

**A scheme of the lectures, on the animal oeconomy : proposed to begin on Monday, the 1st of October, 1739. / By William Schaw, M.D.**

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S C H E M E

O F T H E

L E C T U R E S,

O N T H E

Animal Oeconomy ;

P R O P O S E D

To Begin on *Monday*, the 1st of *October*, 1739.

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By *WILLIAM SCHAW*, M. D.

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L O N D O N,

Printed in the Year, MDCCLXXXIX.

S. C. H. E. M. E.

O. F. T. H. E.

L. E. C. T. U. R. E. S.

O. F. T. H. E.

Animal Economy

O. F. T. H. E.

of the Faculty of Medicine

J. B. S. P. A. N. I. S. M. D.


L. O. N. D. O. N.

Printed by J. B. S. P. A. N. I. S.



T H E

# INTRODUCTION.

INCE I found in my former Courses, that the Want of an Abstract, or View of my System was attended with uncertain Conjectures; at the Desire of several Gentlemen, who did me the Honour to attend my Prelections, I am induc'd to publish a short Sketch digested under the following Heads; and I hope, it will be useful, and necessary to give a clear Idea of this Undertaking.

IT would be almost needless for me to say any Thing as to the Advantages arising from a Regular Study of Physic in all its Branches; and I am convinc'd at first Sight, that Every One must allow the Knowledge of the Institutes to have their Merit. By what Laws the Functions of a living Animal are conducted, and carried on, must be known by him, who would reform these Laws when subverted: And

*for this Purpose, it's necessary to know what Rules the Fluids observe in their Motions; and from what Cause, and how the more solid System is actuated in a Natural State.*

*THIS, even as a Speculation, or Piece of Philosophy, deserves to be considered, and attended to; but when we take a View of its necessary Connexion with the Regular, and Certain Practice of Physic, and how far it influences it, this should be esteem'd no inconsiderable Part of Study.*

*IT will appear from hence, That the Rational Practice is the Result of a well-founded Theory, without which it is impossible to enter into the Nature of Diseases, and foretell their Consequences; seeing the Institutes are an Investigation of the Laws of the Oeconomy; which so long as they preside over the Animal, constitutes the Idea of Health; and as soon as the Regular Functions and Actions are perverted, a Disease must consequently follow.*





# S C H E M E,

G I V I N G

A General View of the Preections from  
*Boerhaave's* INSTITUTES.



HIS Course of Physiology refers to the  
Institutions of the late Famous Professor  
*Boerhaave*.

THE Scheme is persued on the same  
Plan, and each Demonstration made ob-  
vious to every Capacity.

FROM the Structure given, the Action in a natural State  
is deduced, and the *Phaenomena* depending upon the same  
considered.

B

THAT

THAT the more abstruse, and intricate Parts of the Animal Oeconomy may be comprehended with the greatest Ease, we set out with what is simple, and obvious, and easily understood by every Auditor ; and from thence proceed to what is more complex : Whereby all the Alterations, and Changes will appear to be the necessary Effect of the Physical Agents before-explain'd.

## CHAP. I.

### *The INTRODUCTION.*

*Containing the History, or Rise, and Progress of Physic ;  
The Application of this to every Animal Substance, and  
particularly the Human.*

## CHAP. II.

§. 1. The Functions in General.

§. 2. *Mastication* and *Deglutition*.

§. 3. The *Stomach* consider'd as a Cavity.

§. 4. The Anatomical Structure of the *Stomach*.

§. 5. The different Plans of the *Muscular Fibres*, and the proper Direction of Each.

§. 6. The Consequence of these acting *Muscular Fibres*, and how far *Digestion* depends upon them.

§. 7. *Di-*

- §. 7. *Digestion* in General: With the various *Hypotheses* concerning it, supported by the different Sects of Philosophers.
- §. 8. The Nature, and Action of the *Bile*, and the *Pancreatic Juices*.
- §. 9. The Expulsion of the *Fæces*, and from what Cause the *Peristaltic Motion* of the *Intestines*.
- §. 10. The Application of the *Chyle* to the Mouths of the *Lacteal Veins*, and the Motion of this *Fluid* thorow their Cavities.
- §. 11. The Structure, and Use of the *Glands* of the *Mesentery*.
- §. 12. The Passage of the *Chyle*, from these *Glands* to the Receptacle.
- §. 13. Its Course from thence to the *Subclavian*, and by what Mechanism it is propelled thorow the *Lacteal Duët*.

