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THE

UNIVERSITY OF LEEDS

CALENDAR, 1912-13

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1912

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17	Tu	Meeting of Board of Faculty of Arts.
18	W	**First Term in Faculties of Arts, Science and Technology ends.** Meeting of Council.
19	Th	Library closed until January 1.
20	F	Evening Class Session (First Term) ends.
21	S	**First Term in Faculty of Medicine ends.** Degree Day at School of Medicine. Winter course in Agriculture (First Term) ends.
22	S	
23	M	
24	Tu	
25	W	CHRISTMAS DAY.
26	Th	
27	F	
28	S	
29	S	
30	M	
31	Tu	

JANUARY, 1913

1	W	Library re-opened.
2	Th	
3	F	
4	S	
5	S	
6	M	Winter course in Agriculture (Second Term) begins. Evening Class Session (Second Term) begins.
7	Tu	**Second Term in Faculty of Medicine begins.**
8	W	**Second Term in Faculties of Arts, Science and Technology begins.** Meeting of Finance Committee.
9	Th	
10	F	
11	S	
12	S	
13	M	
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15	W	Meeting of Council.
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26	S	
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28	Tu	
29	W	
30	Th	Meeting of Board of Faculties of Science and Technology.
31	F	Last day of entry for Clothworkers' Scholarships.

FEBRUARY, 1913

1	S	
2	S	
3	M	
4	Tu	Meeting of Board of Faculty of Medicine.
5	W	Meeting of Senate.
6	Th	
7	F	
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10	M	
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12	W	Meeting of Finance Committee.
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17	M	
18	Tu	Meeting of Board of Faculty of Arts.
19	W	Meeting of Council.
20	Th	
21	F	
22	S	
23	S	
24	M	
25	Tu	
26	W	
27	Th	Meeting of Board of Faculties of Science and Technology.
28	F	Last day of application for the 1851 Exhibition Scholarship.

MARCH, 1913

1	S	Last day of entry and of payment of fees for the June Degree examinations, for City and Guilds Institute examinations, for M.A. and M.Sc. examinations, for Diplomas in Commerce and for Teachers of French and German, and of application for Litt.D. and D.Sc.
2	**S**	
3	M	
4	Tu	Meeting of Board of Faculty of Medicine.
5	W	Meeting of Senate.
6	Th	
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8	S	
9	**S**	
10	M	
11	Tu	
12	W	Meeting of Finance Committee.
13	Th	
14	F	Winter course in Agriculture (Second Term) ends.
15	S	
16	**S**	
17	M	Surveying Class at Barden begins.
18	Tu	Meeting of Board of Faculty of Arts.
19	W	Meeting of Council. Evening Class session (Second Term) ends. **Second Term in all Faculties ends.** Last day of application for Renewal of Scholarships.
20	Th	
21	F	GOOD FRIDAY. University closed.
22	S	University closed.
23	**S**	EASTER DAY.
24	M	University closed.
25	Tu	University closed.
26	W	
27	Th	
28	F	
29	S	
30	**S**	
31	M	

APRIL, 1913

1	Tu	
2	W	Surveying Class at Barden ends.
3	Th	
4	F	
5	S	
6	**S**	
7	M	
8	Tu	
9	W	Meeting of Finance Committee.
10	Th	
11	F	
12	S	
13	**S**	
14	M	
15	Tu	**Third Term in Faculty of Medicine begins.**
16	W	Meeting of Council. Summer course in Agriculture begins.
17	Th	
18	F	
19	S	
20	**S**	
21	M	
22	Tu	
23	W	**Third Term in Faculties of Arts, Science and Technology begins.**
24	Th	Meeting of Board of Faculties of Science and Technology.
25	F	
26	S	
27	**S**	
28	M	
29	Tu	
30	W	

MAY, 1913

1	Th	Last day of entry for the Entrance, Leighton, and Salt Scholarships.
2	F	
3	S	
4	S	
5	M	
6	Tu	Meeting of Board of Faculty of Medicine.
7	W	Meeting of Senate.
8	Th	
9	F	
10	S	
11	S	WHIT-SUNDAY.
12	M	University closed.
13	Tu	University closed.
14	W	Meeting of Finance Committee.
15	Th	
16	F	
17	S	
18	S	
19	M	
20	Tu	Meeting of Board of Faculty of Arts.
21	W	Meeting of Council.
22	Th	
23	F	
24	S	Last day of entry for July Matriculation examination.
25	S	
26	M	
27	Tu	
28	W	
29	Th	Meeting of Board of Faculties of Science and Technology.
30	F	
31	S	Last day of entry for the Ch.M. examination, and for the Infirmary Scholarship.

JUNE, 1913

1	S	
2	M	
3	Tu	Meeting of Board of Faculty of Medicine.
4	W	Meeting of Senate.
5	Th	
6	F	
7	S	Last day of entry and payment of fees for Second and Final M.B., for L.D.S., and for D.P.H. examinations.
8	S	
9	M	
10	Tu	
11	W	Meeting of Finance Committee.
12	Th	Degree examinations in Faculties of Arts, Science, and Technology begin.
13	F	
14	S	
15	S	
16	M	
17	Tu	Meeting of Board of Faculty of Arts.
18	W	Meeting of Council.
19	Th	Second M.B. and Ch.M. examinations, and L.D.S. and D.P.H. examinations begin.
20	F	Final M.B. examination begins.
21	S	
22	S	
23	M	
24	Tu	
25	W	
26	Th	Meeting of Board of Faculties of Science and Technology.
27	F	
28	S	**Third Term in Faculty of Medicine ends.** Summer Term in Agriculture ends.
29	S	
30	M	

JULY, 1913

1	Tu	
2	W	
3	Th	
4	F	
5	S	**Third Term in Faculties of Arts, Science and Technology ends.** Degree Day.
6	S	
7	M	
8	Tu	
9	W	Meeting of Finance Committee.
10	Th	
11	F	
12	S	
13	S	
14	M	
15	Tu	
16	W	Meeting of Council.
17	Th	
18	F	
19	S	
20	S	
21	M	
22	Tu	
23	W	
24	Th	
25	F	
26	S	
27	S	
28	M	
29	Tu	
30	W	
31	Th	Library closed until August 16.

AUGUST, 1913

1	F	
2	S	
3	S	
4	M	BANK HOLIDAY. University closed.
5	Tu	
6	W	
7	Th	
8	F	
9	S	
10	S	
11	M	
12	Tu	
13	W	Last day of application for Teachers' Assisted Studentships.
14	Th	
15	F	
16	S	Library re-opened.
17	S	
18	M	
19	Tu	
20	W	
21	Th	
22	F	
23	S	
24	S	
25	M	
26	Tu	
27	W	
28	Th	
29	F	
30	S	Last day of entry for the Supplementary Intermediate examination in Arts and Science, for the First M.B. examination, and for the Preliminary examination in Science (L.D.S.).
31	S	

SEPTEMBER, 1913

1	M	Last day of entry for September Matriculation examination.
2	Tu	
3	W	
4	Th	
5	F	
6	S	
7	S	
8	M	Supplementary Intermediate examination in Arts and Science, First M.B. examination, and Preliminary examination in Science (L.D.S.) begin.
9	Tu	
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30	Tu	Last day for sending in Essays for Gladstone Prize.

THE UNIVERSITY OF LEEDS

THE CHARTER

EDWARD VII, by the Grace of God, of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas, King, Defender of the Faith. To all to whom these presents shall come, greeting.

Whereas by Charter of Her Late Majesty Queen Victoria, dated 20th April, 1880, the Victoria University was founded and constituted having its seat in the City of Manchester.

And whereas the Owens College, Manchester, was thereby constituted a College in the University and provision was made that other Colleges might from time to time be admitted as Colleges in the University in the manner and subject to the conditions therein prescribed.

And whereas the University College, Liverpool, was by resolution of the Court of the University admitted as a College of the University on the 5th November, 1884, and The Yorkshire College, Leeds, was by resolution of the said Court admitted as a College in the University on the 3rd November, 1887, but no other College has been so admitted.

And whereas the said University College, Liverpool, has presented to Us in Our Council a humble Petition under the Common Seal of that College praying us to erect a University within the City of Liverpool.

And whereas the Owens College, Manchester, has presented to Us in Our Council a humble Petition under the Common Seal of that College praying that a new or supplemental Charter may be granted so as to constitute and continue the Victoria University as a University in Manchester without association with any College except the Owens College.

And whereas the Yorkshire College, Leeds, has presented to Us in Our Council a humble Petition under the Common Seal of that College, praying Us to erect a University having its seat in Leeds.

And whereas we have taken the said Petitions into Our Royal consideration and are minded to accede thereto.

Now therefore know ye that We, by virtue of Our Royal Prerogative and all other powers in that behalf enabling us of Our Special Grace certain knowledge and mere motion by these presents Do for Us, Our Heirs and Successors, grant, will, direct, and ordain as follows:

I. There shall be from henceforth for ever in Our said City of Leeds a University of the name and style of "The University of Leeds," which shall be and continue one body politic and corporate with perpetual succession and a common seal and with full power and capacity by and in such name to sue and be sued and to do all other lawful acts whatsoever and with full power and capacity, subject to the restrictions herein set forth, without any further licence to all persons and corporations to assure and to the University to take, by gift or otherwise purchase and hold and also to grant demise or otherwise dispose of real and personal property.

II. The University shall have the powers following:

1. To grant and confer Degrees and other academic distinctions to and on persons who shall have pursued an approved course of study in the University and shall have passed the examinations of the University under conditions laid down in its Statutes or Ordinances. Provided that degrees representing proficiency in technical subjects shall not be conferred without proper security for testing the scientific or general knowledge underlying technical attainments.

2. To admit graduates of other Universities to Degrees of equal or similar rank in the University.

3. To confer Degrees of the University on any persons who hold office in the University as Professors, Readers, Lecturers, or otherwise, or who shall have carried on independent research therein, or on any persons who, at the date of this Our Charter, are Associates of the Yorkshire College.

4. To grant Diplomas, Licentiateships, Certificates, or other distinctions to persons who have pursued a course of study approved by the University under conditions laid down by the University.

5. To confer Honorary Degrees, or other distinctions on approved persons.

Provided that all Degrees and other distinctions shall be conferred and held subject to any provisions which may be made in reference thereto by the Statutes, Ordinances, or Regulations of the University.

6. To provide for instruction in such branches of learning as the University may think fit, and also to make provision for research and for the advancement and dissemination of knowledge.

7. To examine and inspect schools and other educational institutions, to grant Diplomas and other Certificates, and to provide such lectures and instruction for persons not members of the University as the University may determine.

8. To accept the examinations and periods of study passed by students of the University at other Universities or places of learning as equivalent to such examinations and periods of study in the University as the University may determine, and to withdraw such acceptance at any time.

Provided that in no case shall the University confer a Degree in Medicine or Surgery upon any person who has not attended in the University during two years at least courses of study recognised for such Degree, or for one of the other Degrees of the University.

9. To affiliate other Colleges or institutions or branches or departments thereof, or to admit the members thereof to any of the privileges of the University, and to accept attendance at courses of study in such Colleges or institutions in place of such part of the attendance at courses of study in the University, and upon such terms and conditions and subject to such regulations as may from time to time be determined by the University.

10. To co-operate by means of joint boards or otherwise, with other Universities and Authorities for the

conduct of Matriculation examinations, for the examination and inspection of schools and other academic institutions and for such other purposes as the University may from time to time determine.

11. To enter into any agreement with the Yorkshire College for the incorporation of that College in the University, and for taking over its property and liabilities, and, if necessary, to promote a Bill in Parliament to confirm or carry out any such agreement.

12. To enter into any agreement with any other institution for the incorporation of that institution in the University and for taking over its property and liabilities, and for any other purpose not repugnant to this Our Charter.

13. To enter into any agreement with the Victoria University of Manchester or with the University of Liverpool for the division or apportionment of any of the moneys, endowments, or property of the Victoria University, with due regard to the local origin of any particular foundation, to the wishes of the Donors, and other special circumstances, and for reference to an Arbitrator in case of difference.

14. To institute Professorships, Assistant Professorships, Readerships, Lectureships, Teacherships, and any other offices required by the University, and to appoint to such offices. Also to institute and award Fellowships, Scholarships and Exhibitions and Prizes.

15. To license Halls for the residence of students.

16. To do all such other acts and things whether incidental to the powers aforesaid or not, as may be requisite in order to further the objects of the University as a Teaching and Examining Body, and to cultivate and promote Arts, Science, and Learning.

III. It shall be the duty of the University to co-operate, by means of a Joint Board or otherwise, with the Victoria University of Manchester and the University of Liverpool for the regulation and conduct of Matriculation examinations, including the conditions of exemption therefrom. Statutes of the University shall prescribe and regulate the constitution

and duties of the said Joint Board, the appointment and continuance in office of the members thereof, the filling of vacancies among the members, and all other matters relative to the Joint Board which it may be thought are proper to be so regulated and prescribed.

Visitor

IV. We, Our Heirs and Successors, Kings and Queens of the Kingdom and Dominions aforesaid, shall be and remain the Visitor and Visitors of the University through the Lord President of our Council for the time being, and in the exercise of the Visitorial Authority We and Our Heirs and Successors shall have the right from time to time and in such manner as We or They shall think fit to direct an inspection of the University, its buildings, laboratories, and general equipment, and also of the examination, teaching, and other work done by the University.

Authorities of the University

V. The Authorities of the University shall be the Chancellor, the Pro-Chancellor, the Vice-Chancellor, the Pro-Vice-Chancellor, the Court, the Council, the Senate, the Faculties, the Boards of Faculties, and the Convocation. There shall be a Treasurer and other proper officers of the University.

