

NOTES ON THE GROWTH AND PLUMAGES OF THE BLACK OYSTER-CATCHER

By J. DAN WEBSTER

While the writer was making a study of the Black Oyster-catcher (*Haematopus bachmani*) in the course of his work at Cornell University and in the field at Sitka, Alaska, he obtained some scattered data on physical characteristics which have not been previously reported. Dr. Arthur A. Allen contributed much important advice concerning this work and David Webster helped with the hard labor of field study in a rowboat.

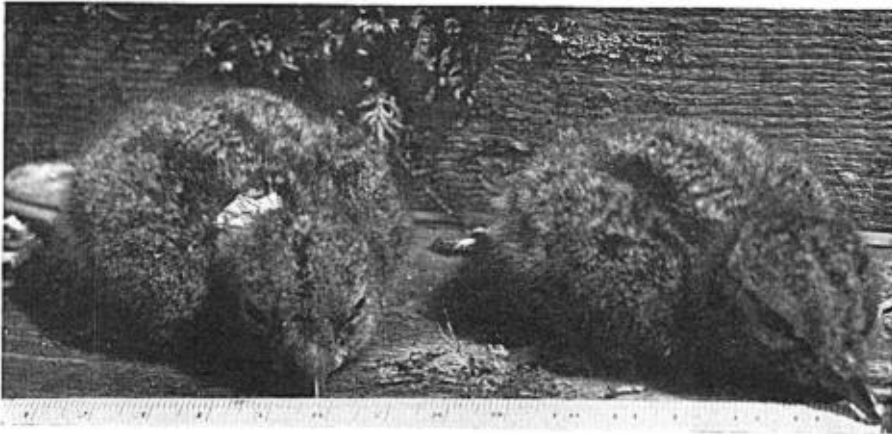


Fig. 67. Newly hatched Black Oyster-catchers.

First week.—The newly-hatched chick is brooded continuously for the first thirty-six hours, during which time the down dries out and becomes fluffy and the pendant yolk sac is resorbed. In the first two days, the weight drops until feeding begins thirty-six to forty-eight hours after hatching. At first the upper mandible is decurved, almost hooked at the tip (see Grinnell, Univ. Calif. Publ. Zool., 5, 1910:379). Flesh colors of two day-old chicks on Kayak Island, Sitka Sound, on June 11, 1940, were noted as: lining of mouth, orange buff; bill, black; gape, yellowish; egg tooth, white; feet and tarsi, buffy gray; iris, dark brown. (In this paper, capitalized color names are used where the part in question of a freshly-killed bird was compared with Ridgway's "Color

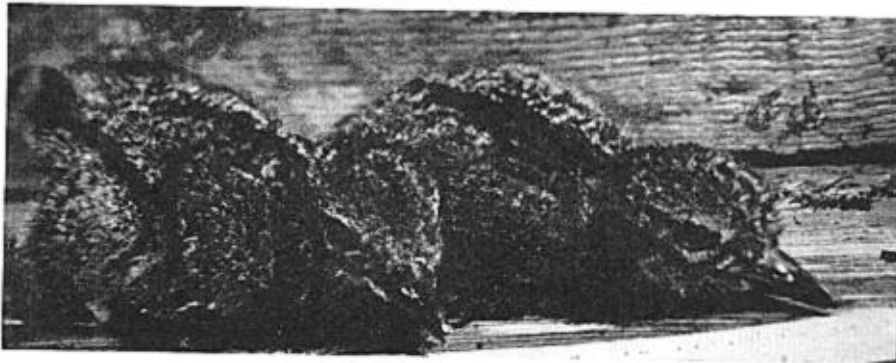


Fig. 68. Chicks seven days old.

Standards" (1912); non-capitalized color names may not conform to Ridgway's nomenclature, and are used where such comparison was not made.)

