DIGITALIS

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Presented from a practical viewpoint, useful to the physician in practice, but at the same time providing adequate physiological and pharmacological background.

The material presented by the guest speakers and the scope of the panels offers an excellent coverage of the status of digitalis glycosides, including:

- history
- experimental approaches
- pharmacology
- toxicity
- physiology
- therapy

CHARLES C THOMAS • PUBLIS
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BANNERSTONE HOUSE
301-327 East Lawrence Avenue, Springfield, Illinois, U.S.A.

Published simultaneously in the British Commonwealth of Nations by
BLACKWELL SCIENTIFIC PUBLICATIONS, LTD., OXFORD, ENGLAND

Published simultaneously in Canada by
THE RYERSON PRESS, TORONTO

Library of Congress Catalog Card Number: 57-5597

Printed in the United States of America

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Dedicated to the Physicians of Kansas and the Staff of our Medical School who have shared the philosophy that a physician's education is a continuing process and that the Faculty has an obligation to the physician in practice as well as to the medical student.

Preface

The University of Kansas Medical School has recognized its obligation to its state and regional area to provide stimulating post graduate medical education. This has been a major purpose of our school and a major obligation of our staff.

In February, 1956, the Medical School presented a two day post graduate program on the single subject of Digitalis. The program was jointly sponsored by the School, the Kansas Medical Society, the Kansas Board of Health, the Kansas Heart Association and the Kansas City, Missouri, Heart Association.

Two hundred physicians were in attendance; guest speakers were Dr. Robert Batterman, Dr. Richard Bing, Dr. K. K. Chen, Dr. Santiago Grisolia, Dr. Bernard Lown, Dr. Aldo Luisada, and Dr. William Sodeman.

The intent of this course, as with the other Kansas post graduate courses, was to present the subject from a practical viewpoint, useful to the physician in practice, but at the same time, providing adequate physiological and pharmacological background.

The material presented by the guest speakers and the scope of the panels offered an excellent coverage of the status of the *digitalis glycosides:* their history, pharmacology, physiology, experimental approaches, toxicity and therapy were all well covered. The content of the course was augmented by obtaining additional papers from Dr. Ralph H. Major, Dr. Meyer Friedman and Dr. George Okita. This book presents this collection of information.

The contributors to the volume are representative of those working presently in this field in the United States. Their individual papers and the panel discussion have been oriented toward the practical, applied use of the drug and its background pharmacology.

The editing of this volume has been facilitated by the generous help of Dr. Sherman M. Steinzeig, Trainee, National Heart Institute. The secretarial burden was carried cheerfully by Miss Kathryn Calderwood. I wish to thank both of them.

E. Grey Dimond, M.D.

Kansas City, Kansas

Table of Contents

DIGITALIS

Doctor Ralph H. Major presented, in a beautiful and lucid manner, the life of William Withering and the origins of digitalis in his book THE CLASSIC DESCRIPTIONS OF DISEASE. *It seems particularly appropriate to begin this present volume with a reprinting of Doctor Major's essay.*

Digitalis*

WILLIAM WITHERING

DIGITALIS is without question the most valuable cardiac drug ever discovered and one of the most valuable drugs in the entire pharmacopoeia. The introduction of digitalis was one of the landmarks in the history of cardiac disease.

William Withering, who introduced digitalis into the practice of medicine, was born in Wellington, Shropshire, England, in 1741. His father was an apothecary-surgeon, who enjoyed a good practice in Shropshire. William Withering received his first education at the school of his native town and later went to Edinburgh where he took the degree of M.D. in 1766. The following year he commenced practice in Stafford, but does not seem to have been unusually successful since he wrote that his "professional engagements scarcely produced on the average of six years one hundred pounds per annum." Presently he left Stafford and moved to Birmingham, taking over the practice of Dr. Small. In 1776, we learn that his practice had become considerable and his receipts increased to more than one thousand pounds a year. He gave free advice to the poor at his home on certain days and aided the poor and unfortunate in many ways. His extensive practice caused him to travel both day and night, and during these trips he read and wrote. His carriage was equipped with a light so he could study while travelling along the countryside at night. His first published work was *A Botanical Arrangement of All the Vegetables Growing in Great Britain According to the System of the Celebrated Linnaeus; with an easy introduction to the study of Botany.* He remained all his life an ardent student of botany, and later became much interested in chemistry and mineralogy. In Birmingham he became a member of the Lunar

* Reprinted from Ralph H. Major, M.D.: *Classic Descriptions of Disease.* Springfield, Illinois, Charles C Thomas, Publisher.