The Chancellor

VI. The Chancellor shall be the Head and Chief Officer of the University and President of its Court, Council, and Convocation, and shall, except as otherwise hereby provided, confer Degrees. He shall hold office during his life or until his resignation or until his removal for good cause by the Visitor at the instance of the Court.

Our right trusty and entirely beloved Cousin and Councillor, George Frederick Samuel, Marquis of Ripon, Knight of Our Most Noble Order of the Garter, Doctor of Laws, shall be the first Chancellor of the University.

His successors from time to time shall be elected by the Court on the nomination of the Council of the University.

The Pro-Chancellor

VII. In the absence of the Chancellor, or pending a vacancy in the office of Chancellor, or during the Chancellor's inability to act, the Pro-Chancellor shall exercise all the functions of the Chancellor, except the conferring of Degrees, and shall, if present, preside at any meetings of the Court and Council. Our trusty and well-beloved Arthur Greenhow Lupton, Chairman of the Council of the Yorkshire College, shall be the first Pro-Chancellor of the University, and shall hold his office for one year. Subsequent appointments to the said office shall be made annually by the Court on the nomination of the Council.

The Vice-Chancellor

VIII. The Vice-Chancellor shall be ex-officio Chairman of the Senate. In the absence of the Chancellor the Vice-Chancellor shall confer Degrees, except as otherwise hereby provided.

Our trusty and well-beloved Nathan Bodington, Principal of the Yorkshire College, Doctor of Letters, shall be the first Vice-Chancellor of the University, and shall hold such office for such term or terms and subject to such conditions as may from time to time be determined by the Council.

His successors from time to time shall be appointed by the Court on the nomination of the Council and shall hold such office for such term or terms and subject to such conditions as may from time to time be determined by the Council.

The Pro-Vice-Chancellor

IX. Subject to the Statutes and Ordinances of the University, and in the absence of the Vice-Chancellor, the Pro-Vice-Chancellor may act as Vice-Chancellor. The Pro-Vice-Chancellor shall from time to time be appointed by the Council from among the members of the Senate.

The Court

X. The Court shall be the governing body of the University and shall direct the form, custody, and use of the Common Seal, and shall have power to regulate and

determine all matters concerning the University, and generally shall exercise all the powers and discretions of the University, except as otherwise provided by this Our Charter or by the Statutes.

The Court shall have power by Statute to increase or diminish the number of its members, by increasing or diminishing the number to be nominated or appointed by the persons or bodies possessing the right of nomination or appointment, or by adding representatives of other bodies, or in any other manner.

The Statutes set forth in the Schedule hereto annexed shall be the first Statutes of the University under this Our Charter. The Court may amend, add to, or repeal the Statutes for the time being in force (including those set forth in the Schedule hereto), but no such amendment, addition, or repeal shall be valid or operative until allowed by Us or by a Committee of Our Council.

Ordinances may be made by the Court for the regulation of all matters not required by this Our Charter to be dealt with by Statute.

Provided (1) that it shall not be lawful for the Court, by any Statute or otherwise, to adopt or impose on any person any test whatever of religious belief or profession in order to entitle him to be admitted as a Professor, Teacher, Student, or Member of the University, or to hold office therein, or to graduate thereat, or to enjoy or exercise any privilege thereof.

Provided (2) that any Statute or Ordinance made by the Court be not repugnant to the laws of this Realm or to the general objects of this Our Charter.

Provided (3) that Statutes or Ordinances relating to Degrees, studies, and examinations shall not be adopted without report from the Senate.

Provided (4) that no change shall be made in any Statute or Ordinance altering the status, powers, or constitution of any of the Authorities of the University until such Authority shall have had an opportunity of pronouncing an opinion upon the proposed change

The Court shall have power to confer Degrees in absentiâ by a resolution of the Court, but save as aforesaid all Degrees shall be conferred by the Chancellor or in his absence by the Vice-Chancellor or Pro-Vice-Chancellor.

The Court shall have power to deprive any Graduate of the University who shall have been convicted of a crime or offence, or shall, in the opinion of the Court, have been guilty of scandalous conduct, of any Degree or Degrees conferred by the University and of all privileges enjoyed by him as such Graduate aforesaid.

The acts of the Court shall not be invalidated by any vacancy among its Members.

XI. Every Statute or alteration of a Statute, and every Ordinance or alteration of an Ordinance relating to any of the matters following, that is to say:

(*a*) The titles of Degrees,

(*b*) The establishment of new Degrees,

(*c*) The periods of residence and study in the University or in any affiliated or recognised institution required for Degrees,

(*d*) The conditions under which Degrees higher than the Degree of Bachelor in any faculty are to be granted,

(*e*) The courses for medical Degrees and the subjects of examinations,

shall before such Statute or alteration of a Statute shall be allowed and before such Ordinance or alteration of an Ordinance shall become operative and have effect be communicated to the Victoria University of Manchester and the University of Liverpool, and if within one month after the receipt of such communication notice of objection thereto shall have been given by the said Universities or either of them the question so arising shall be considered by a Joint Committee of the three Universities, and in default of agreement any of the said Universities may within one month make a representation in regard thereto to Us or to a committee of Our Council, and, in the event last mentioned, such Statute or Ordinance or alteration therein shall not become operative and have effect until allowed by Us or by such Committee.

Statutes of the University shall prescribe and regulate the constitution and appointment of the said Joint Committee and all other matters relating to the said Committee which it may be thought are proper to be so prescribed and regulated.

The Council

XII. The Council shall be the Executive Body of the University and may exercise and do such of the powers, authorities, and things by this Our Charter granted to or authorised to be done by the Court, as are, or shall from time to time be assigned to the Council by Statute or by the Court, except the election of Members of the Court to be Members of the Council.

The Court shall have power by Statute to increase or diminish the number of the Council, by increasing or diminishing the number to be nominated, elected, or appointed by the persons or bodies possessing the right of nomination or appointment, or by adding representatives of other bodies, or in any other manner.

The Council shall have power to draft Statutes and Ordinances as and when they see fit, and to submit the same to the Court for consideration and enactment.

The acts of the Council shall not be invalidated by reason of any vacancy among its members.

The Senate

XIII. The constitution of the Senate shall be determined by Statute.

The Senate shall, subject to the Statutes and Ordinances of the University, and subject also to review by the Court, have the control and general regulation of the instruction and education within the University and shall have power to discuss and pronounce an opinion on any matter whatsoever relating to the University and such other powers and duties as may be conferred upon it by Statute or Ordinance.

Faculties

XIV. The University shall include the Faculties of Arts, Science, Medicine and Technology, and such other Faculties

(whether formed by the sub-division of an existing faculty or by the creation of a new faculty or otherwise) as may from time to time be constituted by Statute.

The constitution and powers of the several Faculties shall be determined by Statute.

Such Boards of Faculties shall be appointed by the Council as the Council may from time to time determine; the members of each Board (the numbers of whom shall be in the discretion of the Council) shall be appointed by the Council from among members of one or more Faculties, or from among the External Examiners of the University.

Convocation

XV. The Convocation shall consist of the Chancellor, the Vice-Chancellor, the Pro-Vice-Chancellor, the Members of the Senate, the Lecturers, and the registered Graduates of the University.

The Court shall have power to fix the conditions of registration and to prescribe the annual or other fees, or a composition therefor which shall be necessary for registration.

The Chancellor, if present, shall preside at the Meetings of Convocation.

Powers of Convocation

XVI. Convocation shall have the following powers:

To elect its own Chairman, who shall, in the absence of the Chancellor, preside at its Meetings.

To elect representatives as Members of the Court and Council.

To discuss and pronounce an opinion on any matter whatsoever relating to the University, including any matters referred to them by the Court or the Council.

To prescribe the mode of conducting the proceedings of Convocation and of registering the same, and of reporting the same to the Court, Council, or Senate, or any of them.

To enter into communication directly with the Court, Council, or Senate on any matter affecting the University.

Regulations as to Procedure

XVII. The Court, the Council, the Senate, the Faculties, the Boards of Faculties, and Convocation respectively may from time to time make regulations for governing their respective proceedings, subject to this Our Charter and to the Statutes and Ordinances of the University.

The Treasurer

XVIII. Our trusty and well-beloved Sir John Barran, Baronet, Treasurer of the Yorkshire College, shall be the first Treasurer of the University, and shall hold his office for one year. Subsequent appointments to the said office shall be made annually by the Court.

Members of the University

XIX. The Members of the University shall be the Chancellor, the Pro-Chancellor, the Vice-Chancellor, the Pro-Vice-Chancellor, the Treasurer, the Members of the University Court, the Professors, Emeritus Professors, Assistant Professors, Readers, Lecturers and Demonstrators, and such other Teachers of the University as the Court may determine, the Members of the Faculties, the holders of such other University offices as the Council may from time to time determine, the Wardens or other chief officers of Halls of Residence licensed by the University, Fellows, Graduates, and Undergraduates of the University.

The Undergraduates of the University shall be such persons attending lectures, or receiving instruction in the University as shall have matriculated under the Statutes.

Advisory Committees

XX. The Council may from time to time appoint Advisory Committees, consisting of members of the University, and also if the Council shall think fit, of persons who are not members of the University, and may delegate to such Committees such duties as it thinks fit as regards financial, administrative, or other matters affecting the University or any particular Faculty or Department, or the management or supervision of any buildings or property of the University.

Examiners and Examinations

XXI. All examinations held by the University shall be conducted in such manner as the Statutes and Ordinances shall prescribe, provided that at least one external and independent examiner shall be appointed by the Council for each subject or group of subjects forming part of the course of studies required for University degrees, but this proviso shall not apply to examinations for admission or entrance to the University.

Provided that in case of a vacancy occurring in or during any examination or of other emergency the Vice-Chancellor shall have power to appoint a substitute for that examination.

General Provisions

XXII. All the Degrees and courses of study of the University shall be open to women, subject to such conditions and regulations as the Court may prescribe, and women shall be eligible for any office in the University and for membership of any of its constituent bodies, and in the present Charter words implying the male sex shall be held to include the female, unless the context clearly shows the meaning to be otherwise.

XXIII. The University may from time to time found and endow Fellowships, Scholarships, Exhibitions, and other Prizes for which funds or property may, by bequest, donation, grant, or otherwise be provided, and may make regulations respecting the same and the tenure thereof, but, except as aforesaid, and except by way of prize, reward, special grant, or remuneration for services rendered or to be rendered, in the past, present, or future respectively, the University shall not make any gift, division or bonus in money unto or between any of its members.

XXIV. In addition to the buildings, lands, and premises of the University for the time being used and occupied for the immediate purposes thereof, the University shall have power to hold lands, tenements, and hereditaments of an annual value not exceeding in the aggregate, at the time or respective times of the acquisition of the same, the sum of £50,000.

XXV. The University may demand and receive such fees as the Court may from time to time appoint.

XXVI. The Court may from time to time alter, amend, or add to these presents by a Special Resolution in that behalf, and such alteration, amendment or addition shall, when allowed by Us, our Heirs, or Successors, or by any Committee of our Most Honourable Privy Council, or otherwise as We or They shall think fit, become effectual so that these presents shall thenceforward continue and operate as though they had been originally granted and made as so altered, amended, or added to. This Article shall apply to this Charter as altered, amended, or added to in any manner aforesaid.

XXVII. A Special Resolution is a Resolution passed at one meeting of the Court and confirmed at a subsequent meeting, held not less than one calendar month, nor more than three calendar months after the former, provided that the Resolution be passed at each meeting by a majority of not less than three-fourths of the Members of the Court present and voting thereon.

XXVIII. In this Our Charter "Statutes" means the Statutes set forth in the Schedule hereto and any Statutes altering, amending, adding to, or repealing the same or any of them which may hereafter be made and may be allowed by Us in Council, or by a Committee of Our Council.

"Ordinances" means Acts of the Court under the powers conferred by this Our Charter to which Our further sanction is not hereby or by Statute required.

"Regulations," except when otherwise required by the context, means Regulations made pursuant to this Our Charter or the Statutes.

XXIX. Our Royal Will and pleasure is that this Our Charter shall always be construed and adjudged in the most favourable and beneficial sense for the best advantage of the University, and the promotion of the objects of this Our Charter as well in all our Courts as elsewhere notwithstanding any non-recital, mis-recital, uncertainty or imperfection herein.

THE SCHEDULE

STATUTES

I.

The University Court

(*a*)

The University Court (hereinafter called the Court) shall consist of the following persons, viz.:

1. *Ex-officio* members, The Chancellor, the Pro-Chancellor, the Vice-Chancellor, and the Treasurer.

2. All present members of the Council of the Yorkshire College; all future members of the University Council, during their tenure of office; all present Perpetual and Life Governors of the College; and all future Donors of £1,000 to the University. If a donation of £1,000 be made by a company, society, or partnership firm, one member thereof may be nominated by the Donors as a member of the Court.

Six representatives of the Clothworkers' Company of London.

One representative of the Skinners' Company of London.

One representative of the Drapers' Company of London.

One representative of the Trustees of William Akroyd's Foundation.

One representative of the West Yorkshire Coal Owners' Association.

One representative of the Yorkshire Board of Legal Studies.

3. Representatives of Public Authorities, viz.:

Six from the County Council of the West Riding of Yorkshire.

Two from the County Council of the North Riding of Yorkshire.

Two from the County Council of the East Riding of Yorkshire.

Four from the Council of the County Borough of Leeds.

Two from the Council of the County Borough of Bradford.

One from the Council of the County Borough of York.

One from the Council of the County Borough of Hull.

One from the Council of the County Borough of Halifax.

One from the Council of the County Borough of Huddersfield.

One from the Council of the County Borough of Middlesbrough.

One from the Council of each of such other County Boroughs to be created in future as may be approved by the Court.

4. Representatives of the University:

Ten from the Faculties.