The dense natal down is swarthy, presenting a pepper and salt effect. Although the down of the back is basically Black or Drab, tipped narrowly with Ochraceous Buff, the general pattern of the upper parts consists of an indistinct loral and postocular Black stripe and a very indistinct median crown stripe of Black which merge on the nape. Two broad, distinct stripes continue down the back and end at the rump. The tail and an area at the top of each thigh are Black; the flanks and the lighter areas of

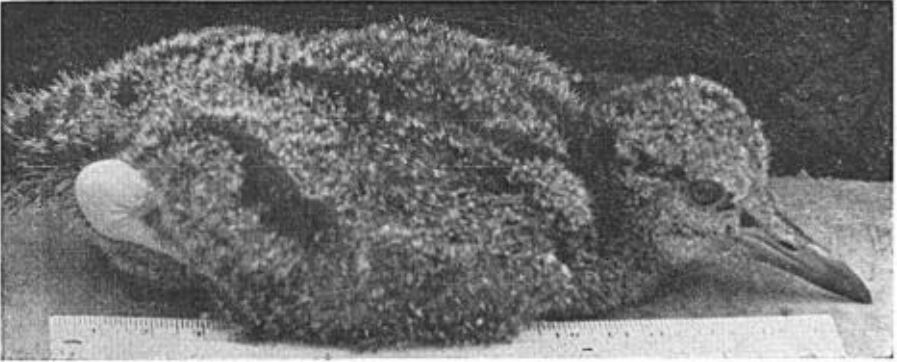


Fig. 69. A chick two weeks old.

the upper parts are a mottled Drab. The down of the underparts is dull gray, varying from Dark Mouse Gray on the foreneck to White in a triangular belly patch (see Grinnell, *loc. cit.*, and Bent, U. S. Nat. Mus. Bull. 146, 1929:321).

Second week.—The white, calcareous egg tooth drops off the bill between the seventh and twelfth days. By the eighth day the down begins to wear off along the mid-dorsal line, leaving a bare strip of skin; later, about the twelfth day, another bare

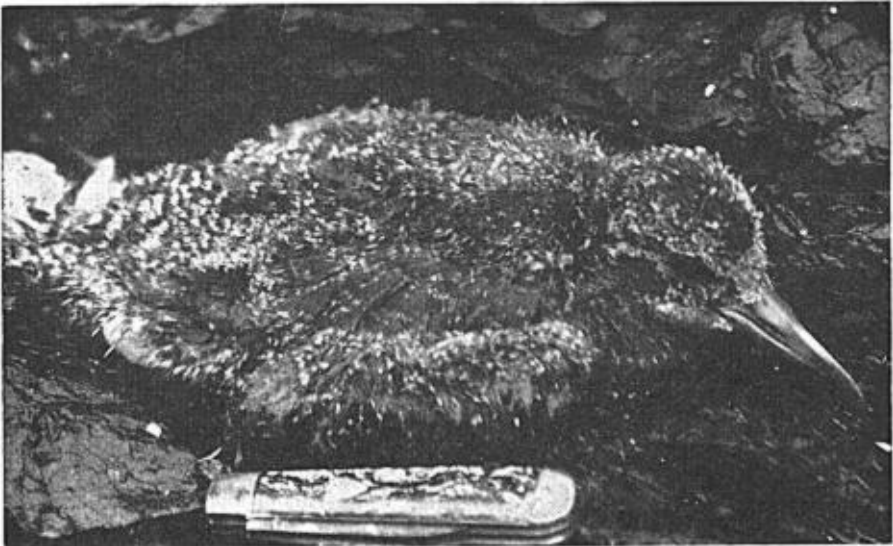


Fig. 70. Young oyster-catcher three weeks old.

strip begins to show on either side parallel to the first one and along the ridge of the ilium. The bill becomes pointed, rather than hooked, and it lengthens rapidly. The juvenal plumage develops on the flanks and underparts, and the primaries pierce the skin, although they do not show unless the natal down is parted and lifted. Each of five chicks more than doubled in weight during this week.

Flesh colors noted on a fourteen-day-old chick were: proximal one-third of bill, orange-brown; median one-third of bill, yellow; distal one-third of bill, black; feet and tarsi, pale gray.

Third week.—Although the general color effect is still gray or drab, the dark juvenal plumage becomes conspicuous by the end of this week; juvenal primaries, secondaries, secondary coverts, scapulars, rectrices, auriculars, and feathers of the pileum appear. The bill lengthens somewhat more slowly than previously.

