

In three volumes

Physiology and Biochemistry of the Domestic fowl

edited by D. J. Bell and B.M. Freeman

Volume 1



Physiology and Biochemistry of the Domestic Fowl

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Edited by

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1971



ACADEMIC PRESS · London · New York

ACADEMIC PRESS INC. (LONDON) LTD
24-28 Oval Road,
Camden Town,
NW1 7DD

U.S. Edition published by
ACADEMIC PRESS INC.
111 Fifth Avenue,
New York, New York 10003

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Library of Congress Catalog Card Number: 75-170757

International Standard Book Number: 0-12-085001-X

PRINTED IN GREAT BRITAIN BY
WILLIAM CLOWES & SONS, LIMITED
LONDON, BECCLES AND COLCHESTER

Preface

To those uninitiated into the recent activities in avian science the familiar domesticated fowl often engenders indifference or even contempt. This is regrettable because this bird possesses many fascinating and occasionally unique scientific features which deserve, and indeed nowadays receive, serious attention. We hope that these volumes may improve the appreciation of what has been discovered about this valuable bird.

For more than 5,000 years man has used the domesticated fowl as a source of protein. Its growth potential, its reproductive capacity and its efficiency as a converter of vegetable protein have been heavily exploited so that in many countries the domestic fowl is now second only to the dairy cow as a source of human food.

In multi-authored works some overlap and repetition is often unavoidable; this work is no exception. For such we make no apology; indeed we believe that editing more drastic than we have attempted would have produced a less readable and less valuable text. In preparing their contributions the authors have, for the most part, been able to survey the literature published to the end of 1970.

To conclude, both editors record their indebtedness to their wives for their forbearance during the many months of editing and to the staff of the Academic Press for their help in bringing the book to press.

D. J. BELL
B. M. FREEMAN

JULY 1971

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The Structure of the Alimentary Tract

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I. Introduction

There is a considerable literature on the structure, development and histology of the avian digestive tract (see Bradley, 1960; Farner, 1960; Romanoff, 1960; Calhoun, 1961) and the characteristic features resulting from adaptation to flight and to wide variations in diet have been amply documented. Information on the functional significance of many of the structural modifications is less extensive but with the increasing application of modern physiological and biochemical techniques many aspects of avian digestive function and metabolism are becoming clear. Some of the structural features pertinent to these studies are described in this chapter.

The general structure of the fowl digestive tract is illustrated in Fig. 1 and reference should be made to the detailed studies of Mangold (1929) and Nolf (1938) for information on the innervation of the different regions of the tract. Similarly, the extensive investigations of Nishida *et al.* (1969) on the vascular supply and drainage of the digestive tract and of Akester (1967) on the renal portal system should be consulted if vascular catheterization studies are contemplated.

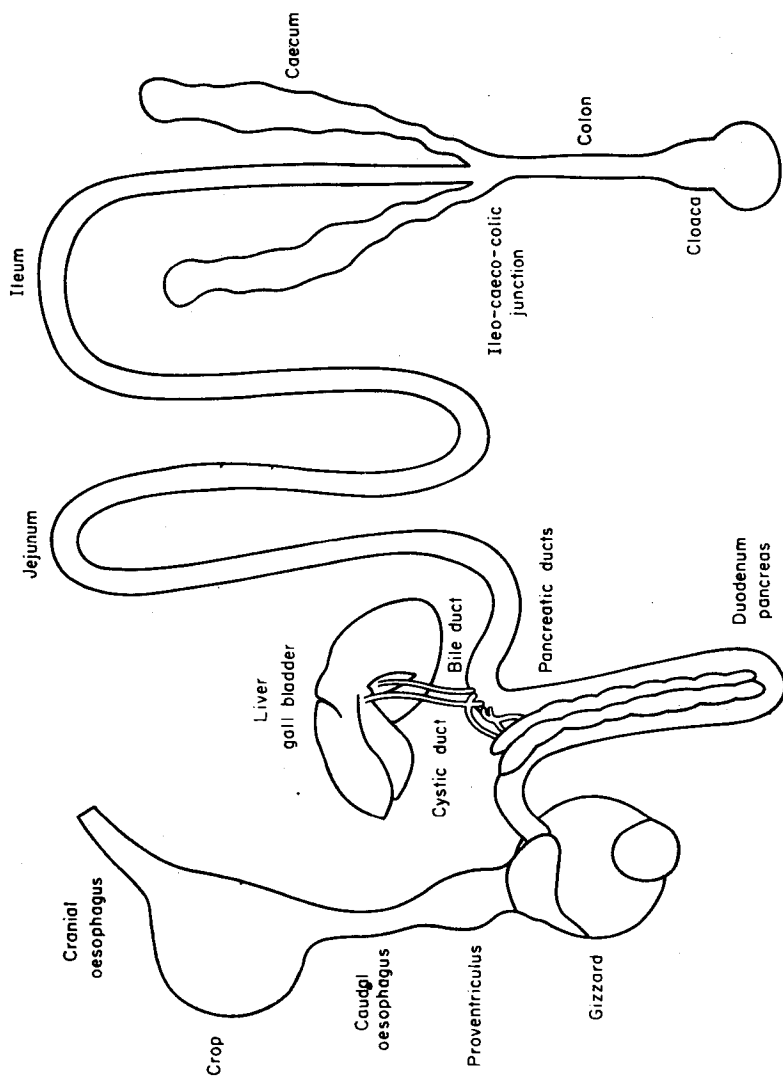


Fig. 1. The general structure of the digestive tract of the fowl.