the younger male, which were also in the area), were helping the older female feed these young.

The yearling male fed the nestlings and removed excreta during 9 h of observations made 24–28 July. During that period the number of feedings registered by each of these birds was: adult female, 72 (34.4%); older male, 56 (26.8%); yearling male, 59 (28.2%); and two fledglings, 22 (10.5%). Thus both adult males fed about equally. Few agonistic encounters occurred between any of the birds; but when both males arrived simultaneously near the nest with foodstuffs, the older male typically went to the nest first, doing so on 6 of 9 occasions. On 29 July the young left the nest, and both males continued to feed them.

During three previous nestings over the 2-year period at the same site by this same pair of adults, only two young (twice) or three young (once) were reared. Five young fledged in this instance, possibly because of the increase in food contributed by the yearling male. Evidence for this is seen in the fact that a mean of only 3.30 young were fledged from 46 successful summer nests in the study area. Broods of five or more young were uncommon, and occurred in only 6 of 45 other nestings during summer.

This case of cooperative breeding with an adult helper at the nest is unusual compared to reports of similar behavior in other species (see Skutch 1961, Condor 63: 198) in that the yearling male left his natal territory, raised a brood, and then returned to assist his parents in feeding their offspring. Woolfenden (1975, Auk 92: 13) related cooperative breeding in the Florida Scrub Jay (*Aphelocoma c. coerulescens*) to the fact that habitat acceptable to that species is scarce and often exists in isolated patches. This is also true for *S. sialis*. During summer bluebirds inhabit regions characterized by a short, sparse ground cover, an ample supply of foraging perches, and tree cavities used for nesting. All of these features may be generally scarce and not homogeneously distributed. A similar situation exists in the habitat requirements of the Red-cockaded Woodpecker (*Dendrocopos borealis*), for which helpers have also been reported (Ligon 1970, Auk 87: 255).—Benedict C. Pinkowski, *60510 Campground, Washington, Michigan 48094.* Accepted 20 Sep. 74.

**Regurgitative feeding of young Black Vultures in December.**—On 30 December 1973 near the headquarters of Noxubee National Wildlife Refuge, Noxubee County, Mississippi, I watched six Black Vultures (*Coragyps atratus*) feed on a road-killed rabbit. Four of the vultures were adult and two were still distinguishable as birds of the year by their feathered throats. As a truck approached at 1315 the birds flew to a pine 30 m away where, on a horizontal limb, an adult fed the two young by regurgitation. I saw no begging by the young; each young vulture stuck its head, in turn, nearly completely into the throat of the adult. The other adult vultures were perched in the same tree within 3 m, but the young never solicited nor were offered food by them.

Nestling Black Vultures are normally fed by regurgitation (Thomas 1928, Ohio State Mus. Sci. Bull. 1: 29; Stewart 1974, Auk 91: 595), but I know of no record of their being fed by adults this late in the season. Indeed, Brown and Amadon (1968, Eagles, hawks and falcons of the world, New York, McGraw-Hill Book Co., p. 123) speculated that because of the relative ease of obtaining carrion, "the period of dependence after the first flight may be short" in vultures. In Mississippi, Black Vultures normally have eggs in the nest by late March and most young have fledged by early July (Stockard 1904, Auk 21: 463; pers. observ.).

Thus it appears that some parental care in this species may continue for 6 months or more after the young become volant.—JEROME A. JACKSON, *Department of Zoology, Mississippi State University, Mississippi State, Mississippi 39762.* Accepted 19 Aug. 74.

**Egg fertility and hatchability in *Colinus* quail and their hybrids.**—Until recently very few data have been published on the production and fertility of hybrids in the New World quail (Odontophorinae). Johnsgard (1970, Condor 72: 85) reviewed the records of intergeneric quail hybrids in relation to the fertility, viability, plumage characters, and egg-white proteins of interspecific hybrids produced in his laboratory (Johnsgard 1971, Auk 88: 264). A summary of this work (Johnsgard 1973, Grouse and quails of North America, Lincoln, Univ. Nebraska Press) includes fertility data on several crosses among the three species of bobwhites (*Colinus*). Reported were a Crested Bobwhite (*C. cristatus*) × Bobwhite (*C. virginianus*) cross, a backcross of an $F_1$ hybrid female (*C. cristatus* × *C. virginianus*) to a male Bobwhite, and a Bobwhite × Black-throated Bobwhite (*C. nigrogularis*) cross. This paper augments Johnsgard's findings on these particular pairs and summarizes the results of pairings involving 15 *inter se*, $F_1$, $F_2$, and backcross hybrid combinations of the three species of *Colinus* quail. It also records a Black-throated Bobwhite × Crested Bobwhite hybrid combination, which to my knowledge has not been reported previously.

Quail were housed together as species and mixed-species pairs, as part of a general study on the comparative behavior of the three *Colinus* species and their hybrids (Cink MS). Eggs were collected daily, placed in cool storage, and incubated in a forced-air incubator. Infertile eggs were detected by candling after 7 days. Chicks were reared separately in small cages and brooded with heat lamps. Bills were trimmed to reduce pecking. A more complete description of housing and treatment of eggs appears in Johnsgard (1971, ibid.).

Table 1 summarizes incubation results. Hatchability and fertility of all *inter se* pairings were considerably lower than one would expect from wild birds, but the results are consistent with those achieved with *inter se* pairs of *Lophortyx*, *Callipepla*, and *Colinus* quail in the same laboratory (Johnsgard 1971, ibid.). $F_1$ hybrids were reared successfully from crosses between Bobwhite and Crested Bobwhite, Bobwhite and Black-throated Bobwhite, and Crested Bobwhite and Black-throated Bobwhite. No $F_2$ hybrids were produced. All eggs produced by *inter se* pairing of $F_1$ hybrids were sterile. No eggs were produced by the $F_1$ Crested × Black-throated Bobwhite hybrids, which died before they reached reproductive maturity. Sterility of the $F_1$ hybrids did not appear to be complete. Eggs produced by a backcross of an $F_1$ Black-throated × Bobwhite hybrid to a Bobwhite were partially fertile. The hatchability of eggs produced by a backcross of Bobwhite to Crested × Bobwhite hybrids was not significantly different (Chi-square test, $P < 0.05$) from that achieved by *inter se* pairs of Bobwhite in the same laboratory. The complete sterility seen in pairs of $F_1$ hybrids could have been quite real, but the possibility remains that it may also have reflected the small sample size, or be a consequence of inbreeding, which can occur in only a few generations in quail (Sittmann et al. 1966, Genetics 54: 371).

Eggs produced from the Crested Bobwhite × Bobwhite cross had a very low hatchability and nearly 70% were infertile. Of the five hybrid chicks that died a