

**MEMOIRS OF THE WISTAR INSTITUTE OF
ANATOMY AND BIOLOGY, NO. 6: THE
RAT; REFERENCE TABLES
AND DATA FOR THE ALBINO RAT (MUS
NORVEGICUS ALBINUS) AND THE
NORWAY RAT (MUS NORVEGICUS)**

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HENRY H. DONALDSON

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MEMOIRS
OF
THE WISTAR INSTITUTE OF ANATOMY AND BIOLOGY

No. 6

THE RAT

REFERENCE TABLES AND DATA
FOR
THE ALBINO RAT
(MUS NORVEGICUS ALBINUS)
AND
THE NORWAY RAT
(MUS NORVEGICUS)

COMPILED AND EDITED BY
HENRY H. DONALDSON

PHILADELPHIA

1915

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PREFACE

For a number of studies on the growth of the mammalian nervous system made by my colleagues and myself we have used the albino rat. In the course of the work we frequently felt the need of referring to other physical characters of the rat to which the nervous system might be related. This led us to collect such data as were already in the literature and also led us to make further investigations. The facts gathered in this way have proved useful to us and are here presented in the hope that they will be useful to others also.

The plan of the presentation is simple. An introduction treats of the rat as a laboratory animal, indicates the methods of gathering the data, and also gives examples of our use of the tables. This is followed by an outline of the classification of the common rats and by a brief statement of the history of the rat since it arrived in western Europe.

The rest of the book falls into two parts. The first part deals with the domesticated albino rat—concerning which we have the larger amount of information.

The second part deals in a similar way with the wild Norway rat—the form from which the Albino has been derived. In connection with each part the several reference tables and the formulas employed for them and for the corresponding graphs are given, and at the end of the book a list of papers on the rat is added.

In the two parts which form the body of the book the purpose is to present for the rat under normal conditions the fundamental observations—giving data and conclusions only. It is hardly necessary to add that in most directions our information is fragmentary.

For all the formulas which apply to the data coming from the laboratories of The Wistar Institute, I take pleasure in thanking my colleague, Dr. S. Hatai.

For aid in the preparation of these pages I am also much indebted to those unnamed assistants to whose lot has fallen the greater part of the computations for the tables and whose devotion to their work has added a human interest to a task otherwise monotonous.

To the many authors whose results are here briefly cited or quoted in extenso I take the opportunity to express my obligations—very sincere obligations—for experience shows that such results come only by hard labor.

Many of the illustrations have been taken from the journals in which they were originally published and my thanks are due to the editors and publishers of these journals for the privilege of reprinting the illustrations here.

During the preparation of this book my immediate colleagues have given me encouragement and aid, and I cherish the hope that, should the occasion arise, both of these will be again forthcoming to help mend the gaps and rectify the errors which a close scrutiny of these pages is certain to reveal.

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THE RAT

INTRODUCTION

The Norway rat, *Mus norvegicus*, is the one mammal now easily obtainable both wild and as a domesticated form. This latter is represented by either the Albino or the pied rats so common in our laboratories.

The Albinos are clean, gentle, easily kept and bred, and not expensive to maintain. They are omnivorous, thriving best on table scraps. The span of life is about three years and breeding begins at about three months. Furthermore the species is cosmopolitan. The litters are large and may be had at any season. The young are immature at birth. The domesticated Albino crosses readily with the wild Norway. The rat, both wild and domesticated, takes exercise voluntarily and is susceptible to training. It is also highly resistant to the usual wound-infecting organisms. For a number of lines of study therefore, the rat seems to be a peculiarly suitable animal.

Through the researches of several investigators at The Wistar Institute (since 1906) and through those of E. H. Dunn and of J. B. Watson at the University of Chicago, of Chalmers Watson and Sir Edward Schäfer at Edinburgh, of C. M. Jackson and L. G. Lowrey at the University of Missouri, of J. R. Slonaker at Leland Stanford University, of T. H. Osborne and L. B. Mendel at Yale University, of E. V. McCollum at the University of Wisconsin, as well as through those of several other investigators both in this country and abroad, there has been gathered a considerable body of data applying to the weight and size of the domesticated albino rat and its parts, as well as some similar data applying to the wild Norway rat, the parent species. It is the body of facts so gathered that it is our purpose to present, as far as possible in tabular form.