Growth of Oyster-catcher Chicks in Sitka Sound in 1940

Leg band of chick	Day of life	Wt. in grams	Culmen in mm.	Leg band of chick	Day of life	Wt. in grams	Culmen in mm.
White left	1	33.9	14		14	144	31
	3	32.7	17		*23	240	42
	6	43.9	19	Red right	1	.....	15
7	52.7	19	*6		39.2	19	
	*10	76.1	23	Green right	1	.....	15
Red right	1	33.3	14		*6	35.0	18
	3	33.2	17	33	4	38.0	18
	6	46.0	19		11	101.0	24
	*7	49.3	19		*19	205	35
9	6	.....	21	5	4	36.4	18
	7	65.0	22		11	99.5	25
	14	158	30		*19	190	36
	21	248	36	8	2	.....	16
	29	328	42		7	49.2	19
	35	396	50		14	115	28
15	6	.....	21		21	173	32
	7	61.2	22		*27	243	42
	14	147	31	31	35†	380	49
	21	232	37	(Female;			
	29	316	44	CU flat skin)	60	344	55
	35	377	49	50	30	.....	44
28	4	.....	17	(Female;			
	8	.....	23	CU 7889)	70	601	72

*Last day on which the chick in question could be found.
 †In captivity thereafter.

The hatching days of all these chicks except the two banded 31 and 50 were known exactly. Ten more chicks in addition to these twelve were examined one or more times in the field, but the data were thought not to be worth including because the hatching dates were not known.

Fourth week.—Dark plumage covers the median line, progressively erasing the white area on the underparts. Much fuzzy down remains on the tips of the feathers, particularly about the rump and neck. The under side of the neck, the flanks and the legs remain downy. The eye ring is dull orange-brown in color although it is as yet very narrow.

Fifth week.—During the fifth week the flight feathers lengthen rapidly, the down wears off the tips of the body feathers to a large extent, and the juvenal plumage becomes virtually complete, except in small areas on the inner sides of the thighs, at the sides of the base of the neck, and under the chin. The eye ring becomes brighter

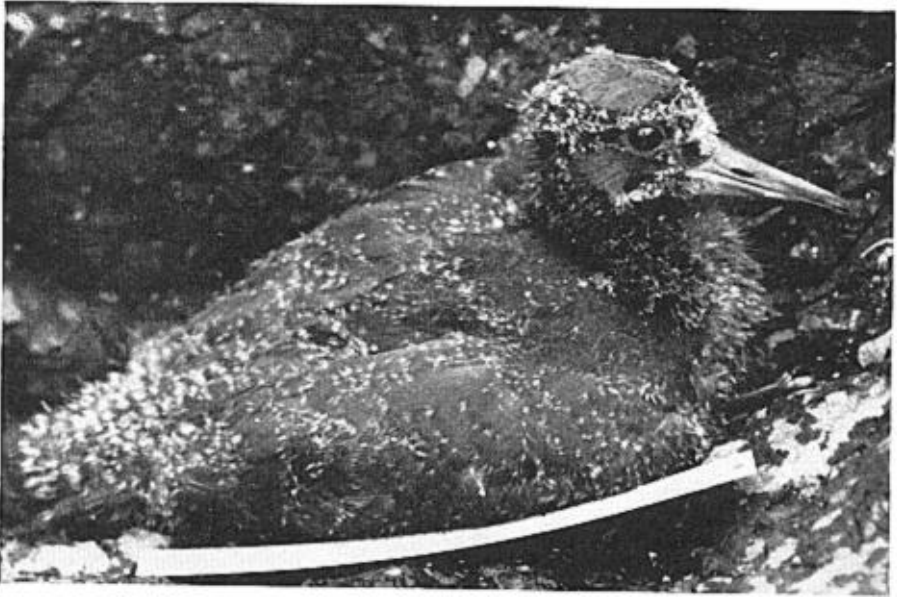


Fig. 71. Juvenile four weeks old.

and more prominent. Flesh colors in thirty-five-day-old chicks were noted as: distal two centimeters of bill, brownish black; median centimeter of bill, yellow-brown; proximal two centimeters of bill, orange; feet and tarsi, grayish white with a tinge of very pale rose; eye ring, brownish orange; iris, orange-brown.

