and Eggs of Wright's Flycatcher, *Empidonax wrightii* Baird. Compare with Plate VII and XVI.

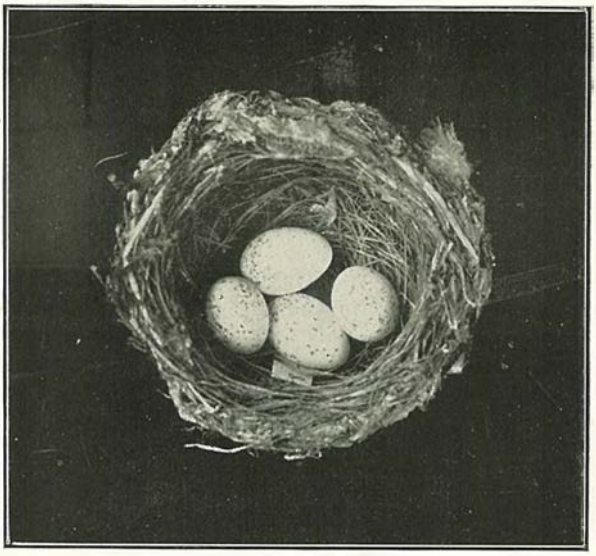
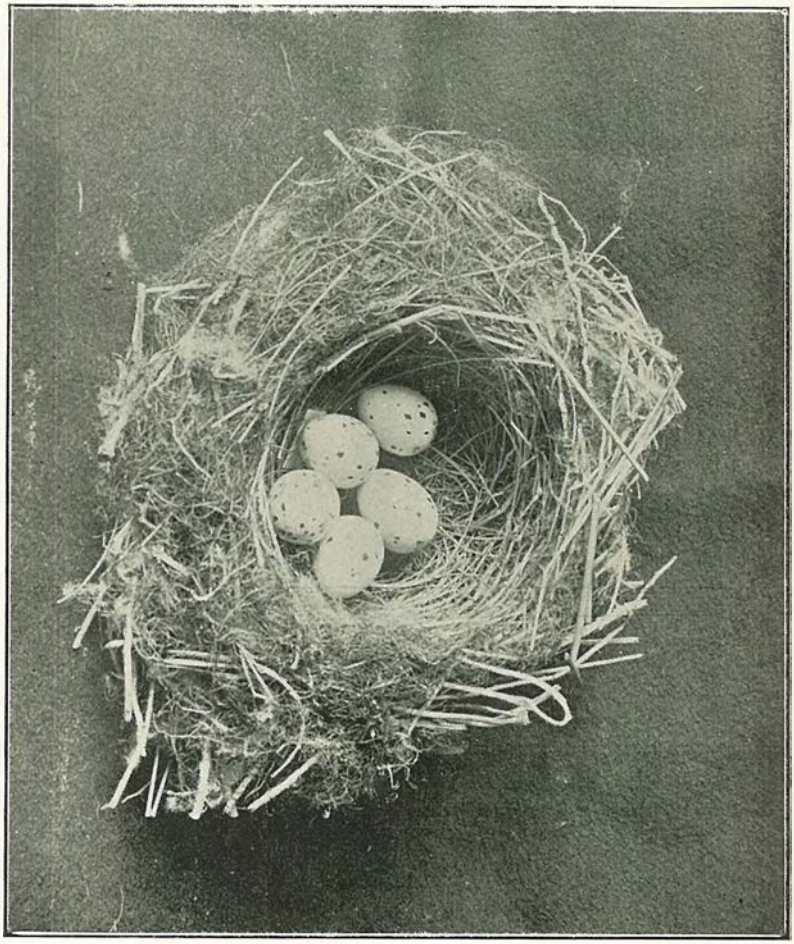
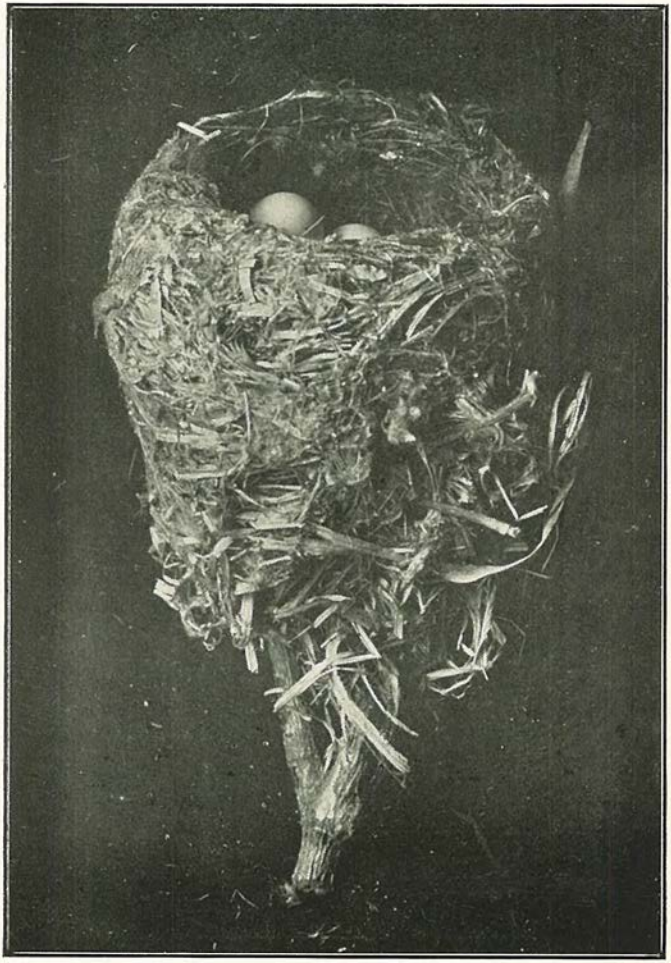