## C H A P. III.

## SANGUIFICATION and CIRCULATION.

- §. 1. The Situation, and Connexion of the *Heart*, determined from its Natural Appearance in the Body.



§. 2. Its true Inclination proved from its Adhesion to the *Pericardium*, and Connexion with the large *Blood-Vessels*.

§. 3. The particular Figure of the *Heart*.

§. 4. The Anatomical Structure ; in which is shewn the Decursion of the *Muscular Fibres*, and their mutual Inclinations.

§. 5. From hence the Action of the *Heart* as a *Muscle* is easily ascertained.

§. 6. The Structure, and Use of the *Pericardium*, and by what Mechanism it assists the Motion of the *Heart*.

§. 7. The Physical Properties of the *Blood*, together with its *Analysis*, from *Chymical Experiments*.

§. 8. As a *Fluid*, how far it is subject to the Laws of *Hydrostatics*.

§. 9. How far the alternate State of *Systole*, and *Diastole*, is subject of Demonstration ; and in what Proportion the *Synchronism* and *Diachronism* takes Place ; proved, 1<sup>st</sup>. From a peculiar Mechanism in the *Auricles*, and the Anatomical Disposition in the *Ventricles*. 2<sup>dly</sup>. This is further confirm'd by the Progression, which all Bodies in Motion, whether *Solid* or *Fluid*, must observe.

§. 10. The Figure, and Structure of the *Arteries*, with their respective Properties ; and the Advantages to the *Fluids* in Motion arising from thence.

§. 11. The

- §. 11. The Structure of the *Veins*, and their Use: With an *Hydrostatical* Demonstration of the Use of the *Valves* in the *Veins*.
- §. 12. The Cause of *Motion* in the *Solids*, and the necessary physical Properties in the *Fluids*, for assisting this *Motion*.
- §. 13. The different Directions of the various *Particles*, according to their physical Properties.
- §. 14. Some useful Theorems on the Nature of *Projectile Motion*.
- §. 15. The Generation of *Animal Heat*, with its different Degrees.
- §. 16. The Equable Motion of the *Refluent Blood* in the *Veins*; from what Cause, and of what Use.
- §. 17. Several Experiments Curious, and Useful; proving the *Motion* of the *Blood* to be a *Perfect Circulation*.

To which is subjoined the different Arguments in their full Force, for, and against *Circulation*.

CHAP. IV.

SECRETION.

- §. 1. The Nature of *Secretion* in General, and upon what an increased, or diminished Quantity depends.
- §. 2. Why different in different Parts of the Body, and the Physical Reason for the same.
- §. 3. The Nature, and Properties of the *Glands*.
- §. 4. Conglobate *Glands*.
- §. 5. Conglomerate *Glands*.
- §. 6. Each Glandular Substance considered by itself, as the *Liver, Spleen, Kidnies, &c.* The peculiar Mechanism in the Structure of Each, and the Uses of the secreted Liquors to the Oeconomy.

CHAP. V.

*The General Offices of LIFE.*

- §. 1. *Respiration* in General: And on what, *Perfect Respiration* depends.
- §. 2. The *Lungs* a *Pneumatick Engine*.
- §. 3. The

- §. 3. The Structure, and Use of the *Lungs*.
- §. 4. The different *Fluids*, that pass thorow the *Bronchials*, and *Blood Vessels*.
- §. 5. A particular Account of the *Intercostal Muscles*, with a Demonstration of their Action.
- §. 6. The Anatomical Structure, and Use of the *Diaphragm*; and how far it is assistant in this Complicate Action.

C H A P. VI.

N U T R I T I O N.

- §. 1. The Nature of *Nutrition*.
- §. 2. How *Nutrition* is performed; and in what *Vessels*.
- §. 3. The same Physical Cause, that produces an *Abrasion* of the Parts, is the Cause of *Nutrition*.
- §. 4. *Nutrition*, when finished: And why a further Increment is impossible after a *Perfect Nutrition*.
- §. 5. A Physical *Rigidity* of the *Parts* is the Period of Animal Life.