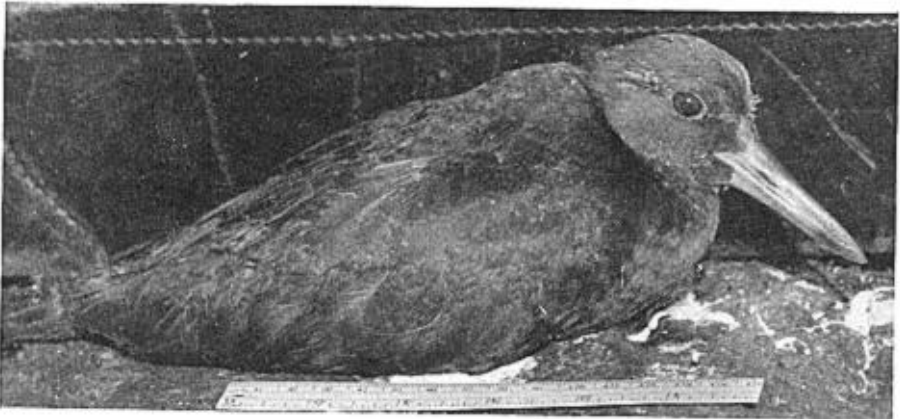


Fig. 72. Juvenile almost ready to fly; five weeks old.

Sixth week.—The juvenal plumage becomes fully developed, but natal down remains on the tips of the feathers of the inner sides of the thighs.

The fresh juvenal plumage is essentially the same as the adult winter plumage: Bluish Black on the head and neck, Blackish Brown (3) on the body, Gull Gray to Slate Color on the under wing. The feathers of the anal ring, however, are white, tipped

with Tawny; and the feathers of the belly, crissum, lower back, and the scapulars, femorals, and upper wing coverts are edged more or less narrowly with Tawny.

Six weeks to three months.—As the young bird grows older, the brownish feather tippings fade, becoming successively Tawny, Ochraceous Buff, Light Ochraceous Buff, Pale Ochraceous Buff, and White until they finally wear off. In a specimen of three months' age, the tippings are almost gone from the back and upper belly and are narrow elsewhere. At about two months the bill becomes truncated, but it does not assume full adult proportions until the bird is at least six months of age. The eye ring is brilliant and prominent in a bird of two months' age. Flesh colors of a specimen collected at the age of seventy days were noted as: distal half of bill, black; median portion of bill, grades into yellow-brown; basal three centimeters of maxilla, orange-brown; gape and basal three centimeters of mandible, orange; feet and tarsi, white; eye ring, orange; iris, yellow-brown. Specimens examined and assigned to this age group had collection dates ranging from August 4 to September 27.

Three months to one year.—Bent (*op. cit.*: 313, 322) finds that the American Oyster-catcher (*Haematopus palliatus palliatus*) has a partial postjuvinal molt in the fall, involving the body plumage, some of the scapulars and some of the wing coverts, and that in the first spring there is what he calls a prenuptial molt into full adult plumage. He also intimates that the molts of the juvenal Black Oyster-catcher are similar.

Fourteen pertinent specimens of *bachmani* were examined by the writer, varying in collection dates from December 2 of the year in which the bird was hatched to August 20 of the year following. This last bird betrayed its age by a few juvenal rectrices; its molt was far behind that of most yearlings; otherwise the latest bird collected which still showed juvenal plumage was dated June 29. Color comparisons were made with four yearling specimens collected by J. B. Semple on May 26, 1934, on Vancouver Island and graciously loaned by the Carnegie Museum.