FIG. 2. Nest and Eggs of American Redstart *Setophaga ruticilla L.*



Nest and Eggs of Cedar Waxwing, *Ampelis cedrorum* Vieill.

Nest and Egg of Black-headed Grosbeak, *Habia melanocephala* Swains.



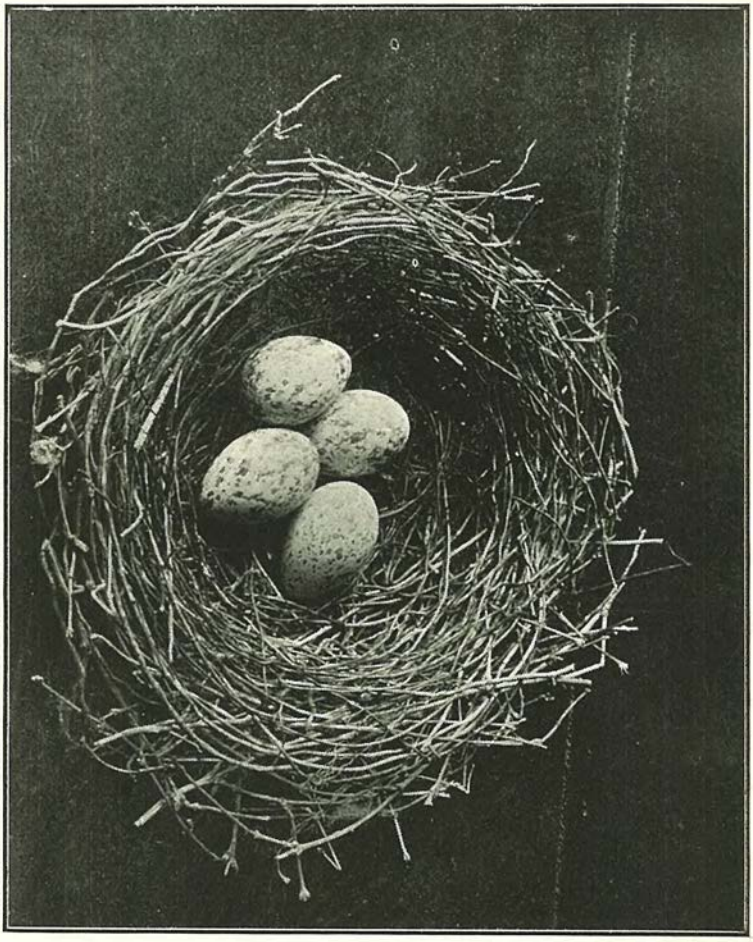
Nest and Eggs of Wright's Flycatcher, *Empidonax wrightii.* Compare with Plate IV, Fig. 1, and Plate XVI.

FIG. 1.

FIG. 2,

Fig. 1. Osprey Nest on the Bank of Swan River, opposite the Biological Station. Taken with wide angled Lens, orthochromatic Plate.

