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JENNER

THE

~~British~~ Institute of Preventive
Medicine

SYLLABUS

1899.



INCORPORATED 25th JULY, 1891.

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LONDON, S.W.

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British Institute of Preventive Medicine,
LONDON.

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Chemical and Water Laboratory.

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Photomicrographic Laboratory.

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Teacher of Hygiene to the Institute.

JOSEPH PRIESTLEY, B.A., M.D., D.P.H. (Camb.)

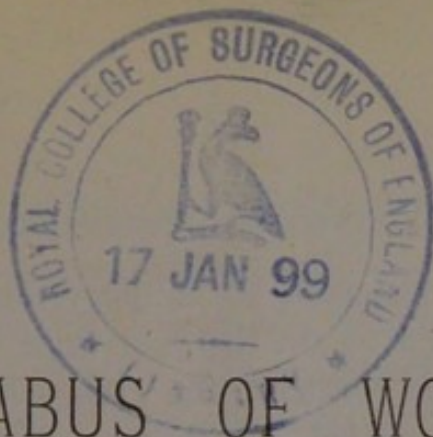
OBJECTS OF THE INSTITUTE.

The main objects for which the Institute was established are described in the Articles of Association of the Institute as follows :—

- A. To study, investigate, discover and improve the means of preventing and curing infective diseases of man and animals ; and to provide a place where research may be carried on for the purposes aforesaid.
- B. To provide instruction and education in Preventive Medicine to Medical Officers of Health, Medical Practitioners, Veterinary Surgeons, and advanced Students.
- C. To prepare and to supply to those requiring them such special protective and curative materials as have been already found or shall in future be found of value in the prevention and treatment of infective diseases.
- D. With a view to effecting these objects, to provide laboratories, to appoint a scientific staff, to institute lectures and demonstrations, to issue publications of the transactions of the Institute, and to found a library.
- E. To do all such other lawful things as may from time to time be conducive to the attainment of the objects above set forth, or any of them.

The Institute is engaged in the furtherance of all branches of Bacteriological inquiry, and its functions also include a study of such Bacteriological matters as have bearing on Industrial pursuits, and a knowledge of which is important to the Agriculturist, the Brewer, the Distiller, the Chemist, and others.

In fulfilment of the above objects the staff of the Institute will be prepared to supply all those who require it with information on Bacteriological matters, and to carry on investigations and to superintend instruction in the various branches of this subject.



SYLLABUS OF WORK,

1899.

The Laboratories of the Institute are open daily, except on Saturdays, from Ten to Five o'clock, for the purpose of Investigation and Instruction. The present Session commences on January 9th, 1899, and extends over three months. The Summer Term extends from the beginning of May to the end of July.

I.

Bacteriological Laboratories.

A. ORIGINAL RESEARCH.

Every facility will be given to those who desire to conduct Research work, independently or under the supervision of the staff. A fee of £1 1s. per month will be charged for a working bench and the use of the ordinary laboratory materials, but the expense of additional requirements is to be defrayed by the investigator.

B. PRACTICAL INSTRUCTION.

Courses of Instruction for Senior Students are held during the Winter and Summer Sessions.

(1) SYSTEMATIC BACTERIOLOGY.

A course in Systematic Bacteriology, extending over three months, will be held by the Director once in the Winter and once in the Summer Session. The class will meet three times weekly, and is intended for those who desire to obtain a knowledge of Bacteriological work in all its phases, or to lay the foundation for subsequent work in this direction. The Biology of the Micro-organisms will be illustrated as fully as possible, together with their functions in nature and their action in health and disease. The salient points will be dealt with by means of Demonstrations and Lectures, as well as by practical work. The opportunity will be given to each Student to carry out fully the practical details of the course.

The Course deals with the following subjects :—

1. Morphology and Biology of the Moulds, Yeasts, Bacteria and Protozoa.
2. Methods of Isolation, Cultivation and Staining of Micro-organisms.
3. Methods of observation.
4. Main groups of Saprophytic bacteria and their functions.
5. Pathogenic Micro-organisms :—The methods of proving their causal relation to disease ; their detection in the tissues and secretions of the body ; the preparation of cultures, etc.
6. Chemical products of Micro-organisms :—Enzymes, Toxins, Bacterial Proteins (Tuberculin, Mallein), etc.
7. Immunity, Natural and Acquired ; Methods of producing Immunity (Antitoxins).

This Course will commence on January 9th and on May 1st, and will be held from 10 a.m. to 1 p.m. on Mondays, Wednesdays and Fridays. Fee £8 8s.

(2) BACTERIOLOGY IN RELATION TO MEDICINE AND PATHOLOGY.

