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THE DISPLAY OF RICHARDSON'S GROUSE, WITH SOME
NOTES ON THE SPECIES AND SUBSPECIES OF
THE GENUS *DENDRAGAPUS*.

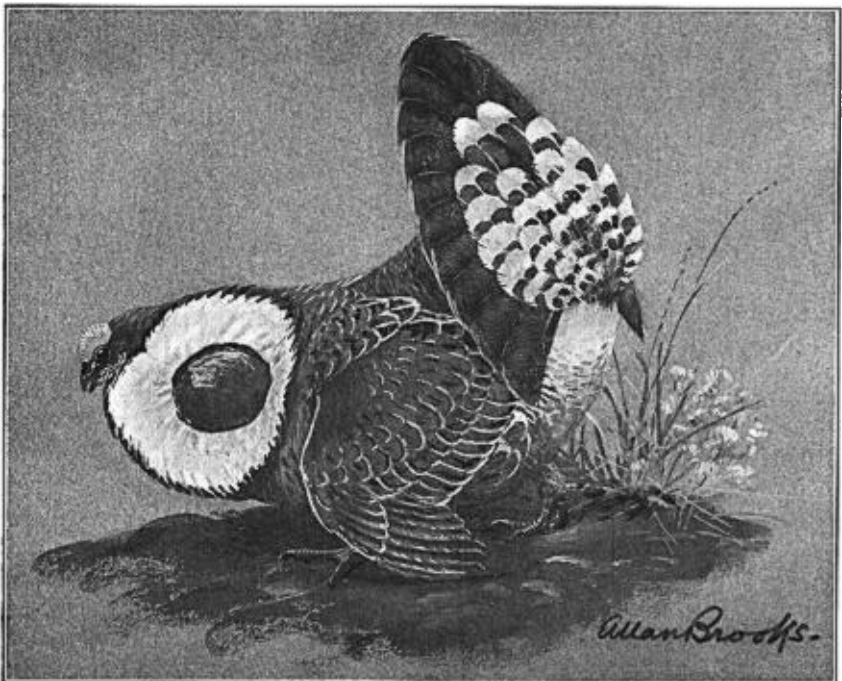
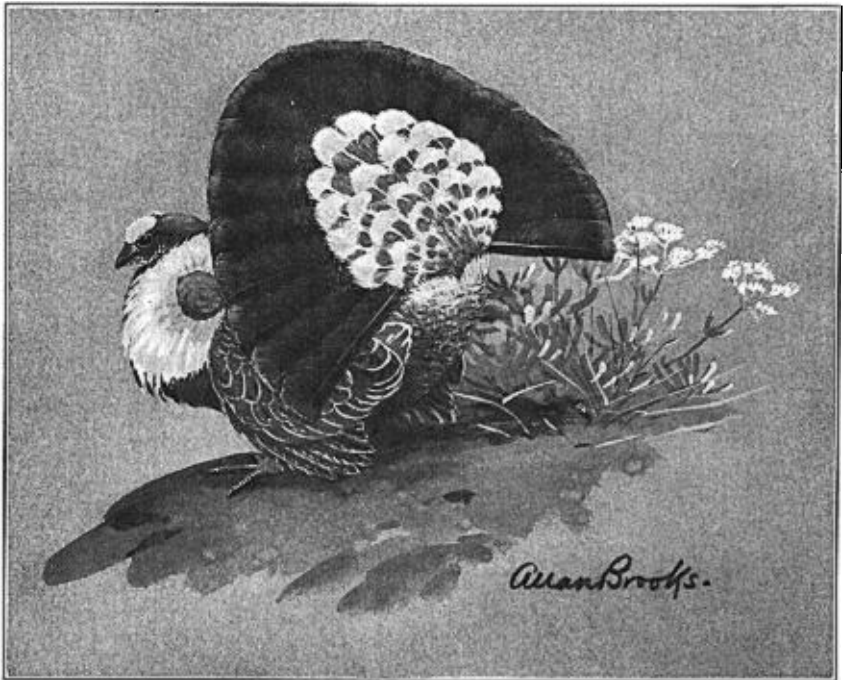
BY ALLAN BROOKS.

Plates X-XI.