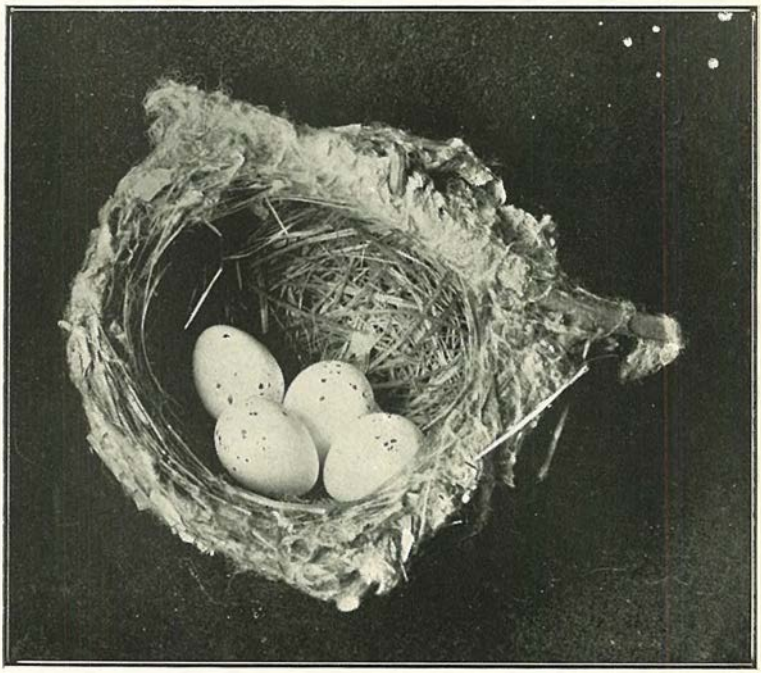
Fig. 2. Same Nest as Fig. 1, taken from the same Place and at the same Time, with telephoto Lens, magnification eight Diameters.



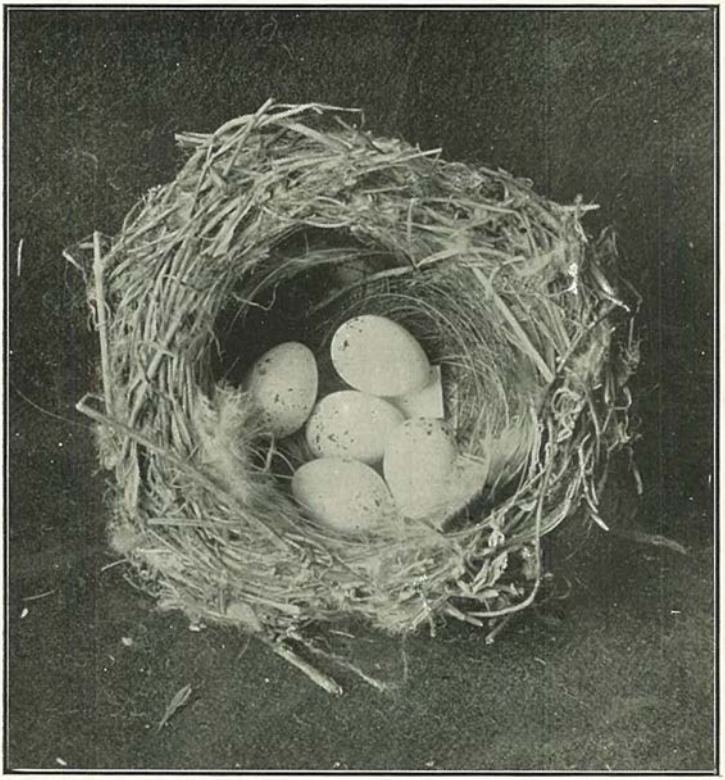
Nest and Eggs of Black-headed Grosbeak, *Habia melanocephala* Swains. Compare with Plate VI.

Nest and Eggs of Lazuli Bunting, *Passerina amoena* Say.

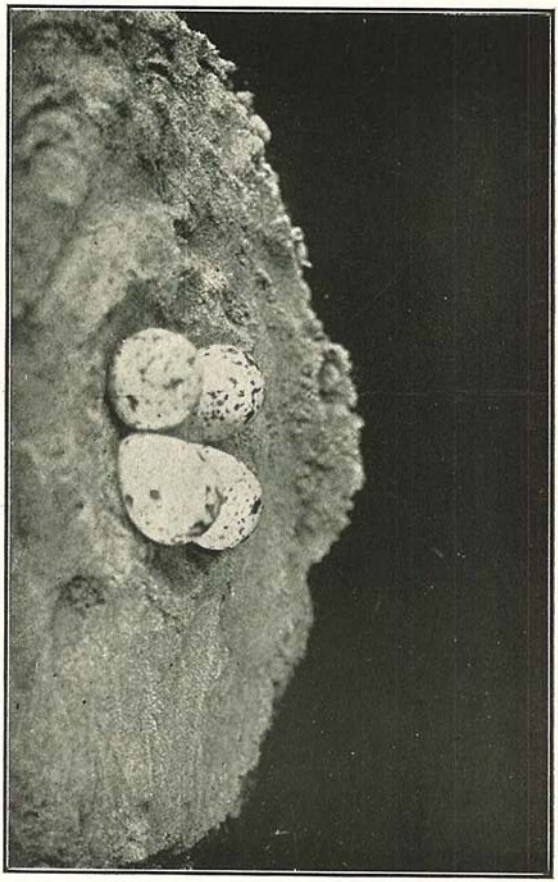
Nest and full Complement of Eggs of Red-eved Vireo, *Vireo olivaceus* L. From Photograph with Orthochromatic Plate and Ray Filter.