A shorter Practical Course, extending from four to six weeks, upon Bacteriology in relation to Medicine and Pathology will be given by Dr. R. T. Hewlett. The class will meet three times weekly in the afternoon. Special attention will be devoted to the following points :—

1. Morphology and Biology of Pathogenic organisms.
2. Methods employed for their cultivation and observation.
3. Stains and Staining.
4. The preparation of Organs and Tissues for Bacteriological examination.
5. Infective Diseases.
6. Bacteriological Methods of Clinical Diagnosis.

This Course will commence on January 9th and on May 1st at 2.30 p.m. Fee £5 5s.

(3) TROPICAL DISEASES.

The Courses of Instruction are also adapted to the requirements of Medical Practitioners and of Surgeons in the Indian and Army Medical Services who may have to practise in the Tropics. Facilities will be given for acquiring a knowledge of the Bacteriology of tropical diseases and the methods of work that are of practical value.

(4) BACTERIOLOGY IN RELATION TO HYGIENE.

The necessary Instruction in Bacteriology for Health Officers and Students of Hygiene is also conducted in the Bacteriological Department, under the supervision of the Staff. The details of the practical Laboratory work are given in connection with the Public Health Course on page 14.

(5) BACTERIOLOGICAL CHEMISTRY.

Arrangements have been made whereby Advanced Students who possess the time and necessary qualifications for work of this nature may pursue the study of this branch of investigation under the advice of the Director.

It is recommended that when possible a minimum period of three months be devoted to Bacteriological study. The following Laboratory text-books will be found useful;—Hewlett's "Manual of Bacteriology"; Abbott's "Principles of Bacteriology"; Thoinot et Masselin's "Précis de Microbiologie"; Günther's "Bakteriologie."

II.

Antitoxin Laboratories.

The Antitoxin Laboratories of the Institute are situated at Sudbury, near Harrow, and are in charge of Dr. G. Dean and Dr. Alf. Salter. The Department is engaged in researches in the field of serum therapeutics and in the preparation of such protective and curative materials as may be found to be of use in the prevention and treatment of disease. The anti-diphtheria, the anti-tetanus and the anti-streptococcus serums are prepared for the use of the medical profession. The Institute also prepares and supplies Tuberculin and Mallein for the use of the Veterinary profession in the diagnosis of Tuberculosis and Glanders. Further particulars may be obtained on application.

III.

The Hansen Laboratory.

In this Laboratory, which is under the direction Dr. G. Harris Morris, provision is made for the investigation of problems connected with the Bacteriology of Technical Processes, and also for the instruction of those interested in the Bacteriology of Brewing, Distilling, Agriculture and other industries.

A. ORIGINAL RESEARCH.

Advanced Students or others wishing to carry out special researches in connection with Technical Bacteriology will have all facilities afforded them, and will be aided in their work by members of the Staff.

B. PRACTICAL INSTRUCTION.

Systematic instruction will be given in the Bacteriology of fermentation as applied to brewing and the allied industries, and in pure yeast culture. The course will include instruction in bacteriological methods, and the preparation of nutritive media; in the methods of pure culture of yeast and other organisms; in the examination of typical yeasts, moulds and bacteria, and the study of their characteristics; in the examination and analysis of commercial yeasts, and the selection of pure races for brewing or other purposes; in the examination of the chemical and other properties of pure cultivated yeasts; in the application of pure cultures to technical operations; and in the bacteriological examination of air and water for the above technical purposes.

The above Course may be modified to meet special requirements, and courses of instruction in other branches of Technical Bacteriology will be given from time to time.

Courses will commence on January 9th and on May 1st, and will in each case extend over a period of three months. The fee for either course will be twenty-five guineas, and will include the use of all apparatus and reagents.

Further particulars can be obtained on application.

IV.

Chemical and Water Laboratory.

This Laboratory is open to those who desire to prosecute investigations of a Chemical nature in connection with Public Health and Bacteriology, or to take advantage of the instruction it affords. The work is under the superintendence of Dr. Arthur Harden

Facilities are afforded to workers who wish to become acquainted with the special analytical methods employed for the examination of water, soil, air and foodstuffs. The Laboratory is available for medical men, health officers and chemists.

The fees for investigation or instruction in any special branch of work may be learned on application.

A practical course in Chemistry and Physics for Public Health Qualifications is also conducted for students of Hygiene by Dr. Harden. The syllabus of this course will be found on p. 14.

V.

Photomicrographic Laboratory.

The growing importance of this branch of work has led the Institute to offer the facilities of this Laboratory to those who desire to utilize the aid of Photomicrography in connection with their work.

A course of six practical demonstrations will be given from time to time by Mr. J. E. Barnard, as follows :—

1. The general principles of Photomicrography.
2. The arrangement of the apparatus for low-power work.
3. Development and ordinary processes of Photography.
4. Arrangements for high-power work.
5. The methods of dealing with stained preparations ; colour screens and colour-sensitive plates.
6. The Photography of Bacteria.