Representatives (not exceeding five in all) of the Convocation, viz:—one representative for every hundred members up to 500.

5. Representatives of other Institutions, viz.:

Representatives of such Affiliated Institutions as the Court may determine, and

One representative of the Victoria University of Manchester.

One representative of the University of Liverpool.

One representative of such other English University as the Court may determine.

6. Representatives of Schools:

Eight representatives of the Head Masters and Mistresses of Secondary Schools in Yorkshire, such representatives to be appointed by the Court.

7. Other Governors:

Three persons appointed by the Crown.

Ten persons elected by co-optation by the Court.

Except as otherwise by the Charter provided, and subject to the Statutes of the University, the Court may determine all matters relating to the nomination, appointment, and election of members of the Court and Council, and their respective periods or terms of office, and all other matters relating to the constitution of the Court and Council.

(*b*)

The Court shall have power to delegate its functions to the Council except as otherwise provided, and to delegate to the Senate the power to award Degrees other than *ad eundem* Degrees, Degrees conferred on persons who hold office in the University, and Honorary Degrees.

The periods during which members of the Court respectively shall hold office shall be as follows:

The Chancellor, the Pro-Chancellor, the Vice-Chancellor, the Treasurer, and all future members of the University Council shall hold office during the time they occupy the positions named respectively.

All present members of the Council of the Yorkshire College, and all present Perpetual and Life Governors of the Yorkshire College, and all future donors of £1,000 to the University, and the persons nominated by the donors in the case of donations of £1,000 made by a company, society, or partnership firm, shall hold office for their respective lives, or until resignation.

All other members mentioned in clause (*a*) 2 above, and all members mentioned in clause (*a*) 3 above, shall hold office for one year from the date of appointment. Of the members mentioned in clause (*a*) 4, the ten representatives of the Faculties shall hold office for two years from the respective dates of appointment, and five of such members, to be selected by lot or otherwise as the Court shall determine, shall retire in each year; provided that if a representative of a Faculty ceases to be a member of that Faculty he shall cease to be a member of the Court. The representatives of Convocation shall hold office for two years from the date of appointment. Members mentioned in clause

(*a*) 5 and 6, shall hold office for two years from the respective dates of appointment. Members mentioned in clause (*a*) 7 shall hold office for five years from the respective dates of appointment, but of the members appointed by co-optation two, to be selected by lot or otherwise as the Court shall determine, shall retire each year.

All retiring members shall be eligible for re-appointment or re-election.

Appointees or representatives need not be members of the bodies appointing.

Any member of the Court may resign such membership at any time by letter addressed to the Registrar of the University.

Any casual vacancy occurring by resignation, incapacity, or death among the appointed or representative or co-opted members shall be filled up as soon as convenient by the person or body which appointed or co-opted the member whose place has become vacant. If such member was a member for a term of years the person appointed to supply his place shall be a member of the Court for the remainder of that term.

Fifteen members of the Court shall form a quorum, and, until the above-mentioned representative members have been appointed, the other members shall form the Court.

II.

The University Council

(*a*) The University Council (hereinafter called the Council) shall consist of the following persons, namely:—

The Chancellor, the Pro-Chancellor, the Vice-Chancellor, and the Treasurer.

Two representatives of the West Riding County Council.

One representative of the North Riding County Council.

One representative of the East Riding County Council.

Two representatives of the County Borough of Leeds.

One representative of the County Borough of Bradford.

One representative of the Council of the County Borough of York.

One representative of the Council of the County Borough of Hull.

One representative of the Council of the County Borough of Halifax.

One representative of the Council of the County Borough of Huddersfield.

One representative of the Council of the County Borough of Middlesbrough.

Two representatives of the Clothworkers' Company of London.

Five representatives to be elected by the Faculties of the University.

One member to be elected by Convocation.

One member to be nominated by the Crown.

Twelve members to be elected by the Court. Provided, nevertheless, that at first such of the present members of the Council of the Yorkshire College as have been elected thereto by the Board of Governors of the College shall take the place of the said twelve members; and of such members of the Council of the Yorkshire College four, to be selected by lot or otherwise as the Council may determine, shall retire every three years until the number of such members has been reduced to twelve or less; and on the number of such members being reduced to less than twelve the Court shall have power to appoint any other person or persons to make up such number to twelve. So soon as the number of such members shall have been reduced to twelve or less, the members of the Council of the Yorkshire College who at that time remain members of the Council, together with such appointee or appointees of the Court as aforesaid, shall hold office for the period and be subject to the provisions as to retirement hereinafter mentioned, as if all such members and appointees as aforesaid had been elected members of the Council by the Court on the day when such number as aforesaid was reduced to twelve or less.

The members of the Teaching Staff who are members of the Council, however elected (including the Vice-Chancellor), shall not exceed one fifth of the whole Council.

(*b*) The periods during which the members of the Council respectively shall hold office shall be as follows:

The Chancellor, the Pro-Chancellor, the Vice-Chancellor and the Treasurer shall hold office for the time during which they occupy the positions named respectively.

All other members of the Council shall hold office for one year from the date of appointment, except as otherwise hereinbefore provided and except members elected by the Court, who shall hold office for three years (four, to be selected by lot or otherwise as the Council shall determine, retiring each year), and except the person appointed by the Crown, who shall hold office for five years.

All retiring members shall be eligible for re-appointment or re-election.

Appointees or representatives need not be members of the bodies appointing.

Any member of the Council may resign such membership at any time by letter addressed to the Registrar of the University.

Any casual vacancy occurring by resignation, incapacity, or death among the appointed or representative members shall be filled up as soon as convenient by the person or body which appointed the member whose place has become vacant. If such member was a member for a term of years the person appointed to supply his place shall be a member of the Council for the remainder of that term.

Seven members of the Council shall form a quorum, and until the above named representative members have been elected, the other members shall form the Council.

III.

Powers of the Council

Subject to the provisions made in the Charter and Statutes, the Council shall have the following powers:

To nominate the Pro-Chancellor and the Vice-Chancellor.

To elect Professors of the University, and either to elect or to delegate to the Senate the election of any academic officers of the University other than Professors.

To elect a Registrar and other officers of the University for such periods and under such conditions as may be determined by the Council.

To institute Professorships, Assistant Professorships, Readerships, Lectureships, or other teaching offices, after giving the Senate the opportunity of reporting thereon.

To abolish or hold in abeyance, after giving the Senate the opportunity of reporting thereon, any Professorship, Readership, or other academic office in the University.

To draft Statutes and Ordinances as and when it sees fit and submit the same to the Court. Provided that any Statute or Ordinance relating to courses of study shall not be adopted without giving the Senate the opportunity of reporting thereon.

To make regulations for any purposes for which regulations are or may be authorised to be made.

To govern, manage, and regulate the finances, accounts, investments, property, business, and all affairs whatsoever of the University, and for that purpose to appoint Bankers, Deputy-Treasurers, and any other officers or agents whom it may seem expedient to appoint.

To invest any moneys belonging to the University, including any unapplied income in such stocks, funds, fully paid shares or securities as the Council shall from time to time think fit, whether authorised by the general law for the investment of trust moneys or

not, and whether within the United Kingdom of Great Britain and Ireland or not or in the purchase of freehold, copyhold, or leasehold hereditaments in the United Kingdom, including rent charges, or chief rents, with the like power of varying such investments from time to time by sale and re-investment or otherwise.

To sell, buy, exchange, lease, and accept leases of real and personal property on behalf of the University.

To provide the buildings, premises, furniture, and apparatus and other means needed for carrying on the work of the University.

To enter into, vary, carry out, and cancel contracts on behalf of the University. Any contract entered into on behalf of the University may be made in any manner authorised by law for the making of contracts by or on behalf of Companies incorporated under the Companies' Acts, 1862 and 1867.

IV.

Powers of the Vice-Chancellor

The Vice-Chancellor shall have the sole power of suspending or dismissing any offending student, subject to the right of appeal to the Visitor. He shall exercise general supervision over the educational arrangements of the University, regulate the admission of students, and maintain the discipline of the University, for which he shall be responsible to the Council.

V.

The Senate

The Senate of the University shall consist of the Vice-Chancellor and the Professors of the University, and of such other members of the Boards of Faculties hereinafter mentioned as the Court may, after report from the Senate, appoint, provided that the number of such other members appointed shall not exceed three, and that they shall hold office for such term only as the Court shall determine.

The Professors of the University within the meaning of the Charter shall include those persons who shall be appointed by the Council as such, and also the Professors of the Yorkshire College at the date of the Charter, who

shall hold their Professorships upon the same conditions as those upon which they held them at the date of the Charter, until such conditions shall be modified or altered by the Council.

The Senate shall have the following powers:

To make and submit to the Council, after report from the Board or Boards of Faculties concerned, all regulations for giving effect to the Statutes and Ordinances of the University relating to courses of study.

To appoint Internal Examiners after report from the Board or Boards of Faculties concerned.

To recommend External Examiners for appointment by the Council after report from the Board or Boards of Faculties concerned.

To report to the Council, after report from the Board or Boards of Faculties concerned, on all Ordinances relating to courses of study.

To report to the Council on Statutes or Ordinances or proposed changes of Statutes or Ordinances.

To report on any matter referred to or delegated to them by the Court or the Council.

To discuss and declare an opinion on any matter whatsoever relating to the University.

To appoint on delegation of the Council, Readers, Lecturers, and other academic officers of the University not being Professors.

To formulate and modify or revise, subject to the control of the Council, schemes for the organisation of Faculties of Arts, Science, Medicine, Technology, and any other Faculties of the University, and to assign to such Faculties their respective subjects; also to report to the Council as to the expediency of the establishment at any time of other Faculties, or as to the expediency of the abolition, combination, or subdivision of any Faculties.

To fix, subject to any conditions made by the Founders which are accepted by the Court, the times

and mode and conditions of competition for Fellowships, Scholarships, and other Prizes, and to award the same.

To do such other acts and things as the Court shall authorise.

No new Degree shall be established or other distinction of Honour or Merit adopted until the Senate has had an opportunity of reporting thereon.

VI.

Faculties

Each of the Faculties shall respectively consist of:—

1. The Professors assigned thereto by the Council.

2. Such Lecturers, Assistant Lecturers, and other teachers of the University as may be appointed to the Faculty by the Council on the recommendation of the Senate.

3. Such other persons as may be appointed by the Council of the University on the recommendation of the Senate.

Each of the Faculties shall have the power of electing a representative or representatives on the Court and Council of the University, but in the event of the number of Faculties being so increased that the members of the staff elected by them would exceed the proportion limited as hereinbefore expressed, the Council shall decide by what Faculties or combinations of Faculties the election shall be made.

Each Faculty shall have the power of presenting recommendations and reports to the Senate upon all matters connected with the subjects of study embraced by the Faculty.

The Faculty of Arts shall, until otherwise provided by Statute, include Economics and Law.

The Faculty of Technology shall, until otherwise provided by Statute, include Agriculture, Dyeing, Engineering, Leather Industries, Mining, and Textile Industries.

The Vice-Chancellor shall be a member of each of the several Faculties and Boards of Faculties.

There shall be a Dean of each Faculty elected by that Faculty, or otherwise as the Council shall direct. He shall preside at the meetings of the Faculty and hold office during such period and with such powers as shall be determined by Statute or Ordinance, and shall be eligible for re-election.

VII.

Powers of the Boards of Faculties

The Boards of Faculties respectively shall have the powers following:—

To regulate, subject to the control of the Senate, the teaching and study of the subjects assigned to the Board in question.

To make recommendations as to the appointment of Examiners.

To report to the Senate on Ordinances and Regulations dealing with courses of study for degrees and other distinctions, and on any questions relating to the work of the respective Faculties.

To deal with any matter referred or delegated to them by the Senate.

VIII.

Convocation

A Register shall be kept containing the names of all persons who are members of Convocation according to the provision made by the Charter.

The Register shall be conclusive evidence that any person whose name appears therein at the time of claiming to vote in Convocation is entitled to vote, and that any person whose name does not appear therein is not so entitled.

A meeting of Convocation shall be summoned at least once in every year and at such other times as Convocation may by its by-laws determine.

A meeting of Convocation may be called by the direction of the Chairman, and shall also be called on the requisition in writing of at least twenty members.

IX.

Auditor

The Court shall annually appoint an Auditor, who shall be a member of the Institute of Chartered Accountants of England and Wales, or of the Incorporated Society of Accountants and Auditors, in the active practice of his profession, who shall receive such remuneration as may from time to time be determined by the Court.

Acceptance of office by an Auditor shall be deemed to carry with it an undertaking by the Auditor to the University that every certificate given by him, or passing of accounts by him, implies that he has satisfied himself by full and careful investigation (made by himself or agents, for whom he undertakes to be responsible) by every reasonable means within his power, and after the exercise of due professional skill, that the statements in the certificate are true and accurate, and that any accounts certified or passed are complete, true, and accurate.

X.

Committee for considering objections by the Universities at Manchester and Liverpool

The Joint Committee to be constituted pursuant to Clause XI of the Charter for considering objections made by the Victoria University of Manchester and the University of Liverpool to proposed Statutes and Ordinances, shall consist of nine members, three to be appointed by each University.

The Joint Committee shall be convened by the Registrar of the Victoria University of Manchester.

XI.

Committee for considering objections to proposed Statutes and Ordinances of the University of Sheffield

Any Committee to be constituted for considering objections made by any of the Universities in Manchester, Liverpool and Leeds to proposed Statutes and Ordinances of the University of Sheffield shall consist of twelve members, three to be appointed by each of the said Universities.

Such Committee shall be convened by the Registrar of the Victoria University of Manchester.

XII.

Regulation and conduct of the Matriculation examination

The Matriculation examination which must be passed by students before entering on the degree courses in the University shall be regulated and conducted by a Joint Board constituted as hereinafter prescribed.

