

<i>Zenaidura macroura</i>	<i>Cyanocephalus cyanocephalus</i>
<i>Cathartes aura</i>	<i>Icterus bullocki</i>
<i>Buteo borealis calurus</i>	<i>Carpodacus mexicanus frontalis</i>
<i>Aquila chrysaetos</i>	<i>Chondestes grammacus strigatus</i>
<i>Falco mexicanus</i>	<i>Spizella socialis arizonæ</i>
<i>Falco peregrinus anatum</i>	<i>Amphispiza bilineata deserticola</i>
<i>Falco sparverius deserticolus</i>	<i>Petrochelidon lunifrons</i>
<i>Bubo virginianus pallescens</i>	<i>Tachycineta thalassina</i>
<i>Geococcyx californianus</i>	<i>Stelgidopteryx serripennis</i>
<i>Dryobates villosus</i> (subspec?)	<i>Lanius ludovicianus excubitorides</i>
<i>Phalænoptilus nuttalli</i>	<i>Vireo vicinior</i>
<i>Chordeiles virginianus henryi</i>	<i>Mimus polyglottos leucopterus</i>
<i>Aeronautes melanoleucus</i>	<i>Toxostoma bendirei</i>
<i>Trochilus alexandri</i>	<i>Salpinctes obsoletus</i>
<i>Selasphorus rufus</i>	<i>Catherpes mexicanus conspersus</i>
<i>Tyrannus verticalis</i>	<i>Parus inornatus ridgwayi</i>
<i>Myiarchus cinerascens</i>	<i>Psaltriparus plumbeus</i>
<i>Sayornis saya</i>	<i>Polioptila plumbea</i>
<i>Aphelocoma woodhousei</i>	<i>Sialia arctica</i>
<i>Corvus corax sinuatus</i>	

Feathers Beside the Styx.

BY EDGAR A. MEARNS.

STRANGERS to the Yellowstone National Park are apt to regard the truest statements respecting its wonders as nothing short of startling. Possibly their confirmation may cause the pendulum of credulity to swing too far in the opposite direction. Certain it is that some of the tales of the Park to which credence is generally attached require scientific corroboration, and none more so than those which relate to supposed death pens in which animals, large and small, perish in numbers.

When traveling with my wife through the Yellowstone region, fourteen years ago, vague accounts reached us of hollows and places filled with deadly gases into which all creatures passing must leave hope and life behind. These whisperings, later, culminated in the story of the tragic death of "Wahb," the grizzly, from the facile pen of Ernest Thompson Seton. On returning to the Park, in April, 1902, I learned that to doubt the existence of a valley or canyon of death, bestrewn with the decaying carcasses of bears and other beasts, somewhere in that region, was to display hopeless ignorance of fact. Men of high position and undoubted veracity had testified, as eye-witnesses, to these things; but Captain Hiram M. Chittenden, U. S. A., an engineer officer charged with carrying on extensive improvements now in progress in the Yellowstone National Park, tells me that, notwithstanding his great familiarity with the topography of the Park, no such place is known to him. When such an alleged locality was reached the huge dead beasts had vanished, and no more than a fragment of bone such as might be found anywhere in the region was visible.

Though we were unable to set foot on the bank of a veritable River Styx, any

tourist may conveniently visit the "Stygian Cave," at the Mammoth Hot Springs, and find there the bodies of many little birds whose spirit passed away as they entered. There are many such spots about the mineral "formation," almost two miles in extent, around these boiling springs, where Fort Yellowstone is located. Mrs. Pitcher, wife of the present Park Superintendent, showed me some of these "Stygian" caves, in April, 1902; and, thereafter, I often examined such "bird caves" as I had found, or searched for others. In any hollow capable of holding the heavy gas (supposed to be carbon dioxide) fatal to animal life, dead birds were liable to be found, provided that the usual accompaniment of heat and moisture (from steam), and sulphurous odors (from emanating gases) were found. Most of the dead creatures were birds; but there were, besides, many insects, and a few small mammals. Doubtless larger animals may have been killed in some of these pockets filled with gas, although the flame of a candle was rarely extinguished before it came near the ground. When picking up dead birds I always took the precaution to hold my breath. Moisture and a distinct warmth to the ground were always felt. The effect on bird bodies was to cause rapid decay, the flesh quickly disappearing, then the bones, and lastly, the feathers. Upon the latter a caustic action was observed, the bases of the feathers being eaten away, until, in some instances, only the tips of the feathers remained and retained the form of the bird, at last sinking flat upon the ground and soon leaving no trace. The remains were sometimes so indefinite that it was impossible to identify all of the species, or to make an exact count. In fact, I made no systematic effort to observe and record regularly the effects of these caves on the bird life of the locality, although my note books contain some data.

