

A TECHNIQUE FOR REMOVING WILDFOWL VISCERA FOR RESEARCH

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IN July, 1957, Dr. Geoffrey Matthews and I published an article on "Duck Viscera for Scientific Research" in the *Shooting Times* for the benefit of wildfowlers, who were to supply the basic material for the proposed food and parasitic surveys of wildfowl to be undertaken by the Wildfowl Trust. My part in that article was to produce a practical method of extracting the viscera from a duck without spoiling the bird in any way for the table. The method had been worked out experimentally on a small number of duck obtained towards the end of the previous season, but since then the technique has been perfected and as the results are proving of such value, it would seem useful to record the method in some detail for others to follow or modify.

No wildfowler can be expected to co-operate if he is unable to eat his bird after he has finished removing the viscera, or if he finds the process too difficult or if his wife then tells him that the duck is in too disgusting a state to pluck. The technique to be described avoids all these pitfalls and has been performed by wildfowlers in all walks of life. The only instrument required is a sharp-pointed knife. If all goes well, I can now remove a specimen in two minutes. This should be done as soon as possible after death, because the gastric juices continue to digest any food for a considerable time, thus making the analysis far more difficult or impossible.

The following steps should be taken:—

(a) Pluck the belly. This enables the viscera to be removed without soiling the surrounding feathers, which would otherwise be unpleasant to pluck when the rest of the bird is dealt with and avoids complaints from the housewife.

(b) Place a plug of wool into the beak and push it down into the lower end of the oesophagus or gullet with the blunt end of a knitting needle. The plug should be pushed in until it is level with the shoulder joints and inside the chest. The exact length required can be measured first on the outside with the knitting needle.

(c) Leaving the needle in place and the bird lying on its back, with the thumb and forefinger of one hand, feel for the needle at the lower end of the neck, thus locating and holding the gullet, while the needle is withdrawn with the other hand. The soft tissues at the front of the lower end of the neck are then cut across, with the object of severing the gullet. This is ensured by fixing it firmly between the thumb and forefinger, otherwise it may slip away and remain intact.

(d) Open the belly with a cut from the lower end of the breast bone to the vent, care being taken not to pierce the intestines. Photograph One illustrates the position up to this point.¹

(e) Identify the gizzard or lower part of the stomach. This is a large, hard, rounded structure; silvery with dark red muscle round the edge. It lies in the upper left side of the abdomen. With the thumb and forefinger of one hand feel above it for the proventriculus or upper part of the stomach. This is a soft, muscular structure, lying under the lower end of the breast bone. At its upper end it can be felt to narrow again and become continuous with a firmer tube, which is the lower end of the gullet. These structures should all be freed from the surrounding tissues with the forefinger and

¹The photographic illustrations for this paper will be found at pp. 186-7.

when this is done, the lower end of the gullet is firmly grasped and pulled downwards. The whole of the gullet from the level where it was divided in the neck, can then be brought out through the abdominal incision. Photograph Two illustrates the position now, with the oesophagus being held.

This is the most difficult part of the whole operation, but the gullet contains the most recent and therefore the least damaged food and it is important to try to get it all. The difficulty is that the gullet sometimes breaks off. This is due to not freeing it properly at the lower end and then pulling on the proventriculus instead, which is not strong enough to bring out the gullet with it.

(f) Before going any further, close the upper end of the gullet by tying on a tag label, numbered in black Indian Ink. We have found that even the hardest pencil can be illegible after long immersion in the preservative solution.

(g) It only remains now to lift out the rest of the intestines to remove the whole viscera specimen intact. This is very easy. The bile duct breaks spontaneously and the lower end of the large intestine is cut across at the vent to complete the task, as shown in Photograph Three.

(h) The specimen is now placed in preserving fluid. I use 15% formalin in normal saline (formo-saline), which is stronger than the 10% originally recommended. The reason for this is that I fill a large pan with fluid, in which I leave the specimens until enough are collected, perhaps twenty, before removing them, wrapping them in rag, placing them in a polythene bag and parcelling them up for sending to the Trust. Such parcels have to be really secure.

One modification is occasionally required. This is when the gullet is so full of food that it is impossible to plug it with cotton wool and withdraw it through the abdomen. Thus, a Teal, which contained 10,000 *Salicornia* seeds had its neck, from the beak downwards, distended to more than twice its normal size and a Mallard which had just taken more than eleven acorns was similar. In such cases I divide the gullet and milk out the contents onto a piece of rag, which is then tied and labelled separately, before carrying on in the usual way with extracting the viscera.

The number on the label corresponds to a record of the species and sex of the bird, date, time and place where shot. Any notes of the feeding habits observed may be of value. In early September, 1959, I noted about Mallard in my diary that "Their routine was to come onto the fresh marsh fleets at dawn (from 0515 to 0700), then flight back to the stubbles and out to sea about 0900." This may have seemed rather surprising, but it was confirmed later by Mr. Peter Olney's analysis of a Mallard, which was found to contain seeds of barley, *Potamogeton* and *Scirpus*. Finally it is worthwhile just looking at the divided lower end of the intestine to see if any seeds were about to be passed undamaged. If there are any, these should be sent in a separate container unpreserved, so that they may be grown. In this way, much may be learnt about the spread of plants by wildfowl.

Although the viscera specimen shown in the first three photographs was empty, photographs four and five show a specimen extracted from a Mallard by Dr. James Harrison, which was full of food. The oesophagus has been opened to reveal large numbers of seeds and a water beetle, lying separately. I am most grateful to Mr. Gordon Anckorn for taking the photographs to illustrate this article.