As my data do not indicate that the woodpeckers selected the hardest or the softest side of the tree for nest entrances, the hardness of the sapwood of the nest tree apparently has little or no effect on the orientation of the nest entrance. My results should not be misinterpreted to say that woodpeckers do not select for hardness at all. Over 70% of the nest cavities that I examined had firm sapwood around the entire cavity. Excavation of nest cavities in trees with firm sapwood surrounding the entire cavity would probably have a selective value in being a predator deterrent.

In conclusion, I suggest, as before (Conner 1975), that the slight downward orientation of woodpecker nest entrances in southwestern Virginia has a selective value in that the nests are easier to defend against predators and competitors, and that they are less likely to fill with rain water. I thank Lawrence Kilham for reviewing the manuscript and making excellent suggestions.

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Harris' Hawks lay three clutches of eggs in one year.—Double clutches of eggs by raptors in the wild, producing two broods of young in one year, are uncommon. Harris' Hawks (*Parabuteo unicinctus*) and other North American falconiforms have been recorded double clutching (Mader 1975, Living Bird 14: 59–85). Three clutches of eggs laid by the same breeding pair of raptors producing young from one or more clutches is apparently rare.

I studied a Harris' Hawk trio (two adult males and one adult female), in Pima County, Arizona in 1975 that laid three clutches of eggs in different nests in one year. Two nests fledged young and all were located in ironwood trees (*Olneya tesota*). This polyandrous trio included two banded hawks (one with an additional color band) and one with distinct plumage. I saw both males copulate with the same female. The first nest had a clutch of four eggs 28 February and fledged three young. The second, found with two eggs on 4 June, failed from unknown causes during incubation. The third nest was found on 26 October with an addled egg and three recently fledged young. One of the males was not seen at the third nest while the other two adults were. The three adults were continually sighted at all the nests prior to this.

This particular Harris' trio was a resident group that I had followed intensively since 1973 and had watched from blinds at four different nests (total of 280 h). Each adult cared for the young by either feeding them and (or) supplying prey at the nest (see Mader op. cit., for a quantitative account of the individual hawks' roles). From 1973 to 1975 this trio nested at least 6 times (twice successfully in 1974) and laid a total of at least 21 eggs (3.5 per nest) that produced 14 fledglings (2.3 per nest). This can be interpreted on a per year basis as follows: 1973, 4 eggs yielded 3 fledglings; 1974, 7 eggs yielded 5 fledglings; 1975, 10 eggs yielded 6 fledglings. It is possible that the hawks nested twice in 1973 and that I did not find the second nest. All the nests were located within a 1200 m radius. In contrast to the productive record of this trio, 50 Harris' Hawk nests in a prior study (Mader op. cit.) averaged only 2.96 eggs and 1.6 young per nest.

It appeared when two broods were raised by Harris' Hawks in one year that the first brood reduced its ties to the adults and were normally not dependent on them when the second brood was being raised. When the second brood fledged they were often dependent on or associated with the adults for 2 to 3 months. If a second brood was not raised, the immatures from the first sometimes remained with the adults into winter.

A color-banded immature female that hatched in 1973 laid three eggs in a rebuilt nest in an old, unoccupied nesting range in August 1974, approximately 7.2 km from the nest where it fledged. This female laid eggs just after attaining adult plumage and was paired with an adult male that had falconry jesses on its legs. This nest was in a blue palo-verde tree (*Cercidium floridum*) about 300 m from an apartment complex; the nest failed during incubation.—WILLIAM J. MADER, *41 West Alpia Way, Tucson, Arizona 85704*. Accepted 26 Nov. 75.

Nest site selection for Prairie Falcons.—Throughout the range of Prairie Falcons (*Falco mexicanus*) nest sites vary in height from 7 m to over 122 m (Ogden 1973. Nesting density and reproductive success of the Prairie Falcon in southwestern Idaho. Unpublished M.S. Thesis. Moscow, Univ. Idaho.). As with other large falcons, the nest is usually a scrape, i.e. no nest structure is built by the nesting birds. Most nests are sheltered by an overhanging portion of the cliff (Enderson 1964, Auk 81: 332–352), but variations do occur, such as the use of old common raven (*Conus corax*) nests on cliffs (Ogden 1973), and there is one recorded incident of tree-nesting Prairie Falcons (Goss 1891. History of the birds of Kansas, Topeka, Kansas, Geo. W. Crane & Co.).

In March 1972 I discovered a pair of Prairie Falcons nesting in the King's Bowl at the Crystal Ice Caves in southeastern Idaho. The King's Bowl, in the Great Rift lava fault near Aberdeen, is a hole 92 by 61 m, its deepest point being 61 m. The east and west-facing walls are vertical and the north and south-facing walls are undercut, flowing into the fissure of the Great Rift. The eyrie was on the east-facing wall approximately 40 m above the bottom and about 5 m below its top. Cool air escaping from the fissure caused a constant updraft during the warmer seasons of the year. The surrounding area is essentially flat except for small lava outcroppings. Sagebrush (*Artemisia* sp.) is the dominant vegetation in the places not covered by lava flow. No typical or suitable structures for nest sites occur within 50 km.

The owner of the land at that time, Mr. Papadakis, stated that the falcons had occupied the nest site since he arrived in 1961. He stated that they produced young every year but that he never kept records as to the number. I did not see eggs or young, only the courting adults. My last visit was in early April. A recent letter (1976) indicated that the birds no longer nested there, but they did nest through at least the 11 years of disturbance by tourists. Recent failure is most likely due to the loss of one or both of the adult falcons. As this nest site differs so drastically from the normal, it seems unlikely that other Prairie Falcons will ever select it for breeding.—EDWARD J. PITCHER, *729 Airport Road, Sheridan, Wyoming 82801*. Accepted 6 Dec. 76. (This paper was subsidized by the author.)

Clutch size determination, egg size, and eggshell thickness in the Pie-billed Grebe.—The favored explanation for the ultimate determination of clutch size in nidifugous birds is Lack's hypothesis that clutch size is limited by the number of eggs a female's food resources allow her to form (Lack 1968, Klomp 1970). One argument against this egg limitation hypothesis is that some birds appear to be indeterminate layers and thus capable of laying more eggs than constitute a normal clutch (Krebs 1972: 568), but Klomp's (1970: 78–79) review shows most evidence for indeterminacy in nidifugous birds is anecdotal and/or derived from domesticated individuals that may have had an abundance of food. Also we suggest the egg limitation hypothesis should not be rejected even if indeterminacy is demonstrated reliably under natural conditions. Possibly a female's resources are depleted gradually and eggs laid after the normal clutch size are so inferior that selection favors laying fewer eggs than the female is capable of laying.

We manipulated clutches of two wild Pied-billed Grebes (*Podilymbus podiceps*) to determine whether this species is best categorized as a determinate or indeterminate layer. We predicted that if food resources limit clutch size, eggs might decrease in quality as laying proceeds. Our criteria for egg quality were size and shell thickness. One of us (Rothstein 1972) suggested material for shell formation may limit clutch size in a nidicolous species, the Cedar Waxwing (*Bombycilla cedrorum*).

We studied grebe nests at the Andree Clark Bird Refuge in Santa Barbara, California from 20 April to 13 May 1974. We generally removed one egg per day from each experimental nest. Eggs were marked with a