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AN URBAN AMERICAN KESTREL NEST

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The West 25th Street Kestrels (Male1 and his mate). ©Sean Sime

My observation of the West 25th Street kestrels in association with the nest tube herein described began in 2004 (McAlexander 2005, 2006, 2007, 2009, 2010). I do not know if they used it prior to that time, but it was an interaction with an American Kestrel on 25th Street around 1999 or 2000 which sparked my interest in birds and birding.

It was the good fortune of the 25th Street kestrels the terminal vent structure of a heating system was not removed with the rest of the unit. It was my good fortune to be able to observe these birds as they used this piece of pipe as a winter roost as well as a nest. The birds which inhabited it demonstrated an amazing level of skill.

The nest tube is made from common eight-inch galvanized steel ventilation ducting. It comprises a "T" with the center member extended by enough straight tubing to result in an overall length of 24½ inches. The back of the nest was the distal end of this additional tube which had been closed off from the building's interior by various kinds of adhesive-backed tape. The other two arms of the "T" were left open.

The nest tube was mounted through a board which was secured in a frame above one of the fourth floor windows of 531 West 25th Street. The two open arms of the "T" were oriented vertically, thus becoming the upper and lower entrances to the nest cavity. The top of the upper entrance was nine or ten inches below the eave of the building. Since the window was recessed a foot or so, the rim of the upper entrance made a well sheltered perch. After the 2008 nesting season, the tube was removed in the course of building renovations and I was given the old nest tube.

Continual use of the tube for at least the five years I observed the nest resulted in physical changes in the tube's integrity. Frequent use of the rim as a perch meant the upper parts of the tube were covered by, and therefore corroded by excreta, a.k.a. whitewash. Internal deposits of the same material corroded areas of the lower part of the tube. Although the corrosion was extensive, it had not yet weakened the tube sufficiently to compromise its structural strength, given the load requirements for use as a nest. However, this would ultimately have been the case. The tube probably would have broken and fallen. Whether this had any part in the decision not to re-mount the tube is unknown.

The choice of this relict artifact as a nest cavity is unusual. Of the six references I checked, only three had information concerning cavity selection and materials used. Kestrels generally nest in abandoned or usurped natural cavities in trees, or on un-lined ledges, or in bare pipes. None of the references allowed for more than simple occupancy of a cavity. Ferguson-Lees and Christie (2001) are the closest to the 25th Street tube in describing nests under eaves or in a drain pipe, but not in ventilation ducting directly under eaves. I suspect this is largely due to the rural nature of most of the kestrel population and the lack of study of the species urban elements.

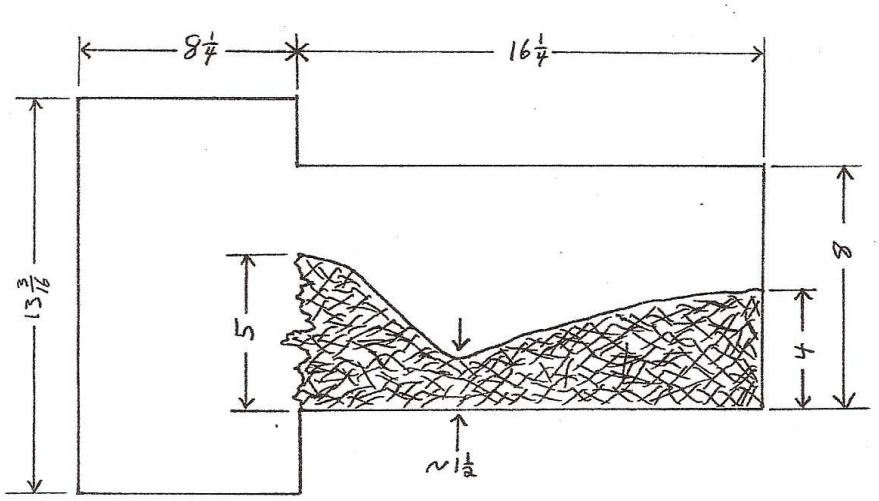

Diagram of nest tube in side view.

Perhaps the most interesting aspect of the cavity is how the kestrels' feeding and defecation modified the interior. The tube is a little less than half-filled with a mix of bones and bone fragments cemented together with excreta. This "kestrel concrete" is shaped so eggs can't rollout and young can't easily climb out, yet there is plenty of room for the adults to maneuver and a large area for several nestlings to roam. An open line-of-sight from the perch on the upper entrance to the bottom of the dip where eggs sit allow easy transfer of food as well as quick identification of an entering mate or predator by the sitting adult.

There is a thin layer of vegetation, probably some type of grass, at the rear and on the bottom of the tube, but it doesn't appear that any fibrous material was used to strengthen the "concrete" as in adobe, for instance. Other than a small patch of vegetation, the bottom of the shaped form conforms to the rounded interior of the pipe. At its thinnest,

the material is about 1.5 inches deep, but from there a steep incline toward the front reaches a maximum of five inches. There is a more gradual slope toward the rear of the tube which reaches only four inches, half the pipe's diameter, at the back end. The entire upper surface of the structure is bowed from side to side with the exception of the very front edge.