The Joint Board shall determine the conditions and subjects of the examination, together with the exemptions and conditions of exemption from it, provided that the Senate of each University shall have power to exempt from the Matriculation examination such persons as it may judge suitably qualified by higher study or research to enter upon a course for a degree.

The Board shall, with the consent of the four Universities concerned, have power to prescribe particular subjects to be passed in the examination as a condition of admission into particular Faculties, provided that at any time after any regulation to that end shall have been prescribed by the Board any of the four Universities shall have power to cause it to cease to be operative, on the expiration of two years from the date of notice to be given to the Board, so far as concerns such University.

The regulations of the Board regarding the Matriculation examination shall not affect the power of each University (*a*) to require a standard higher than that of the Matriculation examination in any subject or subjects as a condition of admission into any Faculty or School; (*b*) to require candidates as a condition of admission into its several Faculties and Honours Schools and courses leading to a particular degree to have passed in such of the optional subjects of the Matriculation examination as the University may determine; (*c*) to admit unmatriculated students to such classes as it may think fit; or (*d*) to determine how far the examinations recognised by the Joint Board as exempting from the Matriculation examination shall be

accepted by the University concerned as satisfying the requirements made by the University under sections (*a*) and (*b*) of this clause.

The Joint Board shall consist of twenty members, five to be elected annually by each of the Universities in Manchester, Liverpool, Leeds, and Sheffield, with power to co-opt persons of educational experience to the number of five.

When any change in the regulations regarding the Matriculation examination is carried in the Joint Board by a majority consisting of less than two-thirds of the members who are present, the question at issue shall, if any four members present and voting so require, be referred to each of the four Universities, who shall each then nominate two additional members of the Board for the purpose of dealing with such question. The decision of the Board so constituted shall be final.

The Board shall send annual reports to each University.

The four Universities shall contribute to the expenses of the Joint Board in such proportions as may be hereafter determined.

XIII.

Periods of Study before Graduation

The period of study necessary to qualify any student for graduation shall not be less than three years, all of which shall be subsequent to the date at which the student passes the Matriculation examination.

This Clause shall come into operation not later than October 1st, 1906.

In the case of the Yorkshire College, and in the event of any other College or Institution, or any branch or department thereof, becoming affiliated to the University within six months from the date of the Charter, the University may accept attendance which commenced on or subsequent to the First day of October, 1903, at courses of study in the Yorkshire College or in such other College or Institution in place of attendance at courses of study in the University for the same period.

XIV.

Definitions

In these Statutes—

"Statutes" means the Statutes of the University.

"Ordinances" means Ordinances made pursuant to the Charter or Statutes.

"Regulations" means Regulations made pursuant to the Charter or Statutes.

In witness whereof We have caused these Our Letters to be made Patent.

Witness Ourself at Westminster the twenty-fifth of April in the Fourth Year of Our Reign.

By Warrant under the King's Sign Manual.

MUIR MACKENZIE.

AN ACT

To merge the Yorkshire College in the University of Leeds and to transfer all the property and liabilities of the Yorkshire College to the University of Leeds and for other purposes.

(*Royal Assent, 24th June* 1904.)

Preamble

WHEREAS the Yorkshire College was in the year one thousand eight hundred and seventy-eight constituted and incorporated under the Companies Acts 1862 and 1867 as an Association not for profit with the object of founding endowing and maintaining in the county of York a College or Colleges and by means thereof and otherwise of promoting the education of persons of both sexes and in particular of providing instruction in such sciences and arts as are applicable or ancillary to the manufacturing mining engineering and agricultural industries of the county of York and in ancient and modern languages history and literature medicine surgery law logic moral philosophy and other branches of education and with such other subordinate objects as are in the Memorandum of Association of the said College mentioned:

And whereas by Royal Charter dated the twentieth day of April one thousand eight hundred and eighty the Victoria University was constituted and founded having its seat in the city of Manchester with power to confer degrees and other distinctions except in medicine or surgery unless and until authority in that behalf should be given by further Charter or by Act of Parliament which authority was given by a supplemental Charter dated the twentieth day of March one thousand eight hundred and eighty-three:

And whereas in the year one thousand eight hundred and eighty-seven the Yorkshire College was admitted as a College in the Victoria University:

And whereas by Royal Charter dated the fifteenth day of July one thousand nine hundred and three it is provided that the Victoria University shall henceforth be called and known as the Victoria University of Manchester and (among

other things) that on the grant of a Charter establishing a university having its seat in Leeds or elsewhere in Yorkshire the Yorkshire College shall cease to be a College of the Victoria University of Manchester:

And whereas on the Petition of the Yorkshire College a Charter was on the twenty-fifth day of April one thousand nine hundred and four granted by His Majesty constituting in the city of Leeds a university by the name and style of the University of Leeds with faculties of Arts Science Medicine and Technology and such other faculties as may from time to time be constituted by the statutes of the University and with power to grant degrees and to do all acts and things which may be requisite in order to further the objects of the University as a teaching and examining body and to cultivate and promote art science and learning:

And whereas the Yorkshire College has consequently ceased to be a College in the Victoria University of Manchester and the governing body of the Yorkshire College are desirous and it is expedient that the College should be merged in the University of Leeds and that all its property and liabilities should be transferred to and vested in the last-named University:

And whereas it is expedient to empower the University of Leeds to hold examinations under Section 3 of the Medical Act 1886 and to elect a representative on the General Council mentioned in Section 7 of the same Act:

And whereas the objects of this Act cannot be attained without the authority of Parliament:

MAY IT THEREFORE PLEASE YOUR MAJESTY That it may be enacted and be it enacted by the King's Most Excellent Majesty by and with the advice and consent of the Lords Spiritual and Temporal and Commons in this present Parliament assembled and by the authority of the same as follows (that is to say):

Short title.

1. This Act may be cited as the "University of Leeds Act, 1904."

Dissolution of Yorkshire College and transfer of property to University of Leeds.

2. On the passing of this Act the Yorkshire College shall be by virtue of this Act dissolved and cease to exist and all property real and personal of every description (including things in action) and all rights and privileges of the Yorkshire College which immediately before that date belonged

to or were vested in that College shall be by virtue of this Act without any conveyance or other instrument transferred to and vested in the University of Leeds for all the estate and interest therein of the Yorkshire College and shall be applied to the objects and purposes for which the University of Leeds is incorporated.

Transfer of liabilities.

3. On the passing of this Act all debts and liabilities of the Yorkshire College shall by virtue of this Act be transferred and attached to the University of Leeds and shall thereafter be discharged and satisfied by that University.

Saving for agreements deeds actions &c.

4. All agreements awards contracts deeds and other instruments and all actions and proceedings and causes of action or proceedings which immediately before the passing of this Act were existing or pending in favour of or against the Yorkshire College shall continue and may be carried into effect enforced and prosecuted by or in favour of or against the University of Leeds to the same extent and in like manner as if the University of Leeds instead of the Yorkshire College had been party to or interested in the same respectively.

Adjustment of property and liabilities &c.

5. (1) The Council of the Victoria University of Manchester the Council of the Owens College Manchester and the Council of the University of Liverpool or any of them may by agreement with the Council of the University of Leeds adjust and settle all questions arising with respect to any endowments property powers privileges authorities debts liabilities obligations or expenses in which the parties to the agreement are interested and also with respect to any examinations degrees and other University and College matters.

(2) An agreement under this section may provide for the transfer retention division apportionment or commutation of any endowments property debts liabilities or obligations and for a payment being made by any party to the other or others in respect of any such transfer retention division apportionment or commutation or in respect of the salary or remuneration of any officer or person and generally may make as between the parties to the agreement any provisions necessary or proper for carrying into effect the purposes of this Act.

(3) In default of agreement on any such question as aforesaid or so far as such agreement does not extend the question shall be referred to a single arbitrator to be nominated by the Lord President of His Majesty's Council on the application of any party and his award may provide for any matter for which an agreement might have provided. And subject as aforesaid the provisions of the Arbitration Act 1889 shall apply.

Saving for existing officers of Yorkshire College.

6. All professors and other members of and persons attached to or associated with the teaching staff of the Yorkshire College and all salaried or paid officers and servants of the Yorkshire College shall hold as nearly as practicable the same offices and places in the University of Leeds as they held in the said College immediately before the passing of this Act and upon the same terms and conditions unless and until the Council of the University shall otherwise decide.

Transfer of powers to nominate members of certain governing bodies.

7. Any power or right of the Yorkshire College or of the Council Senate or other members of that College as such to appoint or nominate a member of the governing body of any educational charitable or other institution shall on the passing of this Act be transferred to and may be exercised by the Council of the University of Leeds.

Power of University of Leeds to hold examinations under 49 and 50 Vict. c. 48.

8. The University of Leeds is hereby empowered to hold qualifying examinations in medicine surgery and midwifery for the purpose of registration under the Medical Acts as if the University had been a University in the United Kingdom legally qualified at the passing of the Medical Act 1886 to grant diplomas in medicine and surgery and the provisions of Part I of that Act shall be read and have effect accordingly.

Power of University of Leeds to choose representative on General Medical Council.

9. The Council of the University of Leeds shall be entitled to choose one representative to be a member of the General Council constituted by the Medical Acts and Section 7 of the Medical Act 1886 shall be read and have effect as if the University of Leeds had been expressly included therein.

Application of Section 7 of Mortmain &c. Act 1888 (51 and 52 Vict. c. 42).

10. Section 7 of the Mortmain and Charitable Uses Act 1888 shall be read and have effect as if the words "and the University of Leeds" were therein inserted after the words "Victoria University."

Construction of bequests in favour of Yorkshire College.

11. Any will deed or other document whether made or executed before or after the passing of this Act which contains any bequest gift or trust in favour of the Yorkshire College shall on and after the passing of this Act be read and have effect as if the University of Leeds were therein named instead of the Yorkshire College.

As to the Charitable Trusts Acts.

12. The Charitable Trusts Acts 1853 to 1894 shall not extend to the University of Leeds or to any college or hall therein.

Copy of Act to be registered.

13. The Council of the University of Leeds shall deliver to the Registrar of Joint Stock Companies a printed copy of this Act and he shall retain and register the same and if such copy is not so delivered within three months from the passing of this Act the University of Leeds shall incur a penalty not exceeding two pounds for every day after the expiration of those three months during which the default continues and any member of the said Council who knowingly and wilfully authorises such default shall incur the like penalty. Every penalty under this section shall be recoverable summarily.

There shall be paid to the Registrar by the University of Leeds on such copy being registered the like fee as is for the time being payable under the Companies Act 1862 on registration of any document other than a Memorandum of Association.

Costs of Act.

14. The costs charges and expenses of and incidental to preparing and obtaining this Act shall be defrayed by the University of Leeds out of income or of the capital of the property by this Act transferred to the University or if the Council of the University think fit out of money to be raised by sale or mortgage of some part of the said property.

AN ACT

To extend the privileges of the Graduates of the University of Leeds.

(Royal Assent, 15th August, 1904.)

BE it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows :—

Extension of privileges graduates Leeds University.

1. Wherever any office is or shall be open to graduates of the Universities of Oxford, Cambridge, and London, and of the Victoria University of Manchester, or wherever any privilege or exemption has been or shall be given by any Act of Parliament or regulation of any public authority to graduates of the Universities of Oxford, Cambridge, and London, and the Victoria University of Manchester, graduates of the University of Leeds having the degree which would be a qualification if it had been granted by the University of Oxford, Cambridge, or London, or the Victoria University of Manchester, may become candidates for and may hold any such office and shall be entitled to all such privileges as fully as graduates of any of the last-mentioned universities.

Short title.

2. This Act may be cited as the Leeds University Act, 1904.

ORDINANCES

made by the Court in accordance with the provisions of Clauses X and XI of the Charter

I. AFFILIATED COLLEGES AND INSTITUTIONS

1. Colleges and Institutions, or parts thereof, may be admitted to affiliation after report by the Senate. The Senate, before recommending the affiliation of any such College or Institution, shall satisfy itself:

(*a*) That the College or Institution has attained a satisfactory standard of educational efficiency for the purposes for which affiliation is sought, and is established on a permanent basis.

(*b*) That the majority of regular students in such College or Institution are of the age of sixteen years.

2. In the case of any affiliated College or Institution, or of any part of such College or Institution recognised for the purposes of this clause, students who have attained the age of seventeen years, and have passed the Matriculation examination of the University, or are exempt therefrom, shall be allowed to attend at any such College or Institution a part or the whole of a course of study, approved by the Senate of the University as exempting from such courses of study in the University as the Council may approve, provided that in no case shall the University confer a degree upon any person who has not attended in the University during two years at least the courses of study which have been recognised for such degree.

3. The Council shall, after a report from the Senate, determine the privileges to which the students of any such affiliated College or Institution shall be admitted.

4. Any College or Institution desiring to avail itself of the foregoing Ordinance shall

(*a*) Make provision for the representation of the University on the body which determines the annual plan of study, in so far as it concerns the courses submitted for the approval of the University;

(*b*) Submit for the approval of the Senate of the University day courses of study, whose duration, scope, and standard shall be equivalent to the corresponding courses of the University.

5. The University shall inspect from time to time the buildings and equipment for teaching provided in any such College or Institution, and shall satisfy itself as to the qualifications of any teacher therein appointed to conduct the courses offered in place of University courses.

6. The Council, after a report from the Senate, shall be entitled at any time to withdraw any privileges which may have been granted to any College or Institution under these Ordinances, and to remove the said College or Institution from affiliation.

Affiliated Colleges

THE COLLEGE OF THE RESURRECTION, MIRFIELD (May 18, 1904). By resolution of the Council the students of this College are exempt from attendance at the University upon the first of the three years of study required for the B.A. Ordinary or Honours degree.