BRITISH COLUMBIA is a mountainous province. To most visitors the impression it leaves is of mountains and nothing else, but there are vast areas in the interior where the rugged grandeur of heavily forested mountains is subdued to a park-like aspect of low hills with higher buttes and ridges that for the most part stop far short of the timber-line altitude. Here the spring comes early and the snow is soon gone from the rolling foothills with their scattered forests, park-like glades, and wide stretches of open treeless range-land.

Here all through the months of spring and early summer at long intervals a single note of a most elusive quality may be heard—"Oop!" It would puzzle anyone not acquainted with its author to guess whether it was uttered by bird, beast, or amphibian, or again it might pass entirely unnoticed among the many other bird voices.

This is the love-note of Richardson's Grouse (*Dendragapus obscurus richardsoni*). After seventeen seasons spent in the region it was not until the spring of 1925 that I was able to solve the mystery of its utterance. True I made no special effort, relying on the fact that sooner or later the desired opportunity must come.



Paintings by Allan Brooks

RICHARDSON'S GROUSE STRUTTING IN DISPLAY

Meanwhile all my enquiries among hunters and Indians resulted only in establishing the general belief that its author was the female and not the male bird as might be logically inferred. All Indians questioned were stout in their assertion that it was uttered by the hen bird during the mating action. A friend who was an exceptionally close observer was sure he had seen a hen utter it when a cock bird charged among a group of hens.

Once early in my investigations I was sure that the looked-for opportunity had arrived. Below me, on a little grassy plateau, a cock Grouse was slowly strutting, his great tail spread to its full extent and elevated over his back. Carefully and silently I sank down to watch and there before me was enacted one of those little dramas of the forest which come so seldom even to one who spends most of his time in the open.

From somewhere immediately beneath me ambled a "highly beneficial" skunk and approached the love-sick bird with guile in his little eye. At first the Grouse appeared to regard him as a victim to his attractions, but presently even his bemused senses signaled danger and he commenced to slowly retreat, still with outspread tail, while the skunk craftily attempted to sidle up and get him by the neck. So close were they that it was impossible for me to shoot the skunk without the risk of part of my load getting the Grouse as well. So, as I hold old-fashioned ideas on the subject, I had to jump up and intervene before the "highly beneficial" one had adjusted the balance of nature according to his scheme of things. And so passed my first opportunity.

Often in later years a male Richardson's Grouse has been seen uttering his low hooting, similar to the resonant hooting of the Sooty Grouse (*Dendragapus obscurus fuliginosus*) but with only a small fraction of its volume. In my experience Richardson's Grouse always utters this hooting from the ground. The tempo is the same as in the Sooty Grouse, five or rarely six deliberate evenly-spaced hoots or grunts—*Humph—humph—humph—ma-humph—humph*—but the sound is barely audible up to seventy-five yards or so. In the Sooty and Sierra Grouse this chant assumes a dominant character, ventriloquial to a degree it sounds far off when quite near and yet has a carrying power of at least two miles. In neither species is the tail very widely spread when

uttering, nor is there any special posture or action except a crouching attitude, high up in a coniferous tree in the Sooty Grouse, and on the ground, usually on some rocky ridge, in Richardson's. The Sooty Grouse also has the single *Oop!* although I have rarely heard it and then only late in the breeding season.

A very pronounced distinction in the two species however, is the nature of the gular air sacs. In the Sooty Grouse and allied races these in the breeding season become cellular, gelatinous masses, capable of great distention, and the exterior surface is velvety, deeply corrugated, and of a deep yellow color. In the fall this specialized character is largely lost, the skin loses most of its corrugations but still retains a yellow color.

In Richardson's Grouse and its sub-species *flemingi* very little change from normal in the character of the neck-skin occurs in the breeding season, the exterior is flesh-colored tinged with purple, deepening to purple-red when temporarily surcharged with blood.

The general habits of the two differ somewhat. The Sooty Grouse is unique among birds in that it elects to spend the winter at a much higher altitude than its summer habitat. Descending to the foothills, and in some localities to the level forested low lands, early in the spring, the males commence their return to the high hills before the end of the summer; the females and young follow them later, and before the winter they are all high up, usually just below timber-line in the highest mountains, where they remain until the following spring.

While this extraordinary movement is more or less common to Richardson's Grouse, it is not so pronounced, and many birds spend the entire winter in the lowest foothills. The spring movement downward however is carried further and at that season many move out on the rolling plains to nest, far from the nearest timber. I have seen a female with her brood in absolute prairie-like grassland over a mile from the nearest tree.