The juvenal plumage, as stated above, is, like the adult winter plumage, basically Blackish Brown (3) in color. But during the winter there is a postjuvinal molt extending from January to March, and the replacing feathers are Clove Brown, as in the adult nuptial plumage. This partial postjuvinal molt includes some or most of the plumage of the back, rump, breast, and flanks, and the scapulars, the outer tertials, the axillars, the upper and under tail coverts, and probably the plumage of the head and neck. It does not include the flight feathers, the wing coverts, the belly feathers, the femorals, and scattered body feathers.

The partial postjuvinal molt, which extends into the period used by some species for a prenuptial molt, brings the bird into what might be called its first nuptial plumage. Because they do not breed, yearling birds are ready very soon for the first postnuptial molt. This is begun as early as May, and continues until June, July, or even August. As with all other birds, this first postnuptial molt is complete, involving all the feathers; it brings the bird into its second or adult winter plumage. In this plumage there are no feather edgings, save of white on the lower belly, and the anal ring feathers are dark.

On the label of a juvenile he collected on December 30, 1919, George Willett wrote, "Bill and eyelids vermilion; iris orange." The bill and eye ring, then, had assumed their adult colors and the iris was well on its way. There seems to be a good deal of variability in the time of the assumption of the adult bill color, as can be seen from the dried skins. Although Willett's December specimen had a vermilion bill, one specimen taken on June 1 had a bill which had evidently been orange proximally and blackish brown distally. Probably the average young bird has a bill in May that is only slightly

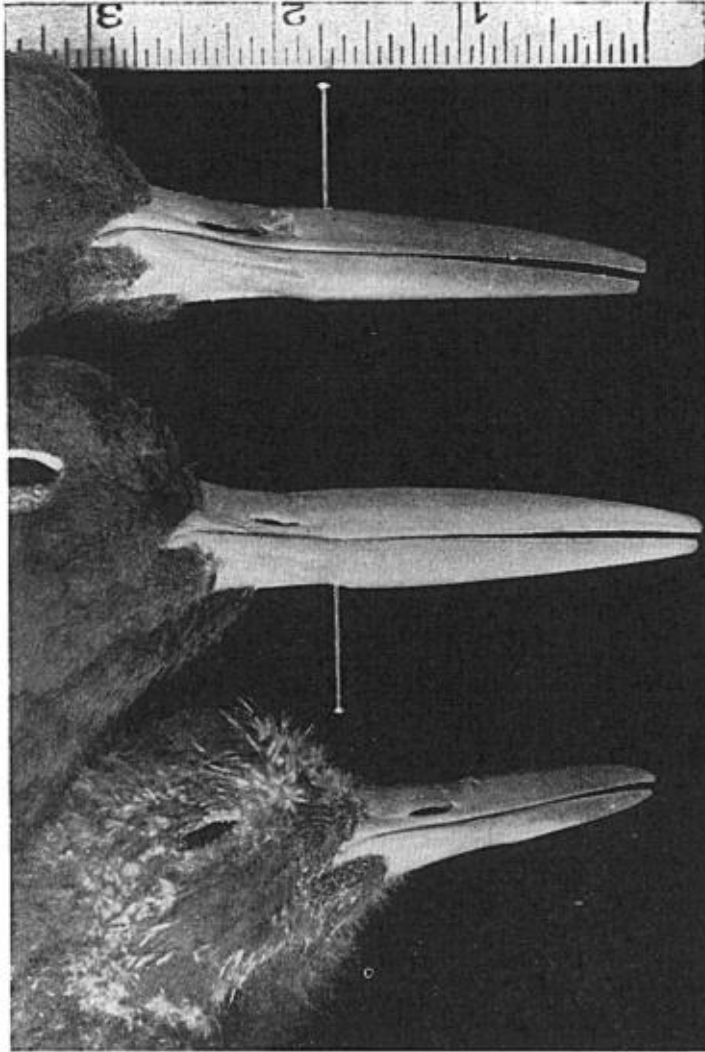


Fig. 73. Bills of Black Oyster-catchers taken at Sitka, Alaska, in early September, 1940. Top, juvenile 70 days old; middle, adult; bottom, juvenile 30 days old.

tinged with gray or brown in the distal centimeter or two; it loses this small darkened area at the height of the first postnuptial molt in June.