C H A P. VII.

M O T I O N in General.

- § 1. The Nature, and Cause of *Animal Motion*.
- § 2. *Muscular Motion* : With the Properties of a *Muscle*.
- § 3. The Advantages of *Motion*, arising from the Direction, and Inclination of the *Muscular Fibres*
- § 4. The different Kinds of *Motion* ; Voluntary, Involuntary, and Mixed Motion : With the Physical Cause of the same.
- § 5. The Distribution of the Nervous Filaments to the *Muscles*.
- § 6. Experiments on the *Nerves* : With a Demonstration of their Offices, with Regard to *Motion*.
- § 7. The Ramifications of the *Arteries*, and their Distribution to the *Muscles*.

C H A P. VIII.

S E N S A T I O N.

- § 1. The Nature, and Difference of the *Organized Parts* assigned for this Use.

§. 2. *Touching*

- §. 2. *Touching*, what ; And why different in different Persons.
- §. 3. The proper Instruments of *Touching*.
- §. 4. *Tasting* : The Organs assigned for this Purpose.
- §. 5. *Smelling* : The Conformation of the *Nostrils* for that Effect.
- §. 6. The particular *Mechanism* of the *External*, and *Internal Ear*, for the Reception of the sonorous Rays.
- §. 7. An Useful Dissertation on *Sound* : With a Demonstration from a particular Instrument, by which the Doctrine of *Sounds* is made plain, and obvious ; and by that Means *Hearing* is easily explained, and fully understood.
- §. 8. The Structure of the *Eye*.
- §. 9. The *Eye* an Optical Instrument : And on what *Perfect*, and *Imperfect Sight* depends ; wherein *Vision* is fully explain'd, and consider'd.

C H A P. IX.

G E N E R A T I O N.

- §. 1. What constitutes the Difference in the *Sex*.
- §. 2. The proper Instruments of *Generation* in Both.

D

§. 3. The

- §. 3. The Nature of *Generation* supported by *Philosophy*.
- §. 4. *Spontaneous*, or *Equivocal Generation* exploded as absurd, and contradictory to the Laws of *Philosophy*.
- §. 5. *Impregnation*.
- §. 6. *Conception*.
- §. 7. The Nutrition of the *Fœtus* in the Womb.
- §. 8. The Communication of the *Blood*, from the Mother to the *Fœtus*; by what *Mechanism* performed.
- §. 9. The Properties of the *Catamenia*, and the Cause of their Periodical Evacuation.

P A R T II.

*The P A T H O L O G Y.*

- §. 1. The Physical Difference between *Health*, and a *Disease*.
- §. 2. What constitutes a *Disease*.
- §. 3. The *Diseases* peculiar to the *Humours*.
- §. 4. The different States of the *Humours* in different Constitutions.

§. 5. The

- §. 5. The *Diseases* proper to the *Solids*.
- §. 6. The Symptoms of *Diseases* : How they constitute the *Prognostices*,
1. Arising from the *Pulse*.
  2. *Respiration*.
  3. The *Alteration*, or *Change*, induced from the *Secretions* ; and particularly the *Urine*.

P A R T III.

- §. 1. The different Classes of *Medicines* ; with their Nature and Properties.

To which is subjoined,

- §. 2. A General Theorem to calculate the just Proportion, and Quantity of every *Medicine*, proper for every Age, and Constitution.

Whilst the various Arguments, and different *Hypotheses* are fairly stated, and impartially consider'd thro' the whole Progress :

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- 3. 2. The Doses proper to the State.
- 3. 3. The Symptoms of Dyspepsia: How they continue the Progress.
- 3. 4. 1. Arising from the Lungs.
- 3. 4. 2. Respirative.
- 3. 4. 3. The Alteration or Change induced from the Stomach; and particularly the Acid.

P A R T III.

- 3. 5. 1. The different Classes of Medicines; with their Nature and Properties.
- 3. 5. 2. To which is referred,
- 3. 5. 3. A General Theory to calculate the just Proportion, and Quantity of every Medicine, proper for every Age and Constitution.
- 3. 5. 4. With the various Arguments and different Methods are fully stated, and impartially considered thro' the whole Progress.

By W. SERRAW, M.D.