THE TECHNICAL COLLEGE, HUDDERSFIELD. (March 2, 1906). By resolution of the Council, attendance upon certain classes in this College is recognised as exempting from attendance upon classes in the University in the first year of the courses required for the degrees of B.A., B.Sc. (including Engineering), and M.B. and Ch.B.

II. DEGREES IN ARTS

1. The degrees in Arts shall be:

Bachelor of Arts (B.A.)
Master of Arts (M.A.)
Doctor of Letters (Litt.D.).

Degree of Bachelor of Arts

2. The degree of Bachelor of Arts shall be conferred either as an Ordinary degree or as a degree with Honours.

3. All candidates for the degree of Bachelor of Arts shall be required to have passed the Matriculation examination, and thereafter to have pursued approved courses of study for not less than three academic years.

Ordinary Degree of Bachelor of Arts

4. The complete course of study for the Ordinary degree of Bachelor of Arts shall be divided into two parts, called respectively the Intermediate course and the Final course.

5. Every candidate shall be required to pass two examinations, the Intermediate and the Final.

6. The Intermediate and Final examinations shall ordinarily be held in June of each year. There shall also be a supplementary Intermediate examination in September, at which those candidates only may present themselves who have obtained the permission of the Senate.

7. Candidates who have failed at an Intermediate examination in June, and have obtained permission to present themselves at the following supplementary examination, may be excused such part of the supplementary examination as the combined examination committee, on report from the separate examination committee concerned, may determine.

8. Candidates who have failed at a Final examination may present at the June examination of the following year those books and periods in which they have already been examined.

9. All candidates shall be required, before presenting themselves for the Intermediate or Final examination, to furnish to the Registrar certificates testifying that they have regularly attended the prescribed courses of study, and performed the class exercises to the satisfaction of the Professor or Lecturer, in each of the subjects which they offer at the examination. Some modification of the amount of attendance required may, in exceptional cases, be made by the Vice-Chancellor, on the recommendation of the head of the department concerned.

Intermediate Course and Examination

10. Every candidate shall be required, after passing the Matriculation examination, to attend during one academic year approved courses of study in five subjects, and to pass in each of the subjects selected, viz.:

i, ii. Two languages from the following list: Greek, Latin, French, German, one of which must be Greek or Latin.

iii. *Either* (*a*) English Literature; *or* (*b*) History (Ancient or Modern), *or* (*c*) Political Economy.

iv. *Either* (*a*) Logic; *or* (*b*) Mathematics; *or* (*c*) one of the following Natural Sciences: Physics, Chemistry, Zoology, Botany, Geology.

v. Any subject under i, ii, iii, iv not already selected, provided that no candidate may take (*a*) both Ancient and Modern History, (*b*) two Natural Sciences.

The examination in each modern language shall include an oral examination.

Final Course and Examination

11. Every candidate shall be required to attend approved courses of study in three principal subjects and one subsidiary subject, and to pass in each of the subjects selected. The same subject may not be taken both as a principal and as a subsidiary subject. An essay paper shall be set for all candidates at the Final examination.

12. The course of study in each principal subject shall extend over two academic years, and the course of study in the subsidiary subject shall extend over one academic year.

13. The principal subjects shall be selected from the following list: Greek, Latin, French, German, English Language and Literature, History, Philosophy, Economics, Education, Pure and Applied Mathematics. Every candidate shall be required to take as a principal subject one of the following: Greek, Latin, French, German. The examination in each modern language shall include an oral examination.

14. The subsidiary subjects shall be selected from the following list: English Literature, History, Philosophy,

Economics, Education, Pure Mathematics, Applied Mathematics. The course of study in a subsidiary subject may be taken either in the first or second year of the Final course.

15. Candidates who have attended, during the first year of their Final course, the prescribed course of study in a subsidiary subject, may present themselves in June of that year for examination in such subsidiary subject. Part of the examination in Education, to be defined by Regulation, may also be taken at the end of the first year of the Final course.

Degree of Bachelor of Arts with Honours

1. Candidates for the degree of Bachelor of Arts with Honours shall, except as hereinafter stated, be required to furnish certificates of having attended courses of instruction approved by the University and extending over not less than three academic years in one of the Honours Schools of the University hereafter enumerated.

2. Every candidate for the degree of Bachelor of Arts with Honours shall be required to present himself for examination at the end of the third or fourth academic year from the time when he has entered upon one of the courses of instruction approved by the University for such degree, unless he shall present a medical certificate of illness satisfactory to the Senate. This examination shall ordinarily be held in June of each year.

3. Candidates for the degree of Bachelor of Arts with Honours may present themselves for examination in any of the following Honours Schools on furnishing certificates of having pursued, to the satisfaction of the Senate, the courses required for such Honours Schools in the University, viz.:

Classics
English Language and Literature
Modern Languages and Literatures
History
Philosophy
Economic and Political Science

4. Candidates who have passed the Final examination for an Ordinary degree of Bachelor of Arts may, with the

sanction of the Senate and on furnishing certificates of having attended, during the academic year following such Final examination for the Ordinary degree, the third year's, or, during the two academic years following such Final examination, the second and third years' course approved by the University for any one of its Honours Schools, present themselves for examination for the degree of Bachelor of Arts with Honours in such School.

5. No candidate for a degree of Bachelor of Arts with Honours shall be admitted more than once to examination in the same Honours School; but students who have passed the Final examination in any of the Honours Schools may be admitted to the Final examination in any other Honours School after the expiration of one or two years, on presenting certificates of having attended, during the period in question, courses approved by the University.

Provided that in the said other Honours School selected, candidates shall not present themselves for the Final examination more than two academic years after the Final examination in Honours already passed by them, and also that no candidate be admitted to examination in any Honours School after a longer period than five years has elapsed since the date of his first entrance upon a prescribed course of study for an Honours School.

6. Names of candidates who have passed the examination for the degree of Bachelor of Arts with Honours shall be published in such form as to distinguish the Honours School in which severally they may have passed; the names of those who have passed in Honours being drawn up in three classes, and each class being arranged in alphabetical order.

7. Candidates who have not acquitted themselves so as to deserve Honours may be excused the whole or such part of the examinations for the Ordinary degree as the combined examination committee may determine.

Degree of Master of Arts

I

1. The degree of Master of Arts may be conferred, on payment of the proper fee, upon registered Bachelors of Arts when of not less than one year's standing from the

date of their graduation as Bachelors, subject to the conditions contained in the following paragraphs.

2. Bachelors of Arts who have graduated with Honours may proceed to the degree of Master of Arts on presenting a dissertation satisfactory to the Senate on a subject approved by the Board of the Faculty of Arts.

3. Bachelors of Arts who have obtained the Ordinary degree shall be required to pass an examination in a subject or group of subjects upon which instruction is given in the Faculty of Arts, and to present a dissertation satisfactory to the Senate on a subject approved by the Board of the Faculty of Arts, or, if they do not present a dissertation, to pass a more extended examination. In special cases it shall be in the power of the Senate, on the application of the candidate and on the special recommendation of the Board of the Faculty of Arts, to award the degree upon a dissertation only. Candidates wishing to apply for such remission must make application to the Board of the Faculty of Arts not later than the end of the October preceding the examination. Regulations shall determine the subjects and groups of subjects in which the examination will be held. Certificates of attendance on courses of study in the University shall not be required. Bachelors of Arts who have obtained Honours in any school after the Ordinary degree shall be held to have satisfied the requirements of this clause.

4. All candidates who offer a dissertation, either as sole test or in combination with other tests, may be called upon to present themselves for an examination—written, or oral, or both—in the theme of their dissertation.

5. The names of candidates who have passed the examination for the degree of Master of Arts shall be arranged in alphabetical order without distinction of classes.

II

Graduates or persons who have passed the Final examination for a degree of other approved Universities shall, if they present evidence satisfactory to the Senate that they are qualified to pursue a course of advanced study or research, be permitted to enter the University and to become candidates for the degree of M.A., without taking the B.A. degree,

after not less than two years of such advanced study or research. Such candidates shall be required to give evidence to the Senate at the end of the first year of their period of study that their work has been satisfactory, and at the end of their second year they shall be required to present a dissertation, and to satisfy such further test, if any, as the Senate shall deem expedient. They will, as a rule, be called upon to present themselves for an examination—written, or oral, or both—in the theme of their dissertation.

Degree of Doctor of Letters

1. The Degree of Doctor of Letters shall be conferred by the University upon registered Masters of Arts of the University who shall be deemed by the Senate, after considering a report from the Board of the Faculty of Arts, to have distinguished themselves by special research or learning.

Provided that the Senate may, in such cases as it shall think fit, after considering a report from the Board of the Faculty of Arts, also require candidates to pass such an examination as it may from time to time determine.

2. A Master of Arts of the University may make application for the Degree of Doctor of Letters in the sixth or any subsequent year from the date of his admission to the Bachelor's degree.

3. Such application shall be made in writing to the Registrar, and shall contain a full statement of the grounds on which the claim for the degree is based, together with one or more copies of any thesis, whether in print or in manuscript, which the applicant may desire to submit in support of the application.

4. If the application be approved by the Senate, the degree may be conferred at the expiration of not less than six years from the date of admission to the Bachelor's degree.

III. DEGREE IN COMMERCE

1. The degree in Commerce shall be that of
Bachelor of Commerce (B. Com.).

2. All candidates for the degree of Bachelor of Commerce shall be required to have passed the Matriculation examination, with at least one modern foreign language as one of

the subjects, and thereafter to have pursued approved courses of study for not less than three academic years.

3. The complete course of study for the degree of Bachelor of Commerce shall be divided into two parts, called respectively the Intermediate course and the Final course.

4. Every candidate shall be required to pass two examinations, the Intermediate and the Final.

5. The Intermediate and Final examinations shall ordinarily be held in June of each year. There shall also be a supplementary Intermediate examination in September, at which those candidates only may present themselves who have obtained the permission of the Senate.

6. Candidates who have failed at an Intermediate examination in June, and have obtained permission to present themselves at the following supplementary examination, may be excused such part of the supplementary examination as the combined examination committee, on report from the examination committee for the degree of Bachelor of Commerce, may determine.

7. All students shall be required, before presenting themselves for the Intermediate or Final examination, to furnish to the Registrar certificates testifying that they have regularly attended the prescribed courses of study, and performed the class exercises to the satisfaction of the Professor or Lecturer, in each of the subjects which they offer at the examination.

Intermediate Course and Examination

8. Every candidate shall be required, after passing the Matriculation examination, to attend during not less than one academic year approved courses of study in five subjects, viz. :

i. Economics : the outlines of the economic history of England in the Nineteenth Century, and the general elementary principles of Economics

ii. The economic geography of the British Empire

iii. A modern foreign language (French or German)

iv, v. *Two* of the following:

A second modern foreign language (French or German, whichever of the two has not been offered under iii)

Mathematics

European History from 1763,

and to pass in each of the subjects offered. The examination in each modern foreign language shall include an oral examination.

Final Course and Examination

9. Every candidate shall be required, except as provided in clause 10, to attend approved courses of study, extending over two years, and to pass an examination in each of the following principal subjects:

i. Economics: comprising (*a*) advanced general Economics (*b*) a special economic subject

ii. A modern foreign language (French or German)

iii. A second modern foreign language (French or German, whichever of the two has not been offered under ii)

iv. Accountancy.

The examination in each modern foreign language shall include an oral examination. An essay shall also form part of the examination.

10. For the second modern foreign language candidates may substitute the two following, studied each for one year as a subsidiary subject:

(*a*) The economic geography of the principal foreign countries

(*b*) Commercial Law

Candidates may take the course of study in a subsidiary subject in the first year of the Final course, and present themselves at the end of that year for examination in such subject.

IV. DEGREES IN LAW

1. The degrees in Law shall be :

Bachelor of Laws (LL.B.)
Master of Laws (LL.M.)
Doctor of Laws (LL.D.).

Degree of Bachelor of Laws

2. All candidates for the degree of Bachelor of Laws shall be required to have passed the Matriculation examination, except those who may be exempted therefrom, and thereafter to have pursued approved courses of study for not less than three academic years.

3. The complete course of study for the degree of Bachelor of Laws shall be divided into two parts, called respectively the Intermediate course and the Final course.

4. Every candidate shall be required to pass two examinations, the Intermediate and the Final.

5. The Intermediate and Final examinations shall ordinarily be held in June of each year.

6. All candidates shall be required, before presenting themselves for the Intermediate or Final examination, to furnish to the Registrar certificates testifying that they have regularly attended the prescribed courses of study in each of the subjects which they offer at the examination.

Intermediate Course and Examination

7. Every candidate shall be required, after passing the Matriculation examination, or after obtaining exemption therefrom, to attend during one academic year approved courses of study, and to pass in each of the following subjects :

i. Roman Law
ii. Elements of English Law
iii. The Law and Custom of the English Constitution
iv. Any subject included in the course for the Intermediate examination for the Ordinary degree of B.A. or B.Com.

Provided that candidates who are already graduates of this or any other University within the United Kingdom shall not be required to attend classes or to be examined in iv.

Final Course and Examination

8. Every candidate shall be required to attend during two academic years one or other of the following courses of study, and to pass in each of the subjects of the selected course :

Course I.

i. Roman Law
ii. Jurisprudence
iii. Public *or* Private International Law.

An essay paper shall be set at the Final examination for all candidates taking this course.

Course II.

i. Property, Real and Personal (including Conveyancing)
ii. Equity (including Company Law)
iii. Common Law (including Criminal Law and Bankruptcy)
iv. Evidence and Procedure
v. Jurisprudence.

Degree of Master of Laws.

