

BREEDING FARM ANIMALS

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649404773

Breeding Farm Animals by F. R. Marshall

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

F. R. MARSHALL

**BREEDING
FARM ANIMALS**

This book is dedicated to the memory
of the late Professor John A. Craig
in remembrance of
extraordinary service
to agricultural education
in establishing the teaching
of animal husbandry.

Breeding Farm Animals

By F. R. Marshall
Professor of Animal Husbandry
Ohio State University



UNIV. OF
CALIFORNIA

Chicago:
The Breeder's Gazette
1912

SF105
M3

COPYRIGHT, 1911.
SANDERS PUBLISHING CO.
All rights reserved.

70 1911
AMERICAN

TABLE OF CONTENTS.

INTRODUCTION.

CHAP. I.—EARLIER STOCK BREEDING.

The Arabian Horse—French Horse Breeding—The Thoroughbred—British Stock—Robert Bakewell—Influence of Bakewell's work—Dates of Foundings of the Breeds 15—21

CHAP. II.—AMERICAN STOCK BREEDING.

European Stock in America—The American Trotter—Draft Horses from Europe—Coach Horses—Cattle Importations—Advent of Breeds of Sheep—American Breeds of Swine—Hindrances to Stock Raising—Proportion of Registered Stock—Need of Good Stock—State Aid—Federal Aid—Breeder's Opportunities 22—31

CHAP. III.—HEREDITY.

Secrets in Breeding—Indefinite Expressions of Breeders—Results of Experience—Bakewell's Principles—Breeder's Desideratum—Heredity—Heredity has a Physical Basis 32—39

CHAP. IV.—FACTS CONCERNING REPRODUCTION.

Female Reproductive Organs—Male Reproductive Organs—Essentials of Conception—Barrenness—Sterility—Number of Services—Size of Litter—Influence of Sire and Dam 40—47

CHAP. V.—THE GERM CELLS.

Cell Growth—The Chromatin—The Chromosomes—Preparation of the Germ Cells—Significance of the Chromosomes—Fertilization 48—58

CHAP. VI.—THE HEREDITARY MATERIAL.

Scientists and Breeders—Inheritance Through Chromosomes—Possible Chromosome Combinations in Ovum—Possible Chromosome Combinations in Spermatozoa—Equally Probable Results of Fertilization—Why Related Animals Differ—Basis of Controlling Heredity 59—64

CHAP. VII.—ORIGIN OF THE HEREDITARY MATERIAL.

- The Problem—Necessity and Value of Theory—Darwin's Theory—An Opposite View—Pangenesiis—Continuity of Germ Plasma—The Explanations Compared—Relation of Practice to the Theories..... 65—72

CHAP. VIII.—BREEDING AND SELECTION.

- Basis of Control of Heredity—Why Offspring Resembles Parents—Ancestry and Prepotency—How Atavism May Occur 73—78

CHAP. IX.—INDIVIDUAL EXCELLENCE IN BREEDING ANIMALS.

- Foundation Stock—Types—Value of Type—Need of Full Study—Breeder must be a Judge—Prepotency—Character—Significance of Character—Age and Prepotency—Fancy Points..... 79—82

CHAP. X.—PEDIGREES OF BREEDING ANIMALS.

- Progeny the Best Test—Form of Pedigree—All Ancestors Must be Studied—Breeding Records of Parents—Similarity of Type in Parents—Value of Show Awards—Fair Estimate of Sire—Advanced Registers—Obscured Merit—Grandparents—Near and Remote Ancestors—Fashion and Family Names—Significance of Breeders' Names—Correctness of Pedigrees..... 83—110

CHAP. XI.—THE OFFSPRING DURING GESTATION.

- Relation of Foetus to Dam—Effect Upon Foetus of Maternal Impressions—Need of Care in Management—Nutrition of Offspring—Feeding the Dam—Growth of Bovine Foetus—Influence of a Previous Impregnation.111—120

CHAP. XII.—DEVELOPMENT OF YOUNG STOCK.

- What Constitutes Environment—Improved Stock for Improved Environment—Feeding Must Support Breeding—Feeding While Young—Good Care Aids Selection—Transmission of Effects of Environment—Biologists on Transmitted Development—Acquired Development in Trotters—Claimed Transmission of Acquired Development—Inheritance Not Related to Sire's Age—How Development Aids Selection—Actual Role of Environment121—138

CHAP. XIII.—DETERMINATION OF SEX.