On first visiting the caves, in April, remains of the magpie, Townsend solitaire, pink-sided junco, pine siskin, and Rocky Mountain nuthatch were found.

May 16, many pink-sided juncos, warbling vireos, and a few Cassin purple finches, and one Macgillivray warbler were among the victims, at the few caves then known to me. At the "Stygian Cave" proper, in dangerous proximity to the deadly gas, a pair of Townsend solitaires were engaged in building a nest in a hollow of the rock. On my next visit the nest had been finished, but both of the little architects were lying dead at the bottom of the cave, pathetically near each other, their outspread wings touching one another. They perhaps descended to gather building materials, or to drink.

During June and July dead birds were seen whenever the caves were visited. Among them were always some Townsend solitaires, Audubon warblers, and Louisiana tanagers. It almost seemed that the Stygian caves possessed some peculiar attraction for the unfortunate birds; but it is probable that a damp and shady nook offered a sufficient allurements, and that curiosity prompted some to follow companions that had preceded them.

August 1, 1902, eleven birds were found dead within the cavern known as the "Stygian Cave," as follows: Two pine siskins, four pink-sided juncos, (all young of the year, with striped underparts), two warbling vireos, two Louisiana tanagers (adult female and young of the season), and one mountain chickadee.

During the September migration an unusually large number of birds perished, but I have kept no record of them. The largest number were pink-sided juncos.

October 15, 1902, dead birds were found in twelve caves. In all fifty-eight birds and a mouse (*Peromyscus texanus subarcticus* J. A. Allen) were counted. These were: one Clarke nutcracker, six pine siskins, thirty-five pink-sided juncos, one green-tailed towhee, one Louisiana tanager, four red-breasted nuthatches, four mountain chickadees, three Townsend solitaires, and three western robins.

Of these, four pink-sided juncos, three red-breasted nuthatches, and two mountain chickadees were fresh enough to be skinned, and were preserved as specimens. Two days later, the only fresh corpses were a mouse, a grasshopper, and a Rocky Mountain creeper, which latter was preserved, having just died. During the ensuing week no additional birds were asphyxiated.

Although unable to estimate the number of birds that perished in the caves adjacent to the Mammoth Hot Springs during the past season, I am of the opinion that the number reached into the hundreds if not thousands. Birds were found dead in about thirty different caves and hollows about the "formation," between Snow Pass and the Mammoth Hot Springs Hotel, near which latter the lowest "bird cave" was discovered. At the suggestion of Mrs. Charles B. Byrne, who visited the Stygian caves in 1902, I requested the Park Superintendent to have the most important caves provided with wire screens for the purpose of keeping birds from entering them, and this will doubtless be done before another season, as the Superintendent and his wife are much interested in the matter.

Following is a list of the species of birds which I found dead in the "Stygian" caves, from April to December, 1902:

1. *Pica pica hudsonica* (Sab.). Black-billed Magpie.
2. *Nucifraga columbiana* (Wils.). Clarke Nutcracker.
3. *Carpodacus cassinii* Baird. Cassin Purple Finch.
4. *Spinus pinus* (Wils.). Pine Siskin.
5. *Junco mearnsi* Ridgw. Pink-sided Junco.
6. *Oreospiza chlorura* (Aud.). Green-tailed Towhee.
7. *Piranga ludoviciana* (Wils.). Louisiana Tanager.
8. *Vireo gilvus* (Vieill.). Warbling Vireo.
9. *Dendroica auduboni* (Townsend). Audubon Warbler.
10. *Oporornis tolmiei* (Townsend). Macgillivray Warbler.
11. *Certhia americana montana* (Ridgway). Rocky Mountain Creeper.
12. *Sitta carolinensis nelsoni* Mearns. Rocky Mountain Nuthatch.
13. *Sitta canadensis* Linn. Red-breasted Nuthatch.
14. *Parus gambeli* Ridgway. Mountain Chickadee.
15. *Myadestes townsendii* (Aud.). Townsend Solitaire.
16. *Merula migratoria propinqua* Ridgway. Western Robin.

Some Unusual Nests of the Bullock Oriole.

BY C. S. SHARP, ESCONDIDO, CAL.

The popular idea of an oriole's nest seems to be that it is always pensile, supported wholly from the top and the lower part, large and purse-shaped, hanging free to sway with every breeze. I have never seen an illustration of one that was not of this description.

In my observations of nests of the Bullock oriole (*Icterus bullocki*) I have found two distinct types, and presume the same forms are found in the nests of its nearest eastern relative (*galbula*), the nests of others of the genus hardly coming into comparison.

These two types are the truly pensile and what is generally termed the semi-pensile form, although, in reality, it is not pensile at all. With *bullocki* the latter