

## NOTES ON THE TRACHEAE AND BRONCHI OF THE AUSTRALIAN SPOONBILLS

### INTRODUCTION

The tracheae of only two extant species of spoonbills have been described: that of the White Spoonbill *Platalea leucorodia* by Willoughby (1678) and Yarrell (1841), who both refer to earlier observations by the Italian naturalist, Aldrovandi, in the sixteenth century; Allen (1942) refers to Hudson's work on the trachea of the Roseate Spoonbill *Ajaia ajaja*. While studying feeding behaviour, I examined the tracheae of the Yellow-billed Spoonbill *Platalea flavipes* and of the Royal Spoonbill *Platalea regia* and the results are now presented.

### METHODS

I collected and examined tracheae between January 1970 and July 1972 at Lake Cowal, NSW. Fifty-three tracheae were studied: twenty-three of Yellow-billed Spoonbills: ten adults (three ♂, seven ♀), six immatures and seven juveniles; thirty of Royal Spoonbills: twelve adults (three ♂, nine ♀), two sub-adults, two immatures, nine juveniles and five nestlings. The

trachea, syrinx and bronchi were dissected out of each bird. Some were cleaned and bleached as described by Johnsgard (1961) and dried and mounted on cardboard.

### RESULTS

#### *Yellow-billed Spoonbill* (Fig. 1a)

In adults and young of both sexes the trachea is straight and flattened and the cross-section varies only slightly. It has 139 cartilaginous rings and each bronchus has twenty-five. The width of the syrinx does not exceed that of the trachea.

#### *Royal Spoonbill* (Fig. 1b-d)

Nestlings and young birds without any sign of a crest have a straight trachea, which is wider in the lower half. The trachea is flattened throughout. It has 310 rings, which in the lower half are densely packed. Each bronchus has eighteen rings. Sub-adults with short crests about twenty-five millimetres long have a trachea with a loop in the lower section. The number of rings is the same as in younger birds but in the lower half of the trachea the distance between

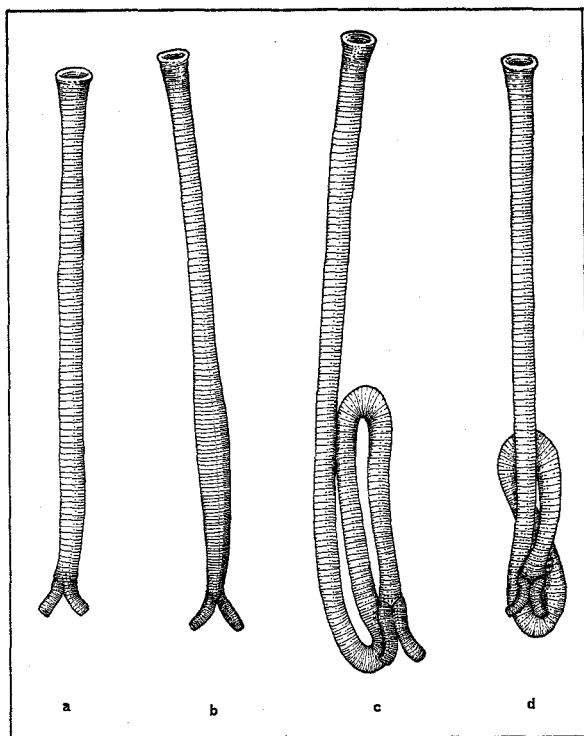


Figure 1. Tracheae and bronchi: a. Yellow-billed Spoonbill; b. Royal Spoonbill—juvenile; c. Royal Spoonbill—sub-adult; d. Royal Spoonbill—adult; (drawn from specimens).

