

It is interesting to note that this is the first time that the spikelets of either *Lolium* species have been found in any bird sent in to the Wildfowl Trust for food examination. Seeds of *Lolium perenne* L. have been found in duck gizzards before but not still as part of the spikelet. This particular Mallard could scarcely have taken a more unfortunate meal.

We are most grateful to Dr. C. E. Hubbard for help in identifying the grass seeds.

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Tuberculosis in a wild Pochard and remarks on the recognition of disease by predators *

ON 19th August, 1959 Major General C. B. Wainwright and Mr. Roy King found an eclipse drake Pochard *Aythya fuligula* (Linnaeus) on Abberton Reservoir, Essex, swimming weakly and with its neck badly lacerated by some predator, which judging by the tooth marks was most likely to have been a fox or an otter. It was also very wasted and the bird was killed and given to us on the same day.

On examination, apart from being very wasted, the belly was extremely distended. On opening the body, this distension was found to be due to a grossly thickened, yellowish-white thoraco-abdominal air-sac, containing about a quarter of a pint of straw-coloured fluid. The pericardium was similarly thickened and there was an advanced plastic pericarditis, the whole heart looking as if it was covered with soft butter. Lying behind the air-sac, the liver was enlarged and studded with many small, hard, whitish nodules, while other nodules were present on the visceral surfaces of the gall-bladder and intestines, which were matted together by adhesions. One nodule had eroded the eighth right rib. Many of these features can be seen in the picture of the specimen after dissection (see p. 189), in photographic section).

A direct film from a liver nodule showed that numerous pleomorphic acid-alcohol fast bacilli were present. Histologically, a section of the liver stained with haematoxylin and eosin presented a picture of miliary tuberculosis with multiple caseous areas largely destroying the central area of each liver lobule, with small round-celled infiltration and giant cell systems surrounding the caseation, as a prominent feature, leaving only a narrow zone of liver cells.

A slide stained by the Zeihl-Neelsen technique showed many acid-alcohol-fast bacilli in the affected parts. From a study of these slides it is apparent that as a blood-borne infection, the disease reaches the central artery of each lobule and that caseation develops from this point peripherally, ultimately destroying the whole lobule. A culture was set up on Finlayson's medium and growth of a typical avian strain appeared in three weeks. Unfortunately owing to a technical error on our part, Dr. A. McDiarmid, of the Agricultural Research Station at Compton, was subsequently unable to type the strain.

This is the first confirmed case in a wild Pochard and only the fourth confirmed case in a wild duck in Britain. These others were a Wigeon, *Anas*

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penelope Linnaeus, from Orkney (Randall and Harrison, 1956) a Shelduck, *Tadorna tadorna* (Linnaeus), from Kent (Harrison, 1957) and a Wigeon from Abberton (Wainwright, 1959), while a further Wigeon from the same place was almost certainly tuberculous, but the culture was lost. General Wainwright, in recording the second Wigeon, states that he believes tuberculosis will be found to be not uncommon in wildfowl in the wild state and the occurrence of yet another case from Abberton lends support to his views. In America, Quartrup and Shillinger (1941) have recorded the disease in two Redheads, *Aythya americana* (Vieillot).

The pathological features presented by this Pochard are rather unusual in the marked involvement of the air-sacs and pericardium with great distension by fluid. The route of infection would appear to have been by the alimentary tract, which is the most usual in birds. Skeletal tuberculosis is rare and the involvement of a rib by direct spread was similar to a case recorded in a Sparrow-Hawk, *Accipiter nisus* (Linnaeus) (Harrison, 1949).

We have now examined fifteen cases of tuberculosis in wild birds and of these, three had been found with gross lacerations and tooth marks, undoubtedly caused by some mammal predator. The first of these was a Short-eared Owl, *Asio flammeus* (Pontoppidan), from Cambridgeshire (Harrison, 1943), the second was the Kentish Shelduck and this Pochard is the third. The predator had made no attempt to eat any part of the owl; the Shelduck had had its head torn off and the Pochard had been badly wounded, but left alive. It would seem that these birds in their weakened state fall an easy prey, but that the predator is able in some way to detect that the victim is unpleasant and discards it. We have noticed that there is a faint but distinctive smell from such birds and we think that scent is the most likely way in which the predator is protected from eating something which might prove dangerous to it.

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REFERENCES

- HARRISON, J. G. 1943. An unusual case of tuberculosis in a wild bird. *Ibis*, 85:516-7.
- HARRISON, J. G. 1957. Avian tuberculosis in a wild Shelduck in association with an exceptional parasitic burden. *Bull. B.O.C.*, 77:149-150.
- HARRISON, J. M. 1949. Tuberculosis in a wild Sparrow-Hawk. *Journal of Path. and Bact.*, 40:583-6.
- QUARTRUP, E. R. & J. E. SHILLINGER. 1941. A review of 3,000 wild bird autopsies on western lake areas. *Journal Amer. Vet. Ass.*, 99:382-7.
- RANDALL, K. & J. G. HARRISON. 1956. A case of avian tuberculosis in a wild Wigeon. *Bull. B.O.C.*, 76:42-6.
- WAINWRIGHT, C. B. 1959. Tuberculosis in a Wigeon. *Bull. B.O.C.*, 79:151.