Although most of the females were larger than the males, as is true of adults, the measurements of both sexes were taken together to form the following average dimensions for the fourteen immature specimens here discussed: wing, 240 mm.; culmen, 67 mm.; tail, 98 mm.; tarsus, 50 mm.; greatest depth of bill, 12.3 mm. These averages are, in each case, well below those found for adult males, but a few single measurements were above average for adults of the sex concerned.

Young birds do not breed in their first summer, and probably not in their second summer either (see Dirksen, *Jour. für Ornith.*, 80, 1932:484, and Webster, *Wilson Bull.*, 53, 1941:144).

Adult winter plumage.—The adult winter plumage is acquired by a complete post-nuptial molt occurring from May to August in first-year birds or from July to September in mature birds. Several adult birds with missing primaries were seen from July 19 to August 6; specimens taken as early as July 19 (Calif. Acad. Sci. nos. 1953 and 1957, San Geronimo Island, Lower California, 1905) and as late as September 29 (Mus. Vert. Zool. 51469, San Miguel Island, California, 1927) were examined in which at least one primary was partly sheathed.

The head and neck are feathered with soft, glossy Bluish Black plumage. On the back there is a sharp demarcation at the anterior end of the dorsal pterylae; through the breast there is a gradation, by means of the colors of the feather tips, into the dull Blackish Brown (3) of the dense belly plumage. The feathers of the breast and, to a lesser extent, of the upper back immediately posterior to the color demarcation each have a subterminal U-shaped line on the blade. Proximal to this line the feather is glossy Blackish Brown (3); distal to this line the feather is dull Bluish Black or dull Blackish Brown (3), or a dull intermediate color. Back plumage, rump plumage, upper tail coverts, scapulars, axillars, upper wing coverts, upper surfaces of the secondaries, under tail coverts, crissum plumage, femorals, and belly plumage are Blackish Brown (3). The feathers of the lower belly are tipped narrowly with white. The rectrices, above and below, and the primaries above grade from Blackish Brown (3) proximally to dull Black distally. The under surface of the wing grades from the Gull Gray of the under greater coverts and the proximal portions of the blades of the remiges to Slate Color at the tips of the primaries and to Blackish Brown (3) in the under lesser coverts and marginals. The under surface of the proximal portion of the rachis of each primary is white.

Adult nuptial plumage.—The breeding plumage is acquired by an incomplete pre-nuptial molt in April and May. There is much variation, some of it geographic, in the extent of the prenuptial molt. Specimens from the Alaskan coast showed a prenuptial molt complete save for the primaries and secondaries. One specimen from Vancouver Island had not molted the outer five pairs of rectrices, and several specimens from California and Lower California had undergone a sketchy molt, involving only scattered body feathers, scapulars and coverts. Thus a few of these southern birds retained much of the white-tipped belly plumage throughout the summer.

The nuptial plumage differs from the winter plumage in the generally lighter tone of the body plumage, as is particularly exemplified by the contrast between two breeding pairs taken at Sitka. The worn, winter-plumaged birds, taken April 1, are much darker than the fresh, nuptial-plumaged oyster-catchers, taken May 22. All of the Blackish Brown (3), save that of the upper tail coverts, whose color remains unchanged, is replaced by the lighter Clove Brown; the Gull Gray of the under greater wing coverts is replaced by the lighter Pale Gull Gray; the feathers of the lower belly are completely without tipping.

Adult flesh colors.—The bill is Flame Scarlet, lightening in the distal centimeter to dull translucent orange or to dull Cadmium Yellow. The mouth and naked eye ring are Flame Scarlet; in a wounded bird, the nictitating membrane was noted to be orange-white. The iris is Lemon Chrome throughout, or more often, Lemon Chrome internally and Cadmium Yellow toward the periphery.

The tarsi and feet are mostly or entirely ivory white; there is sometimes a tinge of Hermosa Pink on the tarsi, and more often a tinge of Hermosa Pink on the toes, particularly in the webs and soles. The nails, in contrast, are gray proximally, darkening to smoky black distally.

The Rice Institute, Houston, Texas, February 21, 1942.