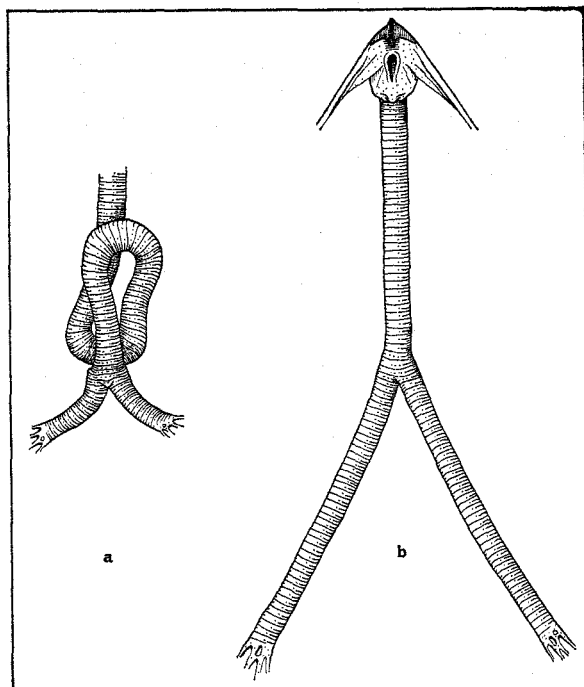


Figure 2. Tracheae and bronchi: a. White Spoonbill (after Yarrell 1841); b. Roseate Spoonbill (after Allen 1942).

the rings is greater. The diameter of the trachea is uniform throughout. Adults in breeding condition, with crests about 110 millimetres long, have convoluted tracheae in the shape of a figure of eight. The trachea is flattened throughout. The number of rings is the same as in younger birds. No sexual dimorphism occurs. For birds of all ages the width of the syrinx does not exceed that of the trachea. Although the Royal Spoonbill is the smaller of the two species, it has the longer trachea (Table I).

TABLE I  
Comparison of size of body and trachea of adult spoonbills

	No. birds	Length	
		Bird Av. (mm)	Trachea Av. (mm)
Yellow-billed	9	842	332
Royal	11	754	560

### DISCUSSION

In spite of the differences in lengths of tracheae of the two species, there is no obvious difference in their voices; both produce little more than low grunts and hissing sounds.

The Royal Spoonbill has a trachea similar to that of the White Spoonbill of Europe. Yarrell (1841) gave a diagram (Fig. 2a) showing the trachea of the White Spoonbill in the shape of a figure of eight. The same shape was earlier described by Aldrovandi and referred to by Willoughby (1678), who dissected a nestling and found a trachea of shape different from that described by Aldrovandi. Willoughby did not provide details of the shape of the trachea. Yarrell supposed that the convoluted trachea was acquired only at a certain age, as is the crest. This is what occurs in the development of the trachea of the Royal Spoonbill.

Allen (1942) depicted the trachea of the Roseate Spoonbill (Fig. 2b), but unfortunately gave no details of how the figure was obtained. It appears that the Roseate Spoonbill differs from the Yellow-billed Spoonbill in having longer bronchi.

Of the six species of spoonbills, the Yellow-billed and the Roseate lack crests. Both species have straight tracheae. The White and the Royal both have convoluted tracheae when adult. For the two other species (African Spoonbill *Platalea alba* and Black-faced Spoonbill *Platalea minor*) the shape of the trachea has not been recorded. If data were available on the tracheae and bronchi of all species of spoonbill they might provide additional characters for separating spoonbills into three genera, *Platalea*, *Platibis* and *Ajaia*, as done by Sharpe (1898) and followed by Peters (1931), but not by the RAOU Checklist of 1926 and its revisions.

### ACKNOWLEDGEMENTS

I am indebted to Mr R. McCarron for help with dissections, to Mr L. S. Hall, who drew the figures, and to Dr G. F. van Tets and Mr B. V. Fennessy for reading the manuscript.

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 23 September 1974.

## INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

### ANNOUNCEMENT A. (n.s.) 94

Required six-months' notice is given of the possible use of plenary powers by the International Commission on Zoological Nomenclature in connexion with the following names listed by case number (see *Bull. zool. Nom.* 31, part 3, 20 September 1974): 1980. Rejection of all usages of *THRAUPIDAE*, before that of Wetmore and Miller 1926 (Aves).

2074. Suppression of *Plyctolophus ducrops* Bonaparte, 1850 (Aves).

Comments should be sent in triplicate, citing case numbers to the Secretary, International Commission on Zoological Nomenclature, c/o British Museum (Natural History), Cromwell Road, London SW7 5BD, England. Those received early enough will be published in the Bulletin of Zoological Nomenclature.

December 1974

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