

**Applied physiology : fifty lectures (including laboratory work) / ... Queen Margaret College, session 1887-88 ; Prof. John G. M'Kendrick ... and J. M'Gregor-Robertson.**

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# Queen Margaret College,

SESSION 1887-88.

## APPLIED PHYSIOLOGY.

FIFTY LECTURES (including Laboratory Work).

PROF. JOHN G. M'KENDRICK, M.D., LL.D., F.R.S., and  
J. M'GREGOR-ROBERTSON, M.A., M.B., C.M.

These Lectures will be delivered in Queen Margaret College on Mondays and Wednesdays at 2 p.m., beginning on Wednesday, 2nd November, 1887. The Course will terminate in April, 1888.

Part of the Course will consist of practical instruction in simple methods for the examination of milk, flour, bread, tea, and other articles of food, for adulteration and impurities, and for the detection of impurities in water, air, etc.

An endeavour will be made by the Lecturers to arrange a small laboratory in Queen Margaret College for this purpose, and for this part of the Course the class will be divided into sections of a size to permit each student to practise the methods.

The following is a general syllabus of the course of study :—

*Introductory.*—The meaning of Applied Physiology. The analogy between the animal body and a working engine leading up to a consideration of the sources of energy of the animal body, and the conditions of its healthy activity.

## A.—THE SOURCES OF ENERGY.

## I.—FOOD.

*The Origin of Food.*—Food regarded as a store of energy.

*The Chemical Composition of Food-Stuffs.*

*The Proximate Principles of Food.*—Water, salts, nitrogenous and non-nitrogenous principles. Their chemical composition and physiological uses.

*The Arrangements for the Digestion of Food.*—The purposes of digestion. The apparatus of digestion, including a description of the structure of the organs of digestion. The digestive ferments and the digestive process.

*Consideration of Substances used as Food.*—Animal foods including meat of various kinds, fowl, fish including shell-fish, eggs, milk including butter and cheese. Vegetable foods: wheat, flour, and bread, oats, barley, rye, rice, Indian corn, and other farinaceous food-stuffs, peas, beans, and lentils, potatoes, etc., cabbage and other herbaceous articles, fruits and condiments, sugar, honey, treacle. The percentage composition of various articles of food.

*Water and Unfermented Beverages.*—Composition and properties of water. Varieties of water. Tea, coffee, cocoa, chocolate: their composition, physiological actions, and dietetic value. Constituents of a “cup of tea.”

*Alcoholic Drinks.*—The effects of alcohol. Alcohol as a food. The forms of alcohol, and percentages in various alcoholic beverages.

*The Nutritive Value of Various Food-Stuffs.*—The economy of a mixed diet.

*Relation of Food to Work.*—Standard diet. Construction of dietaries. Influence of age and sex. Adjustments required by climate.

*Diet of Infants and Invalids.*—The therapeutical effect of modifications in diet, as for gout, diabetes, corpulence. The artificial digestion of food.

*Effects on Health of Food defective in quantity or quality.*—The relation of improper food to certain diseased conditions.



*Physiological Principles involved in Cookery.*

*The Preservation of Food.*—Consideration of the various methods of preserving food, and of the varieties of preserved meats, vegetables, fruits, etc.

*The Adulteration of Food.*—Water and its impurities. Adulterations of flour, bread, oatmeal, sugar, tea, and coffee, milk, butter, etc. Methods of examination. Unwholesome meat.

## II.—AIR.

*The Composition of Atmospheric Air.*—The various constituents of air and their physiological effects.

*The Physiology of Respiration.*—The structure of the lungs and air-passages. The exchanges between the air in the lungs and the external atmosphere, and between the air in the lungs and the gases of the blood. The influence of dress on respiration.

*Ventilation.*—Impurities in air, and their effects. Atmospheric organisms, and their relation to contagion. Purpose and appropriate methods of ventilation. Foul air in dwellings. Disinfection.

## B.—SOME CONDITIONS OF HEALTHY ACTIVITY.

### I.—THE MAINTENANCE OF TEMPERATURE.

*Animal Heat.*—The sources of heat in the body. The regulation of temperature.

*The Functions of the Skin.*—The structure of the skin. How the skin acts in the regulation of temperature. Baths and bathing, their physiological effects and uses.

*The Regulation of Temperature by Clothing.*—The materials of clothing, and their properties as regards moisture, heat, etc. Clothing and climate. Errors in dress.

### II.—THE REMOVAL OF WASTE.

*The Organs of Excretion in the Body.*—The removal of waste products by the channels of the lungs, bowels, kidneys, and skin.

*The Removal of Excreta from Dwellings.*—Methods of drainage, and their commoner defects.

## III.—EXERCISE.

*Muscle and Bone.*—Structure and functions. Motion and locomotion. Effects of exercise. Insufficient exercise. Over-exertion.

*Varieties of Forms of Exercise.*—Walking, running, jumping, etc. Gymnastics. Passive motion. Massage.

*Note.*—The work of students during the session will be tested in two ways—(1) By written exercises done at home at intervals of two or three weeks. These will be returned with any annotations that may be necessary. (2) By three competitive examinations held in Queen Margaret College, one about the middle of December, the second early in February, and the third about the middle of March.

*Text-Books*—Dr. M'Kendrick's *Outlines of Physiology*, and Dr. M'Gregor-Robertson's *Text-Book of Hygiene* (in preparation).

Fee for the Course, £2 2s.

*Class Tickets may be obtained from the Hon. Secretary, at Queen Margaret College.*