Biology Building
October 15, 1931

Mr. Arnold L. Nelson
Div. of Food Habits Research
U. S. Biological Survey
Washington, D. C.

Dear Mr. Nelson:

My data sheets arrived O.K. With respect to the marsh hawk and redtail pellets which I considered unreliable, I might state that I look upon them as being unreliable for both my purposes and those of the Survey on the sole basis of their giving an erroneous impression as to the proportions of one species of prey eaten to another. The pellets themselves are largely of indubitable origin and fairly well dated, but they are mostly from nestling marsh hawks and redtails, and hence unsatisfactory from a number of standpoints.

Nestling hawks have high calcium requirements (for that matter the digestive processes of some adult hawks can be plenty hard on bony material) and in many instances are fed partially picked or partially skinned immature prey, of which no recognizable skeletal debris may be present in a pellet, especially if that prey was one of the first to be swallowed subsequent to ejection of the previous pellet.

Hypothetical case to illustrate potentialities for error:

Prey brought in to marsh hawk nest in one day--1 meadowlark and 20 mice. The meadowlark apportioned between 5 hungry competing young could be represented in all pellets. Although each hawk might get his share of the mice or 4 apiece, it would be more than likely that only the last one or two eaten, if any, would be distinguishable as bony remains, and since individual marsh hawks have been noted to peel most of the skin from their mice, an estimate of number on the basis of bulk of fur might not hold up. The ratio of meadowlarks to mice according to examination of the pellets might then be as upset as 1:1 or 1:2, instead of the true 1:20.

I do not regard my objection so valid as applied to pellets from adult hawks disgorged at seasons when prey is mature and possessed of better calcified bones, though I am becoming increasingly suspicious of pellets from all hawks which seem to have strong digestive powers.

However, the pellets in question may show the <u>kinds</u> of prey taken, and thus have limited usefulness, if no attempt is made to work out the <u>proportions</u> of the various kinds.

Yours sincerely,