

A half mile below are one or more well-marked semicircular terminal moraines.

Two miles northwest of San Geronio, and in another northeastward facing cirque was a glacier which carried down a vast amount of débris to within a quarter of a mile of the termination of the large glacier already described. A small body of water known as Dollar Lake occupies the last resting place of the ice close up under the rocky cliffs.

Following the ridge westerly for two miles more we come to a cirque-like basin close up under the crest and forming the head of Hathaway Creek. Here was perhaps the most interesting glacier of all in the district. It was a long narrow tongue of ice which reached downward a mile and left the most perfect moraines seen. Five semicircular terminal moraines cross the cañon and upon its eastern side is an ideally perfect marginal moraine. The middle one of the terminal moraines is formed of immense blocks of rock and looked at from below its curving front forms a great wall nearly 100 feet high. The lowest moraine, 1,000 feet farther down the cañon, is formed of the finest material of any, as though when the first ice tongue came down it found the surface soft and deeply disintegrated. The phenomena here indicate that glaciation was of considerable duration, and that the history of the period was anything but simple.

The last glacier on the ridge was a small one nestling also in a northeast-facing alcove near the top of San Bernardino Mountain.

None of these glaciers appear to have descended much below 8,500 feet, and it will be seen from the descriptions given that the conditions had to be just right for their appearance at all. Such conditions were a northward or northeastward facing alcove which headed sufficiently close to the crest to receive the snows which drifted over its summit. The west fork of Hathaway Creek, which headed nearly as high as the glaciated one, was separated from the crest by a plateau-like shoulder and in its sharp V-character appears never to have contained anything of a glacial nature.

There seems to be no other possible interpretation of the phenomena observed but that of glacial action, and it is quite remarkable that this extensive lofty region known to have a heavy precipitation and to contain a boreal fauna and flora should not long before have been investigated in regard to the possibility of its having been glaciated.

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MALLOPHAGAN PARASITES FROM THE CALIFORNIA CONDOR

THE great vulture or condor of California, *Gymnogyps californianus*, although not as rare a bird as reported by most bird books is yet so uncommon and shy, and hence so rarely seen, and is such an extraordinary great feathered animal, that it is one of the most interesting of American birds. It ranges north and south through the mountains of the state, nesting in wild and inaccessible places. It is nearly, if not quite, as large as the condor of the South American Andes, averaging four and a half feet in length and ten feet in spread of wing. The female lays a single enormous egg ($4\frac{1}{2} \times 2\frac{1}{2}$ inches), specimens of which are rarer in collections than those of the great auk.

Up to the present time no Mallophaga (biting bird lice) have been recorded from this bird giant. However one of my students of several years ago, C. S. Thompson, a student of birds as well as of insects, took a number of Mallophaga from a single condor and I have just taken time to go over this material. It includes only two species, a small *Menopon* and a *Lipeurus* of average size.

The *Lipeurus* belongs to the well-characterized group of sex-guttati (with six curious chitinized spots on the anterior half of the head), whose members are found only on raptorial birds, especially the larger kinds as vultures and eagles. The group affinities of the specimens (two females and a male) are certain, but whether they should be assigned to one of the few already described species of this group or be looked on as representatives of a new form is not so easily determined.

On the whole, I am inclined to align them with Giebel's long-known species *Lipeurus assessor*. Giebel described the species from specimens taken from the South American condor, *Sarcorhamphus gryphus*. Piaget found it again on the same host and Carriker has taken it on the king vulture, *Gypagus papa*, in Costa Rica. As the range of the king vulture and the California condor almost overlap (the king vulture is said to occur occasionally in Arizona) it is, at first thought, not surprising that the single parasite species is common to all three of these great American vultures.

Osborn has found a *Lipeurus* on the turkey buzzard (*Cathartes aura*) in Iowa, but describes it as distinct from *assessor* under the name *marginalis*. His specimens (two) are smaller by a third than *assessor* and have their markings "confined to the narrow marginal lines."

The single *Menopon* specimen, a female, can also, I think, be ascribed to an already known species, namely *Menopon fasciatum*, collected by Rudow from the South American condor (*Sarcorhamphus gryphus*) and by Carriker from the king vulture (*Gypagus papa*). The exact determination of this *Menopon* species is made very difficult, if not impossible, by Rudow's incomplete description, but Carriker's figure and what there is of the original description correspond too well with my specimen from the California condor to make necessary the establishment of a new species for it.

It is highly interesting—at least it is to me—to find two parasitic species common to all three of the great vultures of the American Cordillera. But the range of these birds, although extending north and south for several thousand miles, is nearly continuous when the three species are taken as one host type. Looked at in this way the geographical range of the parasites seems explicable. But when we keep in mind the facts that the host type is really a compound of three taxonomically quite distinct units—they represent three separate genera to the ornithological systematist—and that the individuals of each of these host units are particularly non-gregarious,

even solitary, birds, preventing, almost certainly, any actual bodily contact between individuals of the different species and, except at mating and nesting time, any such contact even among individuals of any one of the species—when we face these facts the distribution of these wingless parasite species comes to assume the interest and importance of a problem. What is its solution?

I can simply reiterate my belief, already several times previously declared, that such cases can only be explained on the assumption of the occurrence of the parasite type on the common ancestor of all three of the related (although generically distinct) host types, and its persistence practically unchanged on each of the diverging descent products from this original ancestor-host.

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FUR-SEALS DOMESTICATED

UNTIL a few months ago, no authentic instance was on record of Alaska fur-seals (*Callorhinus alascanus*) being fed in captivity and living for any length of time in other than their natural environment. Apocryphal tales exist on the Pribilof Islands of fur-seals having been tamed and living thereafter in the habitations of human beings on the islands. In the early seventies, the Alaska Commercial Company placed two immature live fur-seals, exact ages not definitely known, in Woodward's Gardens in San Francisco, which were confined within an enclosure, and which died of starvation after several months' incarceration, having eaten nothing during the interval.

This experiment at Woodward's Gardens fixed the idea that fur-seals would not feed in captivity. In view of this belief, it is specially interesting to announce that Mr. Judson Thurber, boatswain on the revenue cutter *Bear*, has succeeded in inducing two fur-seal pups to take food voluntarily and in keeping them alive and well in captivity from October 9, 1909, until the present time. A brief account of this successful experiment is given.

The effort had its inception in the desire of