1. The degree of Master of Laws may be conferred on payment of the proper fee upon registered Bachelors of Laws when of not less than one year's standing from the date of their graduation as Bachelors, subject to the conditions contained in the following paragraphs

2. Bachelors of Laws who have obtained their degree by attendance at the classes of Course I and examination in the subjects of that course shall be required to pass an examination in the subjects of Course II. Certificates of attendance on Course II shall not be required.

3. Bachelors of Laws who have obtained the degree by attendance at the classes of Course II and examination in the subjects of that Course, shall be required to pass an examination in the subjects of Course I. Certificates of attendance in Course I shall not be required.

Degree of Doctor of Laws

1. The degree of Doctor of Laws shall be conferred by the University upon registered Masters of Laws of the University who shall be deemed by the Senate, after considering a report from one or more of the Boards of Faculties, to have distinguished themselves by special research or learning.

Provided that the Senate may, in such cases as it shall think fit, after considering a report from one or more of the Boards of Faculties, also require candidates to pass such an examination as it may from time to time determine.

2. A Master of Laws of the University may make application for the degree of Doctor of Laws in the sixth or any subsequent year from the date of his admission to the Bachelor's degree.

3. Such application shall be made in writing to the Registrar, and shall contain a full statement of the grounds on which the claim for the degree is based, together with one or more copies of any thesis, whether in print or in manuscript, which the applicant may desire to submit in support of the application.

4. If the application be approved by the Senate, the degree may be conferred at the expiration of not less than six years from the date of admission to the Bachelor's degree.

V. DEGREES IN SCIENCE

1. The degrees in Science shall be:—
Bachelor of Science (B.Sc.)
Master of Science (M.Sc.)
Doctor of Science (D.Sc.).

Degree of Bachelor of Science

2. The degree of Bachelor of Science shall be conferred either as an Ordinary degree or as a degree with Honours.

3. All candidates for the degree of Bachelor of Science shall be required to have passed the Matriculation examination, and thereafter to have pursued approved courses of study for not less than three academic years.

Ordinary Degree of Bachelor of Science

4. The complete course of study for the Ordinary degree of Bachelor of Science shall be divided into two parts, called respectively the Intermediate course and the Final course.

5. Every candidate shall be required to pass two examinations, the Intermediate and the Final.

6. The Intermediate and Final examinations shall ordinarily be held in June of each year. There shall also be a supplementary Intermediate examination in September, at which those candidates only may present themselves who have obtained the permission of the Senate.

7. Candidates who have failed at an Intermediate examination in June, and have obtained permission to present themselves at the following supplementary examination, may be excused such part of the supplementary examination as the combined examination committee, on report from the examination committee concerned, may determine.

8. All candidates shall be required, before presenting themselves for the Intermediate or Final examination, to furnish to the Registrar certificates testifying that they have regularly attended the prescribed courses of study, and performed the class exercises to the satisfaction of the Professor or Lecturer, in each of the subjects which they offer at the examination. Some modification of the amount of attendance required may, in exceptional cases, be made by the Vice-Chancellor on the recommendation of the head of the department concerned.

9. The proficiency of candidates in laboratory work may be determined by inspection of their laboratory note books and the consideration of terminal or sessional reports from their laboratory teachers. Candidates may also be called upon to undergo a special practical examination at the Intermediate and Final stages of the degree course.

It shall always be in the power of the external examiner to impose a practical or *viva voce* examination on such occasions as he may think desirable.

Intermediate Course and Examination

10. Every candidate shall be required, after passing the Matriculation examination, to attend during not less than one academic year approved courses of study in three subjects, viz.:

Physics
Two of the following:
Mathematics
Chemistry
Zoology
Botany
Geology,

and to pass in each of the subjects selected.

Candidates who propose to take an Applied Science (see section 15) in the Final course must pass in the subjects of the Intermediate course specified in section 20.

11. Every candidate is further required, at some time during his course, to attend an approved course of study and pass in an additional subject at the Intermediate standard, selected from the following: Greek, Latin, French, German, English Literature, Ancient or Modern History, Logic, Economics, Economic Geography, Mathematics, Chemistry, Zoology, Botany, Geology. In the case of candidates taking an Applied Science as a principal subject in the Final course (section 20 below), this list is increased by the addition of Applied Mechanics and General Engineering.

12. A descriptive essay relative to the scientific or technical work of the candidates will be set as part of the Intermediate examination, and will be examined by the examiners in English in co-operation with the Examiners in the scientific department concerned, and in the event of a student failing in this portion of the Intermediate examination, he shall be permitted to take it again at any subsequent Intermediate examination.

Final Course and Examination

13. Every candidate will be required to attend approved courses of study either in two principal subjects, or in one principal subject and two subsidiary subjects, provided that the same subject shall not be taken both as a principal and a subsidiary subject.

14. The course of study in each principal subject shall extend over at least two years beyond the Intermediate standard, and the course of study in a subsidiary subject shall extend over at least one year beyond the Intermediate standard.

Principal Subjects

15. The principal subjects shall be selected from the following lists:

Pure Sciences:

Mathematics
Physics
Chemistry
Zoology
Botany
Physiology
Geology.

Applied Sciences:

Mechanical Engineering
Civil Engineering
Electrical Engineering
Mining Engineering
Gas Engineering
Fuel and Metallurgy.
Agriculture
Applied Chemistry (Colour Chemistry and Dyeing)
Applied Chemistry (Chemistry of Leather Manufacture).

Every candidate taking Physics as a principal subject is required to have passed in Mechanics at the Matriculation examination, or to satisfy the Professor of Physics that he possesses an adequate knowledge of the subject.

In the event of Physiology being chosen as a principal subject, the second principal subject or the two subsidiary subjects shall be chosen from among the following: Physics, Chemistry, Zoology, Botany. In any case, six months' instruction in Human Anatomy will be required.

Every candidate taking an Applied Science as a principal subject is required to pursue one of the courses specified in section 20.

Subsidiary Subjects

16. The subsidiary subjects shall be selected from the following list:

Mathematics P. (Pure)
Mathematics P.A. (Pure and Applied)
Physics
Chemistry
Zoology
Botany
Physiology
Geology
Human Anatomy
Bacteriology
Education (including the teaching of Elementary Science).

Mathematics P. and P.A. cannot be taken together as subsidiary subjects.

17. The following subjects shall rank as subsidiary subjects in connection with courses where Mechanical or Civil or Electrical or Mining Engineering is taken as a principal subject:

Mechanical Engineering
Civil Engineering
Electrical Engineering
Mining Engineering.

18. The course of study in the subsidiary subjects may be taken either in the first or second year of the Final course.

19. Candidates who have attended, during the first year of their Final course, the prescribed course of study in a subsidiary subject, may present themselves in June of that year for examination in such subsidiary subject. When Education is taken as a subsidiary subject, part of the examination may be taken at the end of each of the two years of the Final course. Candidates who fail to satisfy the examiners in such parts of the Final examination as they have taken at the end of the first year of their Final course shall be required to repeat this part of the examination at a subsequent June examination.

Courses for candidates taking an Applied Science

20. Candidates selecting an Applied Science as a principal subject are required to attend courses of study and to present themselves for examination in definite subjects, as specified below:

Mechanical Engineering:

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate standard, Applied Mechanics.

Final—Principal subject, Mechanical Engineering; subsidiary subjects, Mathematics, and either Physics or Civil or Electrical or Mining Engineering, but in any case the candidate shall produce a certificate of having satisfactorily attended a prescribed course in Physics.

Civil Engineering:

Intermediate—Mathematics, Physics and Chemistry; additional subject at Intermediate standard, Applied Mechanics.

Final—Principal subject, Civil Engineering; subsidiary subjects, Mathematics, and either Geology or Mechanical or Electrical or Mining Engineering, but in any case the candidate shall produce a certificate of having satisfactorily attended a prescribed course in Geology.

Electrical Engineering:

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate standard, Applied Mechanics.

Final—Principal subject, Electrical Engineering; subsidiary subjects, Mathematics, and either Physics or Mechanical or Civil or Mining Engineering, but in any case the candidate shall produce a certificate of having satisfactorily attended a prescribed course in Physics.

Mining Engineering:

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate standard, Applied Mechanics.

Final—Principal subject, Mining Engineering; subsidiary subjects, two of the following: Mathematics, Geology, Mechanical, or Electrical Engineering, but candidates shall produce certificates of having satisfactorily attended prescribed courses of study in each of these four subjects.

Gas Engineering:

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate standard, Applied Mechanics.

Final—Principal subject, Gas Engineering; subsidiary subjects, Chemistry and Engineering.

Fuel and Metallurgy:

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate standard, Applied Mechanics.

Final—Principal subject, Fuel and Metallurgy; subsidiary subjects, Chemistry and Mechanical Engineering.

Agriculture:

Intermediate—Physics, and two of the following: Chemistry, Zoology, Botany, Geology; together with an additional subject at Intermediate standard (see section 11).

Final—Agriculture, as principal subject, together with one of the pure sciences specified under section 15 above as the second principal subject, or two of the pure sciences specified under section 16 as subsidiary subjects.

Applied Chemistry (Colour Chemistry and Dyeing):

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate standard, General Engineering.

Final—Two principal subjects, viz: Colour Chemistry and Dyeing, and Chemistry.

Candidates presenting Applied Chemistry (Colour Chemistry and Dyeing) may not present this subject, except with the special permission of the Senate, until the end of the fourth year of study. Such candidates may take the examination in Chemistry at the end of the second year.

Applied Chemistry (Chemistry of Leather Manufacture):

Intermediate—Physics, and two of the following: Mathematics, Chemistry, Zoology, Botany, and an additional subject at Intermediate standard (see section 11).

Final—Two principal subjects, viz: Chemistry of Leather Manufacture, and Chemistry.

Degree of Bachelor of Science with Honours

1. The degree of Bachelor of Science with Honours will be awarded in the following subjects:

Mathematics
Physics
Chemistry
Zoology
Botany
Physiology
Geology
Civil Engineering
Mechanical Engineering
Electrical Engineering
Mining Engineering
Gas Engineering
Fuel and Metallurgy
Applied Chemistry (Chemistry of Leather Manufacture)
Applied Chemistry (Colour Chemistry and Dyeing)
Agriculture.

2. Candidates will be required to present certificates of attendance upon approved courses of study extending over three or four years, as defined under the regulations for each

Honours School. Such certificates of attendance shall only be granted when the candidate has regularly attended to the work of the classes and has acquitted himself satisfactorily at the class examinations.

3. Candidates for admission to an Honours examination will be required to have passed the Intermediate and the Final examinations as prescribed for the Ordinary Degree of B.Sc., subject to the qualifications contained in the Clauses 5 and 6 *infra*.

4. Such candidates as, prior to entrance to the University, declare their intention of proceeding to the degree of B.Sc. with Honours in one of the Honours Schools, may be admitted to the Intermediate examination prescribed in the Regulations for the Honours School in question, without previous attendance at the University. In this case, they will be required to pass simultaneously in all of the three subjects prescribed, and will also be required then or during their course of study to pass the examination in a fourth subject at the Intermediate stage as required by Ordinance.

5. Candidates who have not passed the Intermediate examination prior to entrance at the University shall be required to pursue courses of instruction in the subjects of the Intermediate examination (including the fourth, or additional subject) as prescribed in the regulations of the several Honours Schools, but (*a*) they shall not be required to pass simultaneously in all the subjects prescribed at the Intermediate examination, and (*b*) they shall be excused from presenting themselves at the Intermediate examination in any subject which they will subsequently offer at a higher standard.

6. All candidates shall be required to pursue courses of instruction in the subjects of the Final examination as prescribed in the regulations of the several Honours Schools, but they shall be excused from presenting themselves for examination in any subject which they will subsequently offer at a higher standard.

7. A special Honours examination, hereinafter called the Honours examination, shall be held in the subjects of the Honours stage.

8. Candidates who shall present evidence satisfactory to the Senate that they are qualified to enter upon a course of research may receive permission to pursue such a course, and to offer a thesis of their work in place of part or the whole of the Honours examination; but no candidate shall be excused the whole of the Honours examination unless he has satisfied the examiners in the subject of his Honours School as a principal subject for the Ordinary degree, in addition to the one principal subject or two subsidiary subjects required for such degree.

Each application for the recognition of research work must be made to the Senate not later than the last day of the October preceding the Honours examination, together with a statement of the intended subject of research, and a summary of the course of work actually pursued must be sent in to the examiners not later than the first day of the May preceding the Honours examination.

Candidates whose thesis does not satisfy the examiners shall not receive the Honours degree, but may be recommended for the Ordinary degree.

9. Names of candidates who have passed the examination for the degree of Bachelor with Honours will be published in such form as to distinguish the Honours School in which severally they may have passed; the names of those who have passed in honours being drawn up in three classes, and each class being arranged in alphabetical order.

10. Candidates who have not acquitted themselves so as to deserve Honours, but have reached the standard of the Ordinary degree, may be recommended for that degree.

11. Candidates who have passed the examination for the Ordinary degree of Bachelor of Science may (during the succeeding year or the two years immediately succeeding) proceed with the course of study in an Honours School.

12. Every candidate for the degree of Bachelor of Science with Honours shall be required to present himself for examination at the end of the third or fourth academic year from the time when he has entered upon one of the courses of instruction approved by the University for such degree,

unless he shall present a medical certificate of illness satisfactory to the Senate. This examination shall ordinarily be held in June of each year.

13. Students who have passed the Final examination in any of the Honours Schools shall be admitted to the Final examination in any other Honours School after the expiration of one or two years, on presenting certificates of having attended, during the period in question, courses approved by the University, provided that in the said other Honours School candidates shall not present themselves for the examination more than two academic years after the examination in Honours already passed by them, and also that no candidate be admitted to examination in any Honours School after a longer period than five years has elapsed since the date of his first entrance upon a prescribed course of study for an Honours School.