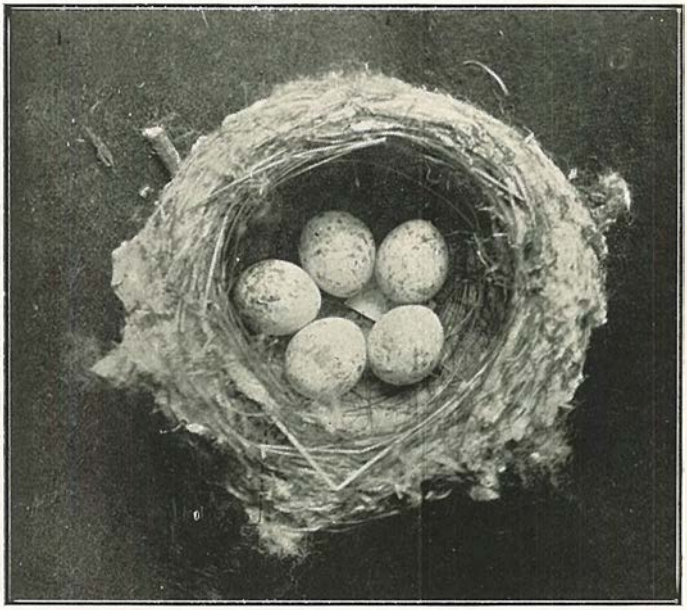
Nest and Eggs of Warbling Vireo, *Vireo gilvus* Vieill.



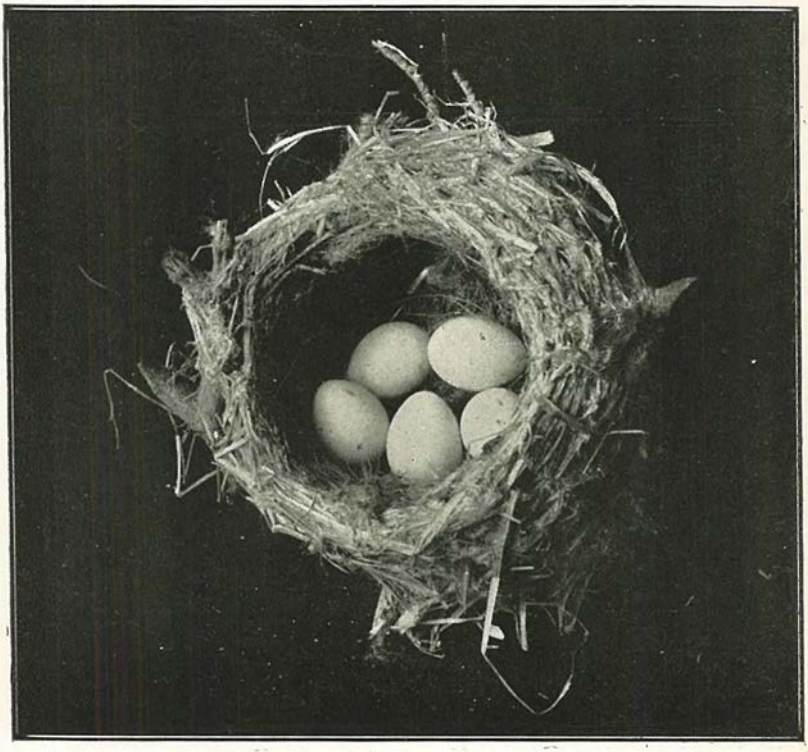
Nest and Eggs of Andubon's Warbler, *Dendroica auduboni* Towns. From Photograph made at the University of Montana Biological Station, with Orthochromatic Plate and Ray Filter.



Eggs of the Spotted Sandpiper, *Actitis macularia* Linn., in an artificial Nest of Sand, modelled after a Nest found on the Beach.



Nest and Eggs of Yellow Warbler, *Dendroica aestiva* Gmel. From Photograph made at the University of Montana Biological Station.



Wright's Flycatcher, *Empidonax wrightii*. Top View, looking into the Nest. Compare with Plate IV, Fig. 1, and Plate VII.