Society, a scientific body so named because it met once a month, and which numbered among its members such celebrities as Priestley and Watt.

Withering's *Account of the Foxglove and Some of Its Medical Uses* was published in 1785, and immediately attracted great attention. This work was the fruit of many years of observation, and on its title page appears the appropriate quotation from Horace, *Nonumque prematur in annum* (let it be suppressed for nine years). The year of its publication he was made a fellow of the Royal Society and received a diploma from the Medical Society of London. This book of Withering is one of the classics of medical literature and greatly prized by collectors. It sold when published for five shillings with the colored plate of the foxglove. A copy sold in 1943 for $275.00.

The use of digitalis in practice was condemned by Dr. John Coakley Lettsom, who enjoyed the largest and most remunerative practice in London. Lettsom was a man of marked literary ability, a skillful physician, and a great philanthropist. Lettsom, on the recommendation of Withering, had prescribed digitalis and in eight instances the illness had terminated fatally. Among these patients was Charles James Fox, the English statesman, who was suffering from cirrhosis of the liver with ascites, and in whom it had apparently produced a fatal effect. Withering, in a letter answering Lettsom's strictures, complains that "No one could compare Lettsom's choice of patients with my declaration of the fit and unfit, or the doses he prescribed, and the perseverance he enjoined, with my doses, rules, and cautions."

Withering suffered for twenty years from bronchiectasis or possibly tuberculosis and died in 1799, age 58. He is buried in the Parish Church at Edgbaston, his tomb being adorned with the staff of Aesculapius, around which are entwined the serpent and the foxglove. Withering lived to see digitalis admitted into the *Edinburgh Pharmacopoeia* and its merits generally recognized.

Dr. Erasmus Darwin, the grandfather of Charles Darwin, employed digitalis to good effect and sought to immortalize it in the following verses:

Bolster'd with down, amid a thousand wants,
Pale Dropsy rears his bloated form, and pants;
"Quench me ye cool pellucid rills," he cries,
Wets his parched tongue and rolls his hollow eyes.
So bends tormented Tantalus to drink
While from his lips the refluent waters shrink;
Again the rising stream his bosom laves
And thirst consumes him mid circumfluent waves.
Divine Hygeia from the bending sky
Descending, listens to his piercing cry;
Assumes bright Digitalis dress and air;
Her ruby cheek, white neck and raven hair;
Four youths protect her from the circling throng,
And like the Nymph the Goddess steps along.
O'er him she waves her serpent wreathed wand,
Cheers with her voice and raises with her hand
Warms with rekindling bloom his visage wan,
And charms the shapeless monster into man.

BOTANIC GARDEN. Part 2, Canto 2.

AN ACCOUNT OF THE INTRODUCTION OF FOXGLOVE INTO MODERN PRACTICE *

As the more obvious and sensible properties of plants, such as colour, taste, and smell, have but little connexion with the diseases they are adapted to cure; so their peculiar qualities have no certain dependence upon their external configuration. Their chemical examination by fire, after an immense waste of time and labour, having been found useless, is now abandoned by general consent. Possibly other modes of analysis will be found out, which may turn to better account; but we have hitherto made only a very small progress in the chemistry of animal and vegetable substances. Their virtues must therefore be learnt, either from observing their effects upon insects and quadrupeds; from analogy, deduced from the already known powers of some of their congenera, or from the empirical usages and experience of the populace.

The first method has not yet been much attended to; and the second can only be perfected in proportion as we approach to-

* Withering, William, *An Account of the Foxglove and Some of its Medical Uses*, Birmingham, Swinney, 1785, p. 1, p. 11.