ARTIFICIAL INCUBATION

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In a current breeding project, nine eastern Kestrel eggs from our captive pair were incubated artificially from day 1. Seven of the nine were fertile. Eggs were incubated at 99 degrees F. dry bulb and 88 degrees F. wet bulb. Eggs were candled daily, beginning with day 7. This was the day which gave the most consistent results of determining fertility on the basis of observable vitelline vasculature. One of the embryos died at 13 days; another died at 15 days. The remaining five progressed apparently satisfactorily until the 24th day of a 28 day incubation. On day 25 the embryos were all dead.

Examination of the embryos showed all to be apparently normal. The yolk sac was about the size that would be expected for an embryo four days prior to hatching. All had broken through the air cell successfully.

Although no evidence for such could be found, a nutritional deficiency was suspected. To prove or disprove this, it was decided to incubate some different species using the same methods as were employed with the Kestrels. Because of availability, four English Sparrow eggs, five Starling eggs, and four domestic duck eggs were put in the incubator at a stage when no vessels could be seen. All those incubated proved to be fertile.

Two of the English Sparrow embryos died on days 8 and 9, respectively. The other two hatched apparently normally at 14 days.

The Starling embryos died one after the other on days 7, 9, 10 and 12, respectively. The fifth egg hatched sometime between late afternoon on day 17 and late morning on day 18, but was dead and not completely out of the shell when discovered.

Three of the four duck eggs hatched on the 30th day of incubation. The fourth was dead at 27 days and found to have an incompletely absorbed yolk sac when examined.

Although the eggs were out of the incubator only three or four minutes a day to be candled, it was decided to try another clutch of eggs and not handle them at all. Five English Sparrow eggs were put in the incubator before any vessels were visible. The incubator was not opened until the 14th day. At this time four eggs had hatched. The fifth egg proved to be infertile.

The evidence from such a small-scale "experiment" is anything

but conclusive. The results, however, have served as a warning to us. In our anxiety to find a newborn falcon in our incubator we checked and handled the eggs daily. We felt that this action was no more critical than the brooding female taking time out to eat every day and leaving the eggs.

Several people have written articles expressing the belief that raptor eggs are more susceptible to chilling than most other species. Although we still cannot find any physiological reason for this, we find ourselves believing it more. Future eggs will most certainly be left undisturbed.