Further information may be obtained on application.
Fee £3 3s.

VI.

Public Investigation Work.

The Institute is prepared to conduct examinations of a Bacteriological and Chemical nature on behalf of Physicians, Health Officers and Sanitary Authorities.

The Institute, with the view of assisting Medical Men and Local Authorities, is prepared to carry out the Bacteriological examination of any material sent, and a fee is charged sufficient to cover the expenses of the investigation. The work includes investigations in connection with Diphtheria, Enteric Fever, Tuberculosis, Hydrophobia, etc., and special boxes are supplied for the transmission of specimens.

The Bacteriological and Chemical Examination of Water and Water Supplies is undertaken in the Water Laboratory of the Institute on behalf of Sanitary and other Authorities. The Institute advises that a periodical analysis of a Water Supply at least once a quarter is of much greater value than the examination of an isolated sample at long intervals.

The fees for Investigations of a Bacteriological or Public Health character may be obtained on application.

VII.

The Public Health Course.

A Course illustrating the Principles of Hygiene is given at the Institute and qualifies for admission to the Examinations for the Public Health Diplomas of the Conjoint Examination Board of the Royal Colleges of England, and the Universities of Cambridge, Oxford and London.

Two Courses of Laboratory Instruction and Lectures are given during the year, and each Course extends over six months, viz., October to March, and January to July.

The Lectures and Laboratory Instruction can be taken separately, if desired. Each Course includes the necessary qualifications for Certificates of attendance upon :—

1. A Course of Bacteriological Instruction.
2. A Six Months' Course of Laboratory Work in Chemistry and Physics.
3. A Six Months' Course of Practical Hygiene and Public Health Work with a Medical Officer of Health.

Practical Instruction is also given at the Parkes Museum by a Fellow of the Sanitary Institute, and visits are made from time to time to Public Works, and Demonstrations given in connection with Water Supply, Sewage Disposal and Purification, Isolation Hospitals and Disinfecting Stations, Drainage and Sewage Works, etc., etc.

(1) LABORATORY WORK IN BACTERIOLOGY.

The Course of Instruction in Bacteriology in relation to Hygiene is conducted by the Bacteriological Staff, and includes the following subjects :—

General and special methods of work ; study of the Pathogenic Micro-organisms ; Bacteriological examinations of Water, Soil and Air ; diagnosis of Tuberculosis, Diphtheria, Enteric Fever, Cholera, etc. ; methods of testing Disinfectants and Filters ; Bacteriological examination of suspected Food Samples ; preparation and use of Antitoxins ; Tuberculin and Mallein as diagnostic agents, etc.

Each Student will have the opportunity of carrying out fully the necessary practical details of the work.

(2) LABORATORY WORK IN CHEMISTRY AND PHYSICS.

This Course is conducted by Arthur Harden, Ph.D., M.Sc., Chemist to the Institute, and deals with the following subjects :—

Water.—Characteristics of natural waters ; rain water, river and lake water, well water and spring water ; mineral waters ; water in relation to soil and subsoil ; influence of geological

character of the district; contamination of water from vegetable and animal sources; effect of contamination on the chemical composition of natural waters.

The Chemical Examination of Water.—Examples of the general methods of gravimetric and volumetric analysis; suspended matter and dissolved solids; loss on ignition; qualitative examination of the water residue; hardness of water—total, temporary and permanent; alkalinity and acidity of water; chlorides, sulphates, phosphates and sulphides; free and saline ammonia; albuminoid ammonia; oxygen absorption; organic carbon and nitrogen; nitrites and nitrates; detection and estimation of metals—lead, copper, zinc, arsenic, iron; dissolved oxygen, carbonic acid.

Physical Examination of Water.—Colour, odour, turbidity, etc. Interpretation of Analysis; Criteria of Purity; Analytical Reports.

Air.—Composition of the air. The minor components of the air. Carbonic acid, sulphur dioxide, ammonia, oxides of nitrogen, hydrogen peroxide, ozone, organic matter. The general methods of gas analysis as applied to air. Estimation of the constituents of air. Testing efficiency of ventilation. Examination of air for carbon monoxide. Air in relation to the soil.

Qualitative Detection of the following Gases:—Oxygen, ozone, nitrogen, ammonia, carbonic acid, carbon monoxide, chlorine, hydrochloric acid, sulphur dioxide, nitric oxide, sulphuretted hydrogen, ammonium sulphide, marsh gas, carbon disulphide, coal gas.

Soil.—Physical characteristics of Soil. Relations to water and air. Determination of porosity and water capacity.

Food.—Estimation of moisture, ash, carbohydrates, proteids and fat in foods.