14. Candidates who have passed the Second M.B. examination may, with the sanction of the Senate, and on furnishing certificates of having during the academical year following such Second M.B. examination attended the third year's, or during the two academical years following such Second M.B. examination of having attended the second and third year's course approved by the University for one of its Honours Schools in Science, present themselves for examination for a B.Sc. degree with Honours in such school.

15. Honours in Mining Engineering will be awarded to candidates who, having obtained the Ordinary degree, with Mining Engineering as a principal subject, and being recommended as suitable to proceed with an Honours course, shall have spent one year in research or in the preparation of a thesis, attendance at the University during this fourth year not being compulsory. All candidates for Honours shall pass the same Mathematical examinations as if they had taken Mathematics as a principal subject, but no attendance on Mathematical courses other than that prescribed for Mining Engineering students proceeding to the Ordinary degree shall be required

16. Honours in Gas Engineering or Fuel and Metallurgy will be awarded to candidates who, having obtained the Ordinary degree, with either Gas Engineering or Fuel and

Metallurgy as a principal subject, and being recommended as suitable to proceed with an Honours course, shall have spent one year in research, or in the preparation of a thesis on some industrial process, to the satisfaction of the examiners, attendance at the University during this fourth year not being compulsory.

Honours in Gas Engineering or Fuel and Metallurgy may also be conferred upon candidates, who, having graduated in Science at this or an approved University, with Chemistry or Engineering as a principal subject, shall have subsequently (1) completed the course and passed the examination required for the diploma in Gas Engineering or Fuel and Metallurgy; and (2) spent an additional year in research in the Department to the satisfaction of the examiners.

Degree of Master of Science

I

1. The degree of Master of Science is conferred, on payment of the proper fee, upon registered Bachelors of Science, when of one year's standing from the date of their graduation as Bachelors, subject to the conditions contained in the following paragraphs.

2. Bachelors of Science who have graduated with Honours are not required to present themselves for any further examination for the degree of Master of Science.

3. Bachelors of Science who have obtained the Ordinary degree are required to satisfy the Examiners in a further examination in *one* of the following subjects: Mathematics, Physics, Chemistry, Zoology, Botany, Physiology, Geology, Mechanical, Civil, Electrical, Mining Engineering, Applied Chemistry (Colour Chemistry and Dyeing), Applied Chemistry (Chemistry of Leather Manufacture), Fuel and Metallurgy, Gas Engineering, and Agriculture. Certificates of attendance are not required.

4. The names of candidates who have passed the further examination for the degree of Master of Science are arranged in alphabetical order without distinction of classes.

5. Candidates who have prosecuted research, and who give satisfactory evidence thereof by the presentation of a thesis, may be excused part or the whole of the examination.

II

Graduates or persons who have passed the Final examination for a degree of other approved Universities shall, if they present evidence satisfactory to the Senate that they are qualified to pursue a course of advanced study or research, be permitted to enter the University and to become candidates for the degree of M.Sc., without taking the B.Sc. degree, after not less than two years of such advanced study or research. Such candidates shall be required to give evidence to the Senate at the end of the first year of their period of study that their work has been satisfactory, and at the end of their second year they shall be required to present a dissertation, and to satisfy such further test, if any, as the Senate shall deem expedient.

Degree of Doctor of Science

1. The degree of Doctor of Science is conferred by the University upon registered Masters of Science of the University who shall be deemed by the Senate, after considering a report from one or more of the Boards of Faculties, to have distinguished themselves by special research or learning.

Provided that the Senate may, in such cases as it shall think fit, after considering a report from one or more of the Boards of the Faculties, also require candidates to pass such an examination as it may from time to time determine.

2. A Master of Science of the University may make application for the degree of Doctor of Science in the sixth or any subsequent year from the date of his admission to the Bachelor's degree.

3. Such application shall be made in writing to the Registrar and shall contain a full statement of the grounds on which the claim for the degree is based, together with one or more copies of any memoir, whether in type or in manuscript, which the applicant may desire to submit in support of the application.

4. If the application be approved by the Senate, the degree may be conferred at the expiration of not less than six years from the date of admission to the Bachelor's degree.

VI. DEGREES IN MEDICINE AND SURGERY

The degrees in Medicine and Surgery shall be:
Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch. B.)
Doctor of Medicine (M.D.)
Master of Surgery (Ch.M.)

Degrees of Bachelor of Medicine and Bachelor of Surgery

1. Candidates for the degrees of Bachelor of Medicine and of Surgery are required to present certificates showing that they will have attained the age of twenty-one years on the day of graduation, and that they have attended courses of instruction approved by the University extending over not less than five years, two of such years at least having been passed in the University, at least one year being subsequent to the date of passing the First examination.

2. Candidates for the degrees of Bachelor of Medicine and of Surgery are required to satisfy the examiners in the several subjects of the following examinations, entitled respectively:

The Matriculation examination, or such other examination as may have been recognised by the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds and Sheffield in its stead; the First examination; the Second examination; the Final examination.

First Examination

3. The first Examination shall consist of two parts:
PART I. Physics
Chemistry.
PART II. Biology.

4. Candidates, before presenting themselves for the First examination, are required to furnish certificates of having attended courses of instruction in accordance with the Regulations of the University, and to have passed the Matriculation examination.

5. Candidates who have passed the Intermediate examination for the degree of Bachelor of Science in

Chemistry, Physics, Zoology, and Botany, will, on payment of the required additional fee, be regarded as having passed the First examination for the degrees of Bachelor of Medicine and Bachelor of Surgery.

6. The names of candidates who have satisfied the examiners in either part of the First examination shall be published in alphabetical order.

Second Examination

7. The Second examination shall consist of two parts :

PART I. Anatomy
Physiology.

PART II. Pharmacy.

8. Candidates, before presenting themselves for the Second examination, are required to furnish certificates of having attended courses of instruction in accordance with the Regulations of the University, and to have passed the First examination.

9. The names of candidates who have satisfied the examiners in either part of the Second examination shall be published in alphabetical order.

Final Examination

10. The Final examination shall consist of three parts :

PART I. Pathology and Bacteriology.
This may be taken at the end of the tenth term.

PART II. Forensic Medicine
Public Health.

PART III. Medicine
Surgery
Obstetrics and Gynæcology
Pharmacology and Therapeutics.
Parts II and III may be taken at the end of the fifteenth term, either separately or together.

11. Candidates, before presenting themselves for any part of the Final examination, are required to have passed the

Second examination, and to furnish certificates of having attended courses of instruction, in accordance with the Regulations of the University.

12. The names of candidates who have satisfied the examiners in the first part of the Final examination shall be published in alphabetical order.

13. The names of candidates who have satisfied the examiners in all the subjects of the Final examination, and are recommended for degrees, shall be published as follows:

1. Those awarded First Class Honours
2. Those awarded Second Class Honours
3. Those who have satisfied the Examiners.

The names shall be in alphabetical order in each case.

Degree of Doctor of Medicine

1. No candidate shall be admitted to the degree of Doctor of Medicine unless he has previously received the degrees of Bachelor of Medicine and Bachelor of Surgery, and at least one year has elapsed since he passed the examination for those degrees.

2. Candidates for the degree of Doctor of Medicine are required to present a dissertation, and, if the dissertation be accepted, to pass an examination. The dissertation, of which the subject must previously have received the approval of the Board of the Faculty of Medicine, must embody the results of personal observations or original research, either in some department of medicine or of some science directly related to medicine, provided always that original work, published in scientific journals, or in the Proceedings of learned societies, or separately, shall be admissible in lieu of or in addition to a dissertation specially written for the degree. Candidates will be required to write a short extempore essay on some topic connected with medicine, and to answer questions on the history of medicine. They will also be examined orally on the dissertation or other work submitted. Any candidate may be exempted from a part or the whole of the examination if the Board of the Faculty so decide. No candidate will be

admitted to the degree unless his application, after report from the Board of the Faculty of Medicine, shall have been accepted by the Senate.

3. The names of candidates who have been approved for the degree of Doctor of Medicine shall be published in alphabetical order.

Degree of Master of Surgery

1. No candidate shall be admitted to the degree of Master of Surgery unless he has previously received the degrees of Bachelor of Medicine and Bachelor of Surgery, and at least one year has elapsed since he passed the examination for those degrees.

2. Every candidate, before presenting himself for the examination for the degree of Master of Surgery, is required to have graduated as Bachelor of Medicine and Bachelor of Surgery, and to furnish certificates of attendance in accordance with the Regulations of the University.

3. *Subjects of Examination*:
Surgical Anatomy
Surgery
Operative Surgery
Clinical Surgery
Ophthalmology
Pathology and Bacteriology.

4. The names of candidates who have satisfied the Examiners shall be published in alphabetical order.

VII. DEGREES IN DENTAL SURGERY

1. The degrees in Dental Surgery shall be:
Bachelor of Dental Surgery (B.Ch.D.)
Master of Dental Surgery (M.Ch.D.)

Degree of Bachelor of Dental Surgery

2. All candidates for the degree of Bachelor of Dental Surgery shall be required to have passed the Matriculation examination, to have pursued thereafter approved courses of

study for not less than five academic years, two of such years at least having been passed in the University subsequently to the date of passing Parts I and II of the First examination, and to have completed such period of pupilage or hospital attendance, or both, as may be prescribed by the Regulations of the University. No candidate shall be admitted to the degree who has not attained the age of twenty-one years on the day of graduation.

3. All candidates shall be required to have passed the following examinations: the First examination, the Second examination, the Final examination.

4. Each examination shall include practical work in the subjects offered.

5. All candidates shall be required, before presenting themselves for examination, to furnish to the Registrar certificates testifying that they have attended the prescribed courses of instruction in accordance with the Regulations of the University in each of the subjects which they offer, and that they have fulfilled the other requirements of the Ordinance and Regulations in respect of such examination.

First Examination

6. The first examination shall consist of three parts:

Part I. Physics
Chemistry
Part II. Biology
Part III. Dental Mechanics
Dental Metallurgy.

7. Candidates shall be allowed to pass in each Part separately.

8. Candidates who have passed the Intermediate examination for the degree of Bachelor of Science, and have in that examination satisfied the Examiners in Chemistry, in Physics, or in Biology, shall, on payment of the difference between the fees required for the two examinations, be regarded as having satisfied the requirements of Parts I and II of the First examination for the degree of Bachelor of Dental Surgery, in those subjects in which they have passed.

9. Candidates shall be required, before presenting themselves for Parts I and II of this examination, to have passed the Matriculation examination, and to have attended courses of instruction in accordance with the Regulations of the University.

10. Candidates shall be required, before presenting themselves for Part III of this examination, to have completed two years from Matriculation, and to have attended courses of instruction in accordance with the Regulations of the University.

Second Examination

11. The subjects of the Second examination shall be:

Anatomy
Physiology
Dental Anatomy and Physiology
Dental Materia Medica.

12. Candidates shall be required, before presenting themselves for the Second examination, to have passed the First examination not less than one year previously, and to have attended courses of instruction in accordance with the Regulations of the University.

Final Examination

13. The subjects of the Final examination shall be:

Dental Surgery
Dental Pathology and Bacteriology
Operative Dental Surgery
Medicine and Surgery.

14. Candidates shall be required, before presenting themselves for the Final examination, to have passed the First examination not less than two years previously, to have passed the Second examination not less than six months previously, and to have attended courses of instruction in accordance with the Regulations of the University.

VIII. RECOGNITION OF VICTORIA UNIVERSITY COURSES AND EXAMINATIONS

(*a*) The Senate, or any Committee of the Senate appointed for that purpose, is hereby empowered to recognise courses of study pursued and examinations passed

by students of the Yorkshire College or of the University of Leeds in the Victoria University or the Victoria University of Manchester prior to January 1, 1905, as equivalent to corresponding courses and examinations in the University of Leeds.

(*b*) The Senate, or any Committee of the Senate appointed for that purpose, is hereby also empowered to make such concessions in exemption from examinations and from attendance on courses of study, as may be required to place a past or present student of the University or of the Yorkshire College, who has been admitted thereto before 1st October, 1904, in as favourable a position in the above respects as if he had become or had continued to be a student of the Victoria University or of the Victoria University of Manchester.

(*c*) A student of the Yorkshire College, who before December 31, 1904, has passed a Final examination of the Victoria University or of the Victoria University of Manchester, for the Bachelor's degree in the Faculty of Arts, Science, Law, or Medicine shall be entitled to be admitted to the Bachelor's degree of the University of Leeds; and if he has been admitted to the Bachelor's degree of the Victoria University or the Victoria University of Manchester he shall be entitled to proceed to the higher degrees of the University of Leeds on the same conditions as if he had graduated in this University.

IX. RECOGNITION OF COURSES AND EXAMINATIONS OF OTHER RESIDENTIAL UNIVERSITIES

(*a*) Subject to the provisions of the Charter and Statutes, the Senate, or any Committee of the Senate appointed for that purpose, is hereby empowered to allow members of any University, in which residence is required as a condition of graduation, or members of any University who have attended courses of study at some College or other place of learning which is affiliated or associated with such University, after Matriculation at the University of

Leeds, and presentation of certificates of conduct satisfactory to the Senate or Committee, to count such periods of residence passed by them at such other University as equivalent to such periods of residence at the University of Leeds as the Senate or Committee may determine, provided that no degree of this University shall be conferred on any such person unless he shall have pursued an approved course of study in this University extending over at least two years, and shall have passed the Final examination for such degree.

(*b*) Undergraduates of other Universities who have been admitted, under this Ordinance, as members of this University may be allowed to count examinations passed by them at such other Universities as equivalent to such examinations or portions of examinations other than the Final examination of this University as the Senate, or any Committee of the Senate appointed for that purpose, may from time to time determine.