Influence of Time of Breeding—Influence of Body Conditions—Alternating Ova—Influence of Stronger Parent—Effect of Nutrition—Experimental Evidence—Experiments with Butterflies—The Evidence from Bees—Sex Probably Determined at Conception—The Accessory Chromosome—Significance of the Accessory Chromosomes—Undesirability of Sex Control. . . 137—148

CHAP. XIV.—FOUNDATION AND MANAGEMENT OF A BREEDING BUSINESS.

Breeding an Art—The Breeder's Personal Equipment—Judging Ability—Impartiality Essential—Value of Breed History—Salesmanship—Advertising—Executive Ability—Wealthy Breeders—Location—Home Grown Feeds—Strain More Important Than Breed—Starting from Market Stock—Not How Many, But How Good—Cheap Foundation Stock—Merit in Both Parents Essential—The First Sire—The Second Sire—Phenomenal Sires—Culling the Females—Uniformity in Females—Value of Long Established Herds. 149—168

CHAP. XV.—INBREEDING AND LINE BREEDING.

Inbreeding Defined—Line Breeding—Opposition to Inbreeding—Thomas Bates and Inbreeding—Barrenness in Early Duchesses—Swine Statistics—Laboratory Experiments—Benefits of Inbreeding—American Hereford Breeding—The Gentry Berkshires—The Principle of Inbreeding—Inbreeding per se—Risk in Out Breeding—When to Inbreed. 167—187

CHAP. XVI.—MENDEL'S LAW.

Breeding in the Future—Beginnings of New Characters—Mutation—Polydactylous Guinea Pigs—DeVries Experiments—Cause of Mutation—Cross Breeding for New Characters—Mendel—Mendel's Experiments—Mendel's Law—How Mendelian Proportions Occur—Purity of Gametes—Mendelism in Animals—Unit Characters—Application of Mendel's Law—Limitations of Mendelism—Non-Mendelian Characters—Need of Breeder's Records. 188—208

CHAP. XVII.—BREED RELATIONS.

The Place of Breeds—Evolution of Types—Need for Numerous Breeds—Distribution of Breeds—Community Breeding—Value of Shows—Basis of Awards—Ad-

vanced Registration—Registration in the Future— Cross Breeding—Crossing Types—Pure Breeds for Crossing—Limits of Improvement—Effects of Inju- dicious Breeding—Breeding for Vigor and Prolifi- cacy	209—221
---	---------

CHAP. XVIII.—BREEDERS' ASSOCIATIONS.

Origin of Registration—Advantage of Single Registers— Conduct of Herd Books—Relation of Government— Canadian Registration Affairs—Eligibility to Regis- tration—Other Functions of Breed Associations.	222—230
---	---------

CHAP. XIX.—HORSE BREEDING.

Place of the Draft Horse—Cities Set Prices—Earlier Draft Horse Affairs—American Breeding—The Depression —The Revival—Advantages of Foreign Breeders— Stallion Raising—Influence of the Auto-Truck— Breed for top of Market—Draft Types—Market Discrimination—Breeding Carriage Horses—Good Breeding an Essential—Breeding Trotters.....	231—247
---	---------

CHAP. XX.—CATTLE BREEDING.

Influence of the Range—Beef and Valuable Lands— American Progress in Herefords—Evolution of Types —Early Maturity and Size—Advance of Dairying— Advantages of Dairying—Professional and Commer- cial Breeders—Superiority for Dairy Purposes— Breed Tests—Advances in Dairy Breeding—Form and Function—Extra Influence of Sire—Testing Breeding Cows	248—265
---	---------

CHAP. XXI.—SHEEP BREEDING.

Environment for Sheep—Economy of Sheep Raising— English Shepherding—Pedigrees not to be Ignored— Breed Type—Fine Wools in America—Maintaining the Type	266—277
---	---------

CHAP. XXII.—SWINE BREEDING.

Need of Improvement—Breed Building—Extremes Needed —Results of Extremes—Show Type—Opening for More Breeds—Mixing Types—Continuity in Farm Breeding—Conservative Breeders—Breeders' Re- ward	278—287
---	---------