Milk.—Use of hydrometers and specific gravity balance. Total solids: fat, ash, casein, lactose. Preservatives used for milk: boric acid, salicylic acid, formaldehyde, sodium carbonate.

General examination of *butter, bread, flour, etc.*, for adulteration.

Alcoholic Beverages.—Examination of beverages for alcohol. Determination of alcoholic strength and acidity.

Tinned Foods.—Detection of poisonous metals: copper, lead, tin, arsenic. The chemical reactions of the ptomaines.

Physics and Meteorology.—The general properties of gases and liquids and their relations to temperature and pressure. Vapour pressure, boiling point, latent heat, specific heat. Radiation, conduction, and absorption of heat.

Observations of Temperature. Thermometers. Earth Thermometers. Errors and corrections. Observations of Pressure. Barometers. Use of Vernier. Observations of the Moisture of the Atmosphere. Hygrometers. Dew Point. Wet and dry Bulb Thermometers. Relative humidity. Drying power of Air. Rainfall. Anemometers.

The distribution of temperature, pressure, and rainfall. Climate, Weather, Cyclones, Anticyclones, Weather Charts.

(3.) Lectures on Hygiene and Sanitary Science.

The Lectures are given by JOSEPH PRIESTLEY, B.A., M.D., D.P.H. (Cambridge), Fellow of the Sanitary Institute, Medical Officer of Health, Lambeth.

I.—INTRODUCTORY LECTURE.—Training, Qualifications and Duties of an M.O.H. Sanitary Authorities (Urban, Rural, Port). Relation of M.O.H. to his Sanitary Authority, the Public, and his Inspectors. Drawing up of Reports.

II. — AIR. — Composition, Properties, and Impurities. Respiration and Combustion. Ventilation (Natural and Artificial). Warming and Lighting. Cubic Space and Overcrowding. Diseases conveyed through Air.

III.—WATER.—Sources and classifications. Measurement of available supply. Hardness and softness. Pollution and purification. Collection, storage, filtration, distribution. Diseases conveyed by water.

IV.—SANITARY ENGINEERING.—(a) Dwellings and Buildings (public and private)—site, construction, materials; Plans and sections; Sanitary fittings, *e.g.*, w.c.s, traps, sinks, urinals, baths, lavatories, cisterns, antisiphonage pipes, etc., etc.; Drains—construction, ventilation, sizes and levels, testings, disconnecting chambers and traps, plunging eyes, etc.

(b) Sewers—Construction, ventilation, calculations of velocities and rates of flow, flushings, manholes.

(c) Combined drainage—Sewer *v.* Drain.

(d) Bye-laws in relation to buildings and house sanitation.

V.—SEWAGE AND REFUSE DISPOSAL —(a) Sewage—Composition ; dry earth and other conservancy systems ; water carriage system ; treatment (screening, precipitation, filtration, disposal on land by irrigation, or into sea and tidal waters).

(b) Refuse.—Domestic and trade. Disposal by burning, tipping, barging. Destructors.

VI.—FOOD AND DRINK.—Classifications, Dietetics and Food Energy ; Cooking and Preserving ; Adulteration ; Diseases connected with Food and Drink ; Alcohol, Drinking Water and Beverages ; Unsound and Unfit Foods.

VII.—INFECTIOUS DISEASES.—Etiology ; Epidemic, Endemic and Pandemic, Notifiable and Non-notifiable diseases ; Vehicles of Infection (Water, Milk, Clothing, Air, etc.) ; Prevention (Notification, Isolation, Disinfection, Quarantine, Preventive Inoculation, etc.) ; Hospital Accommodation (Temporary and Permanent) ; Vaccination and Re-vaccination.

VIII.—VITAL STATISTICS.—Estimates of Populations ; Birth and Death-Rates ; Variations of Age, Sex, Season, and Occupations ; Causes of Death ; Life Tables ; Value and Fallacies of Statistical Evidence.

IX.—SOIL.—Composition and impurities ; Ground air and ground water in relation to disease ; Dampness and tuberculosis. Enteric fever and soil ; Summer diarrhoea and telluric diseases ; Disposal of dead.

X.—LAWS RELATING TO PUBLIC HEALTH.—General Summary of Statute Laws (London and elsewhere) ; Bye-laws, Regulations

and Orders ; Giving Evidence in Court ; Nuisances and their Abatement. Factory and Workshops Acts ; Bakehouse Legislation.

Fee for the entire Public Health Course, £21.

The Institute is opposite to Chelsea Bridge and close to Grosvenor Road Station. It can be easily reached by means of train to Sloane Square or Victoria Station, whence buses pass the door.

Further particulars on application to

ALLAN MACFADYEN, M.D., B.Sc.

Director.

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