

TABLE 2  
MEAN LENGTH AND WIDTH OF EGGS I, II AND III, IN MM, IN EIGHT GULL SPECIES

Authority	Location	Gull species	No. of clutches measured	Mean length of eggs in mm			Mean width of eggs in mm		
				I	II	III	I	II	III
Harris (Ibis, 106: 432-456, 1964)	England	Great Black-backed Gull	35	76.0	75.8	71.6	51.2	51.6	52.2
"	"	Herring Gull	100	68.7	68.7	66.5	48.3	48.4	46.3
Paludan (Vidensk. Medd. Dansk. Naturh. Foren., 114: 1-128, 1951)	Denmark	"	57	72.44	72.10	69.16	50.58	50.53	49.18
"	"	Lesser Black-backed Gull	62	66.94	66.31	63.74	46.45	46.56	45.32
Harris (loc. cit.)	England	"	59	67.1	66.5	65.8	46.7	46.9	45.8
Behle and Goates (Condor, 59:235-246, 1957)	U.S.A.	California Gull	93-100	66.5	66.7	65.9	46.7	46.7	45.5
This study, 1965	Canada	"	55	65.42	64.95	63.09	46.82	46.61	45.07
"	"	Ring-billed Gull	43	58.88	58.79	57.22	41.98	42.06	41.13
Coulson (Proc. Zool. Soc. London, 140: 211-227, 1962)	England	Kittiwake	33	55.29	54.27	55.00	40.73	40.57	39.32
Preston and Preston (Ann. Carnegie Mus., 33:129-139, 1953)	U.S.A.	Laughing Gull	15	55.32	54.56	54.33	39.45	39.29	38.38
Ytreberg (Nytt Mag. Zool., 4:5-106, 1956)	Norway	Black-headed Gull	105	52.05	51.45	50.34	36.56	36.65	36.10

of the first (I egg), second (II egg) and third eggs (III egg) laid in the clutches of these species (Table 1). In both species the third egg of the clutch is smaller on the average than the first two eggs laid. This appears to be a common phenomenon in gulls (Table 2).—KEES VERMEER, 10015-103 Avenue, Edmonton, Alberta, 5 February 1968.

**House Sparrow occupancy of Cliff Swallow nests.**—Bent (U.S. Natl. Mus. Bull., 179:468, 1942), and Burleigh (Auk, 47:48, 1930) reported occupation of Cliff Swallow (*Petrochelidon pyrrhonota*) nests by House Sparrows (*Passer domesticus*). Buss (Wilson Bull., 54:153, 1942), Stoner (Wilson Bull., 51:221, 1938) and Brewster (Mem. Nuttall Ornithol. Club, 4:1, 1906) noted that sparrows in taking over nests not only destroyed swallow eggs, but also young nestlings. However, direct observation of such interactions have not been reported, nor has it been determined whether House Sparrows affect Cliff Swallow populations.

During the summers of 1967 and 1968 I observed House Sparrows taking over Cliff Swallow nests near Bruce-ton Mills, West Virginia. In one case in 1967, five pairs of swallows had nests completed or nearly completed by 13 May, in a row along a girder

within a barn-door entrance. Around noon on 23 May a pair of sparrows began to defend nests Number 2 and 5 of the row of five nests. The sparrows perched on a power line near the barn entrance, but would enter and defend the nests when any of the 10 swallows tried to enter them. The two sparrows occupied only two of the five nests at one time (the male in one, the female in another), but during a three-hour period, none of the swallows successfully entered their nests. The sparrows were then driven away for one hour with a pellet gun and in their absence the swallows returned. When the shooting was stopped, the pair of sparrows again resumed their position within the nests. The swallows were not aggressive, and only occasionally gave an alarm call. Within 24 hours the swallows abandoned the nest site; their movements to new nest sites have been reported (Samuel, EBBA News, 30:5, 1967). Within three weeks, House Sparrow eggs were found in three of the five nests. Similar House Sparrow behavior was recorded at three other barns involving the complete abandonment of two, three, and four swallow nests.

On the six-square mile study area, 10 barns and sheds contained 48 swallow nests in 1967. Twenty-three of these were lost to House Sparrows; 15 nests were taken over before eggs were laid, seven had contained eggs, and one had held nestlings. During the summer of 1968, Cliff Swallows had greater success, with 10 of 41 nests taken by House Sparrows, all before eggs were laid.

The number of Cliff Swallows in each barn may be important in survival. Of the 42 nests built in 1968, 26 were in one barn and only 4 of these (15.4 per cent) were lost to sparrows. The other 15 nests were divided among 4 barns and 6 of these (40 per cent) were lost to sparrows. It must be pointed out however, that the farmer whose barn contained the 22 successful nests, regularly shot House Sparrows. In all other barns where swallows were observed, sparrows were abundant. The time of original occupancy of the nests may determine future Cliff Swallow populations in an area. If the nests are taken over immediately after they are built, the Cliff Swallow may be able to re-nest. However, Samuel (EBBA News, 30:5, 1967) has indicated that such re-nesting may also be unsuccessful. In West Virginia, where the Cliff Swallow is found in low numbers, any delay in nesting would appear to be a limiting factor. During two summers, 33 of 90 (36.6 per cent) Cliff Swallow nests built in 11 barns were lost to House Sparrows.

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**Factors influencing breeding range expansion of the Azure Bluebird.**—Until recently the Mexican form of the Eastern Bluebird, known as the Azure Bluebird (*Sialia sialis fulva*), was thought to breed in the United States only in the Huachuca, Santa Rita, and Pajaritos Mountains of southern Arizona (American Ornithologists' Union, Check-list of North American Birds, Fifth Ed., 1957:444). Neither Brandt (Arizona and its bird life, 1951) nor Tanner and Hardy (Amer. Mus. Novitates No. 1866, 1958) recorded it from the Chiricahua Mountains, Cochise County, Arizona. In 1960 a single breeding pair was found near the Southwestern Research Station of the American Museum of Natural History (Phillips et al., The birds of Arizona, 1964), which is located in Cave Creek Canyon of the Chiricahuas. Since that time its population has increased there and it is now a regular breeding species in the vicinity of the Research Station (Ligon and Balda, Trans. San Diego Soc. Nat. Hist., 15:41-50, 1968).