During the first three years I watched this nest, 2004 to 2006, I had many occasions to look up into the cavity from the street. There was no deposit of any sort visible at the entrance. By the end of the fourth year a lip or berm about an inch in height appeared. I did not know how far into the tube the deposit reached; nor did I give it much importance. I considered it an accidental occurrence and wholly the result of the many hours Male1 spent perched on the outward edge of the upper entrance. I believed bad aim was to blame, but perhaps it did serve a purpose in adding defecated material to the nest. I did notice the front of the tube grew more blocked with time. Certainly, the nestlings would have made their contributions, as well.

By the end of the 2008 nest involving this tube, the front edge of the deposited material reached its five inch maximum. The tube was dismounted in the fall and given to me. Since the kestrels no longer have the tube to use for their purposes, further change and/or maintenance of the nest cannot be observed. In other words, the natural experiment is over.

The only information that can be gained must be gleaned from the nest tube. That study should be done by a research professional, not a serendipitously fortunate amateur observer. That said, I failed to interest anyone in the project. I made a few sketches and measured what I could, thinking the nest would ultimately be claimed by someone who knew what he was doing. Then, somehow and by someone unidentified, the tube received enough of an impact to jar loose a good portion of its contents. The interior shape was changed and deposits were mixed.

My original notes were all that was left that accurately described the nest shape, but these measurements don't tell the whole story, either. I had noticed when I first received the tube that there were many skeletal remains inside. I sifted the loosened material and retrieved a fair number of bones, some striped exoskeletons and a small glass "cup" whose origin and function I do not understand.

It is apparent from size comparison alone there are at least three and possibly more kinds of birds represented by the bones in my sample. Many more remain in the tube waiting to be discovered. All await identification. With time this opportunity will disappear.

Originally, I thought the nest material might be stratified and therefore, able to be separated into layers representing the span of a year. The event which dislodged the central area of the deposit revealed the true nature of the form. Approximately the top half inch of the deposit is a coarse matrix of bone and dung. Below this crust lies a fine, compacted, gray/white powder. Little is discernable to the naked eye, although a trained eye using a microscope might find objects of interest. I think the uric acid in the birds' excreta is decomposing the bone at a fairly rapid rate. The crust might be all of a year's deposit give or take, and all previous layers are lost.

This leaves me with one last guess to make. I estimate, based solely on visual inspection, the crust is approximately a fourth or a fifth of the entire nest contents. It is probably a reasonable assumption this corresponds to the five years I have been watching the 25th Street kestrels. It is probably also reasonable, based on this guess, to assume the kestrel which got my attention a decade ago either didn't use the tube as a nest, or didn't do much in the way of modifying the interior. Time has a way of allowing the wildest of possible connections while it removes the possibility of proof.

In a way, this tube contained the perfect urban kestrel nest. It was an obvious human artifact, so no predator would be likely to think it also contained a nest. Similar pipes emit hot, poisonous gasses all winter. It was hard to get to if you weren't a bird. On the inside of the building it sat in a window near the ceiling. Even the humans who removed

the tube had to resort to scaffolding and ladders to do so. The room was a document storage space, not an office or a residence, so there were no curtains to climb. Rats would have to scale bare walls to get to the pipe. Even then, the taped end, the only possible entrance, hung out in empty space. Birds wouldn't have an easy time entering the nest, either. All of the North American raptors are larger than the American Kestrel. Making a sharp turn into a passage just large enough for a kestrel would have been difficult for a Merlin. Its extra inch in length and extra beefy build would have made the maneuver clumsy at best. Any smaller bird, such as a European Starling, was on the menu and not as likely to gain a meal as to become one.

The nest also had its own seasonably appropriate ventilation. Holes in the tape which sealed the back end allowed a flow of air through the tube. Since the inside of the building was kept at temperatures comfortable for humans, the nest was heated in winter and cooled in summer. Neither were water and food in short supply. Even in winter the rooftop water tanks leaked. There was always an abundant supply of rats, European Starlings, and House Sparrows, especially on 24th Street between 9th and 10th Avenues where garbage is piled in hedgerows. I found the kestrels hunting there on several occasions. Of course, the pickings were easiest around hatching time, when young prey species were not much more aware than the burgers humans feed their young. Meat with legs is probably an appropriate description.

Even the humans in the area did what was needed to help the birds. When young kestrels made their way out of the nest a little prematurely, some humans did what they could to keep them out of the street's traffic. Even if that meant crawling on your back under a truck, stopping traffic to chase a bird to the sidewalk, or climbing ladders to set the chick on a safe rooftop – somebody was there to do it.

Along with all these advantages, the internal shape made the nest pretty close to unbeatable. That in itself is problematic. It is hard to imagine a structure of this complexity was totally the result of accident. Yet, no other kestrel's nest I have heard of shows this type of modification. Further study is indicated, especially more in-depth analysis of nest cavities and their contents. Male1, Male2 and the female, formerly the 25th Street kestrels, left their mark in the form of a three dimensional nest unlike any other. One can only wonder if any of their offspring learned the trade.

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CORRECTION

Several readers have pointed out the name of Machias Seal Island was spelled incorrectly in the article about the island in the February 2010 issue of the *News-Letter*.

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