On June 9, 1925, while ascending a draw in which grew clumps of mock orange and snowberry bushes I flushed a female Richardson's Grouse that had lost her brood through the attentions of Crows and Magpies, ten yards further up a male rose, and settled some fifty yards up hill. Marking the spot I approached cautiously

after a short interval and presently saw the enormous fan of his tail among the lupins and other plants that grew on the rocky ground.

Working to a good position I was at last able to see the whole display from a distance of fifteen yards through my 8-power binoculars.

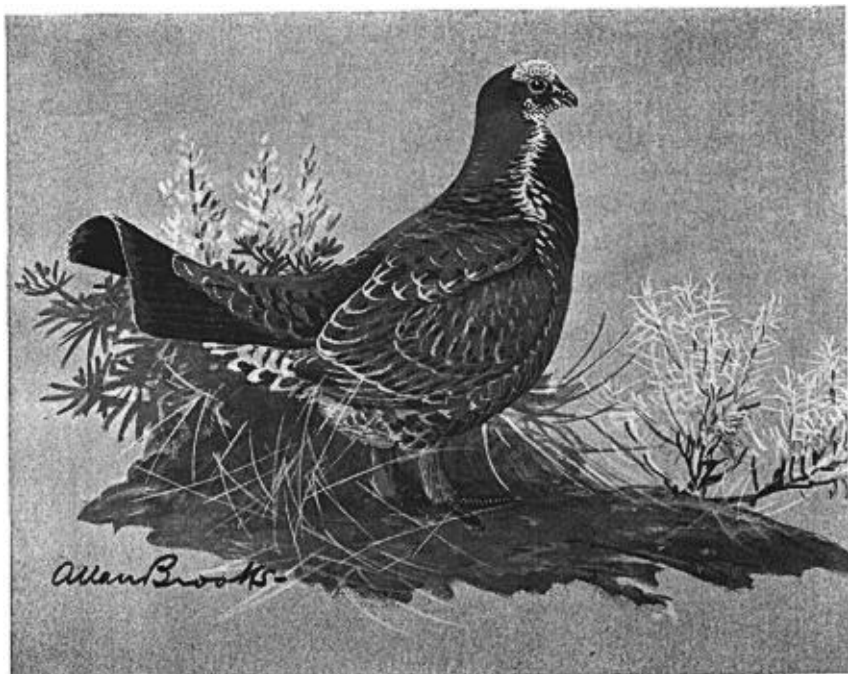
His first position was a crouching one the tail spread to extreme extension cocked right over the back and a little to one side, the neck feathers showing as a snowy mass with the red gular sac looking like a small oyster on a large shell.

He maintained this attitude for several minutes then the head was raised, the neck swelled, and he turned towards me and commenced to nod his head; the gular sacs were a deep purple-red, the "combs" over each eye changed from yellow to a dusky orange and were inflated to the extent that they almost met on the crown, and the inversion of the neck feathers showed as a huge blaze of white on each side. After six or eight nods the head was lowered to within two inches of the ground and with the neck inflated until the sacs showed a diameter of three inches, the tail still elevated and spread to its full extent, the feathers of the lower back standing on end, the wings trailing on the ground, the bird made a short quick run of six or eight steps curving to the right and emitted the deep "*Oop!*"

At the conclusion of this action he reverted to the pose of figure 1, Plate X.

A female was within fifteen yards but not visible and his display did not seem to be directed towards her. On my attempting to get still closer he ran down among some loose rocks and assumed the normal attitude as in figure 1, Plate XI. With my binoculars to my eyes I waited for him to repeat his display; after a few minutes he had commenced to slowly assume an inflated attitude when the female which I had not observed rose from behind me, he instantly rose and sailed down the valley after her.

The sketches illustrate; (a) the preliminary crouching attitude with tail spread and snowy neck-feathers displayed (Plate X, fig. 1); (b) the nodding that preceded the run, with neck and comb swelling (Plate XI, fig. 2); (c) the run at the climax of the display when the "*Oop!*" is uttered (Plate X, fig. 2).



Paintings by Allan Brooks

RICHARDSON'S GROUSE AT REST AND STRUTTING IN DISPLAY

Later on July 21, I came across a cock that was still vigorously displaying and calling among seven hens that had lost their broods and were drinking at the lake-shore in the early morning; they paid no attention to him.

The *Oop!* is not heard after the end of July in my experience.

In Bendire's 'Life Histories' descriptions of this act are given by two different observers. That on p. 41 by Denis Gale refers to the Dusky Grouse in Colorado, and on p. 48 a similar description is given of the Sooty Grouse's display as seen on Vancouver Island. Each of these descriptions records the note uttered at the climax of the display as the ordinary hooting of five notes and not the single explosive "*Oop!*" It is probable that both these observers wrote from memory only which might account for the discrepancy.

That the Grouse of the genus *Dendragapus* can be readily separated into two groups has been known to a number of workers for a considerable time; I drew attention to the outstanding point of separation in Vol. XXIX of 'The Auk' (p. 252). Later Swarth (Birds and Mammals of the Stikine River Region p. 204) has summarized the situation and points out that any changes in the present nomenclature of the species would hinge on the characters of the typical race *Dendragapus obscurus obscurus* (Say).

For some time I have been endeavouring to get this information by correspondence with a number of ornithologists in Colorado, but have been unable to get any facts bearing on the situation. A skin of an adult male from Silver Lake, Colorado, loaned me by the Museum of Vertebrate Zoology, taken in October, has a tail unlike anything I have seen in any other form of the genus, but there are no data as to the color of the soft parts. The neck skin is obviously unthickened and does not appear to have any yellow tinge in the dry skin, but the thickening of the skin is not apparent in any fall specimens of the *fuliginosus* type either, though showing to some extent in fresh-killed birds. The tail is very broadly tipped with light gray, 38 mm. wide on central rectrix, 27 mm. on outer, all the tail feathers very broad and not conspicuously truncate, width of central rectrix 36 mm., outermost 40 mm. It is noticeable that the outer feather is the widest. These dimensions are only exceeded by measurements of the tail

feathers of the lately described subspecies *howardi* in which the central rectrices are 55 and the outer ones 40 mm.

Richardsoni in Ridgway's Manual is credited with having wider rectrices than *obscurus*, but in a large series from British Columbia I have none that approach the width of these feathers in the Colorado bird mentioned above. It will be in place here to give a synopsis of the characters separating the two groups, based on adult males.

Group I, including *richardsoni* and *flemingi*.

1. Air sacs. Skin not conspicuously thickened or corrugated even in the mating season, color flesh, changing to purple red under the influence of excitement.

2. Voice. "Hooting" of five or six notes audible for less than one hundred yards, uttered from the ground. Note: the single hoot when in full display is alike and common to both groups.

3. Tail. In adult males squarer, the feathers truncate at the tips; terminal band of gray darker, sometimes (rarely) absent or but faintly indicated.

Group II, including *fuliginosus*, *sitkensis*, *sierrae* and *howardi*.

1. Air sacs. Skin highly specialized in the mating season, thick, gelatinous, the surface deeply corrugated into a series of tubercles of a velvety texture and of a deep yellow color. This condition is reduced when the mating period is over.

2. Voice. "Hooting" of five or six notes of great power, audible for several miles. Always (?) uttered from high up in a tree.

3. Tail. In adult males rounded, the feathers rounded at the tips; terminal band of light gray averaging narrower than in group No. I.

The ranges of *fuliginosus* and *richardsoni* impinge on each other at many points and it is significant that I have never seen a hybrid. The two species of *Canachites*, *canadensis* and *franklini*, which are accorded full specific rank, under similar conditions hybridize freely, and the tail differences which separate them are merged completely. The two groups of *Dendragapus* should be better entitled to full specific distinction than these two species of *Canachites* unless the form *obscurus* proves a connecting link.

Further and definite information on this point is urgently needed before an adequate adjustment of the relationships of the genus *Dendragapus* can be made.

In a recent publication 'The Birds of Yellowstone National Park,' by Milton P. Skinner (Roosevelt Wild Life Bulletin Vol. 3, No. 1) mention is made on page 25 of the intergradation in that region of the races *obscurus* and *richardsoni*.

While this indicates that *obscurus* belongs to group No. 1 it is in no way conclusive. Intergradation might be the result of hybridization as in the genus *Canachites*, and would produce a probable blending of the voice characteristics of the two groups in the resulting hybrids.

It is to be hoped that ornithologists in Colorado will bring forward data that will definitely settle this interesting question.

Okanagen Landing, B. C.