X. CONFERMENT OF DEGREES UPON FORMER STUDENTS OF THE YORKSHIRE COLLEGE

1. As to conferment of *ad eundem* degrees on students who have attended full courses of study at the Yorkshire College and have graduated at various Universities, but who have not been admitted to the College Associateship:

Graduates of the Victoria University shall be offered the same degrees in the University of Leeds as those which they have received from the Victoria University.

Graduates in Medicine of other Universities shall be admissible on application to the M.B. degree of the University of Leeds.

Applications from non-medical graduates of other Universities who have been students of the Yorkshire College shall be considered on their merits.

In every case of admission under the above conditions a fee of 10s. 6d. shall be charged.

2. As to Associates of the Yorkshire College:

Graduates of the Victoria University shall be offered the same degrees in the University of Leeds as those which they have received from the Victoria University.

Graduates of other Universities shall be offered the degree of Bachelor in this University in the Faculties in which they graduated elsewhere.

All Associates of the Yorkshire College admitted to degrees of the University of Leeds under these conditions shall be admitted without fee.

3. All persons admitted to degrees of the University of Leeds under the foregoing conditions shall be admissible as life members of the Convocation of the University.

4. No graduate admitted under the above conditions to a lower degree shall be precluded from proceeding in the University of Leeds to a higher degree in his particular faculty.

XI. STANDING OF CERTAIN GRADUATES IN PROCEEDING TO HIGHER DEGREES

1. Graduates of other Universities who have been admitted to degrees of equal or similar rank in this University shall be allowed, in proceeding to higher degrees, to count their standing as graduates from the date of their graduation in such other Universities.

2. Associates by examination of the Yorkshire College who have been admitted to degrees in this University shall be allowed, in proceeding to higher degrees, to count their standing as graduates from the date of admission to the Associateship.

XII. AWARD OF DEGREES BY SENATE.

The Senate is hereby empowered to award degrees other than (1) *ad eundem* degrees, (2) degrees conferred on officers of the University, and (3) honorary degrees, in accordance with the provision in that behalf contained in Statute I. b.

XIII. AWARD OF DEGREES BY COUNCIL.

1. The Council is hereby authorised to grant to any Professor of the University, or to any Lecturer who is the head of any department in the University, a degree not higher than that of Master in the Faculty in which he has graduated, or, in the case of a Professor or Lecturer holding no degree, such degree, not higher than that of Master, as the Council may determine.

2. The Council is authorised, if it thinks fit, to grant to any other officer of the University such degree, not higher than that of Master, as it may determine, but no such degree shall be conferred until a report thereon has been received from the Senate.

3. No Medical degree shall be conferred under either of the above provisions (1) and (2) upon a person who does not already possess a registrable medical qualification; and no person, in virtue of a degree conferred under either of these provisions, shall be allowed to proceed to a degree higher than that to which he has been admitted.

XIV. JOINT MATRICULATION BOARD AND JOINT COMMITTEES

The Council is hereby empowered to elect annually, or as may be required:

1. Five members of the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield.
2. Three members of a Joint Committee of the Universities of Manchester, Liverpool, and Leeds, to consider objections which may be raised by one or more of those Universities, to Statutes or Ordinances proposed by any of them, or by the University of Sheffield.

XV. DIPLOMAS

Diplomas shall be granted by the University, in such subjects as the Council may from time to time determine, to students who pursue the courses of study and pass the examinations prescribed.

The Council is empowered to make from time to time Regulations under which such diplomas shall be awarded.

The award of diplomas under the provisions of this Ordinance is delegated to the Senate.

XVI. REGULATIONS FOR PROCEDURE

The Council, Senate, Faculties, Boards of Faculties, and Convocation are hereby empowered to enact Regulations for the conduct of their business and that of their Committees, subject to the provisions of the Charter and Statutes.

XVII. FEES

The Council is hereby empowered, after giving the Senate an opportunity of reporting thereon, to appoint such Registration, Examination, Class, Laboratory, and other fees to be paid by students and others as the Council may from time to time determine, and to increase, reduce, or abolish the same.

XVIII. REGULATIONS FOR EXAMINATIONS

Subject to the provisions of the Charter, Statutes, and Ordinances of the University, the Council is hereby empowered to adopt regulations, or to delegate to the Senate the making of regulations, as to the subjects, times, modes, and standards of the examinations.

XIX. ADMISSION TO EXAMINATIONS

Before admission to any examination candidates must pay the examination fee. The admission of all students to the examinations of the University shall be subject to the approval of the Vice-Chancellor.

XX. EXTERNAL EXAMINERS

The Council is hereby empowered to appoint, on the recommendation of the Senate, such External Examiners on such conditions as to tenure of office, remuneration, and otherwise as it may from time to time determine.

XXI. PRIZES

The Council is hereby empowered, upon report from the Senate, to institute such class and other prizes as it may from time to time determine, and to vary their value and to abolish the same.

XXII. EXAMINATION OF SCHOOLS, AND EXTENSION LECTURES

The Senate is hereby empowered to examine and inspect schools and other educational institutions, and to provide lectures and instruction for persons not members of the University under such Regulations as the Council may from time to time adopt. The Senate is empowered to award certificates in connection with lectures and instruction for persons not members of the University.

XXIII. TENURE OF OFFICE OF DEANS OF FACULTIES

Deans of Faculties shall be elected for periods not exceeding two years at a time.

XXIV. TENURE OF OFFICE OF ADDITIONAL MEMBERS OF THE SENATE

Such additional Members of the Senate of the University as may be appointed by the Court under Statute V. shall be appointed for one year only, but shall be re-eligible at the end of each year.

XXV. REGISTER OF CONVOCATION

1. The Chancellor, the Vice-Chancellor, the Pro-Vice-Chancellor, the members of the Senate and the Lecturers shall be registered as members of Convocation without payment of any fee, and their names shall be continued upon the Register so long as they retain their qualifying offices.

2. Graduates who have been admitted to degrees of this University by reason of their having pursued courses of study in the Yorkshire College, and having been admitted to degrees of other Universities or to the Associateship of

the Yorkshire College, shall be entitled to be registered immediately as life members of Convocation without payment of any further fee.

3. All graduates of this University shall be entitled to be registered as members of Convocation upon payment of a fee of 10s. 6d.

XXVI. COMMUNICATIONS FROM COUNCIL TO CONVOCATION.

Convocation shall receive from the Council the draft of any Ordinance proposed which, in the opinion of the Council, would affect the status, position, rights, or privileges of Convocation or the members thereof, and further Convocation, if it so desires, may record its opinion on any draft Ordinance so submitted within one month from the date at which it has been received, and such opinion when recorded shall be taken into consideration by the Council.

THE UNIVERSITY OF LEEDS

Visitor

His Majesty THE KING

Chancellor

His Grace THE DUKE OF DEVONSHIRE, LL.D.

Pro-Chancellor

ARTHUR GREENHOW LUPTON, LL.D.

Vice-Chancellor

MICHAEL ERNEST SADLER, LL.D., Litt.D., C.B.

Pro-Vice-Chancellor

Professor CHARLES EDWYN VAUGHAN, M.A.

Treasurer

The Right Hon. LORD ALLERTON, LL.D., F.R.S.

Accountant

GEORGE R. BRENCH.

Clerk to the Senate

FRED. T. BAINES, B.A.

Vice-Chancellor's Secretary

ARCHIBALD E. WHEELER.

THE COURT

The CHANCELLOR
The PRO-CHANCELLOR
The VICE-CHANCELLOR
The TREASURER

Members Nominated by the Crown

The Most Honourable THE MARQUIS OF ZETLAND, K.T.
The Right Rev. BISHOP BOYD CARPENTER, K.C.V.O., D.D., Litt.D., D.C.L.
Sir OWEN ROBERTS, M.A., LL.D., D.C.L.

Members Elected by the Court

The Most Rev. THE LORD ARCHBISHOP OF YORK, LL.D.
The Rev. W. E. BLOMFIELD, B.A., B.D., Principal of Rawdon College
Major E. KITSON CLARK, M.A.
HERBERT DENISON
Major J. W. DENT
Mrs. R. W. EDDISON
WILLIAM BONNALIE GORDON
The Rev. CHARLES HARGROVE, M.A.
EWING MATHESON, M.Inst.C.E.
C. T. WHITMELL, M.A.

Members for Life

The Right Hon. THE EARL OF HAREWOOD, K.C.V.O., LL.D., Harewood
The Right Hon. THE VISCOUNT MOUNTGARRET, Ripley
The Right Rev. THE LORD BISHOP OF GLOUCESTER, D.D.
The Right Hon. LORD GRIMTHORPE, Leeds
The Right Hon. LORD ALLERTON, LL.D., F.R.S., Leeds
The Right Hon. LORD FABER, Harrogate
The Right Hon. LORD COWDRAY, London
The Hon. EDWARD FREDERICK LINDLEY WOOD, M.A., M.P., Temple Newsam
The Hon. JOHN HENRY SAVILE, Helmsley
The Hon. RICHARD CLERE PARSONS, M.A., London
The Hon. Mrs. WHITTUCK, London
The Right Hon. ARTHUR HERBERT DYKE ACLAND, M.A., LL.D., Felixstowe
The Right Hon. Sir SAVILE BRINTON CROSSLEY, Bart., K.C.V.O., Somerleyton, Lowestoft
The Right Hon. CHARLES G. MILNES GASKELL, M.A., LL.D., Wakefield
The Hon W. GERVASE BECKETT, M.P., Leeds
The Hon. RUPERT EVELYN BECKETT, Leeds
The Hon. FRANCIS STANLEY JACKSON, B.A., Leeds
Sir JOHN WILLIAM RAMSDEN, Bart., Byram

Sir JOHN NICHOLSON BARRAN, Bart., B.A., M.P., Ripon
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Pathology and Bacteriology	*Demonstrator in Pathology*: W. W. ADAMSON, M.B., Ch.B., *Glasgow.*
	Demonstrator in Bacteriology and in Public Health: MYER COPLANS, M.D., *London*, D.P.H.
	Honorary Demonstrator in Medical Pathology: R. A. VEALE, B.A., *Oxford*, M.D., B.S., *London*, M.R.C.P.
	Honorary Demonstrator in Surgical Pathology: HAROLD COLLINSON, M.B., M.S., *London*, F.R.C.S.
	Honorary Demonstrator in Clinical Pathology: M. J. STEWART, M.B., Ch.B., *Glasgow.*
Medicine	*Professor:* T. WARDROP GRIFFITH, M.D., *Aberdeen*, F.R.C.P.
	Honorary Demonstrator: G. W. WATSON, M.D., *London*, M.R.C.P.
Clinical Medicine	*Professor*: A. G. BARRS, M.D., *Edinburgh*, F.R.C.P.
	Medical Tutor: J. Le FLEMING C. BURROW, M.B., *Edinburgh.*
Surgery	*Professor*: R. LAWFORD KNAGGS, M.A., M.D., M.C., *Gonville and Caius College, Cambridge*, F.R.C.S.
	Honorary Demonstrator: J. A. COUPLAND, M.B., B.S., *London*, F.R.C.S.
Clinical Surgery	*Professor:* Sir BERKELEY G. A. MOYNIHAN, M.S., *London*, F.R.C.S.
	Surgical Tutor: S. W. DAW, M.B., B.S., *London*, F.R.C.S.
Practical Surgery	*Lecturer:* WALTER THOMPSON, F.R.C.S.
Operative Surgery	*Lecturer*: J. F. DOBSON, M.S., *London*, F.R.C.S.
Obstetrics	*Professor:* J. B. HELLIER, M.D., *London*, M.R.C.S.
	Honorary Demonstrator in Clinical Obstetrics: W. GOUGH, B.Sc., M.B., B.S., *London*, F.R.C.S.
Gynæcology	*Lecturer:* E. O. CROFT, M.D. *Durham*, M.R.C.S., L.R.C.P.
	Honorary Demonstrator in Obstetrics and Gynæcology: C. OLDFIELD, M.D., *London*, M.R.C.P., F.R.C.S.
Therapeutics, Pharmacy and Materia Medica	*Professor of Therapeutics*: H. J. CAMPBELL, M.D., *London*, F.R.C.P.
	Demonstrator of Pharmacy and Materia Medica: J. H. GOUGH.

Public Health	*Professor:* J. SPOTTISWOODE CAMERON, B.Sc., M.D., C.M., *Edinburgh.*
	Honorary Demonstrator: R. VEITCH CLARK, M.A., B.Sc., M.B., Ch.B., *Edinburgh*, D.P.H.
Forensic Medicine	*Professor:* F. W. EURICH, M.D., C.M., *Edinburgh*
	Honorary Demonstrator in Toxicology: BERNARD STEDMAN, M.D., *London*, D.P.H.
Ophthalmology	*Lecturer:* H. SECKER WALKER, M.Sc., *Leeds*, F.R.C.S.
Otology	*Lecturer:* G. CONSTABLE HAYES, F.R.C.S., L.R.C.P.
Mental Diseases	*Professor:* J. SHAW BOLTON, M.D., D.Sc., *London*, F.R.C.P.
Vaccination	*Instructor:* A. T. BACON, L.R.C.P.E., M.R.C.S.

Clinical Lecturers

(In addition to such of the above Professors and Lecturers as take part in the Clinical teaching.)

Medicine	Dr. T. CHURTON
	Dr. W. H. M. TELLING
Surgery	Mr. H. LITTLEWOOD
	Mr. L. R. BRAITHWAITE
Ophthalmology	Mr. A. L. WHITEHEAD
Infectious Diseases	Mr. A. E. PEARSON

Lecturers in the School of Dentistry

Dental Surgery	ARTHUR G. G. PLUMLEY, M.B., *London*, M.R.C.S., L.R.C.P., L.D.S.
Operative Dental Surgery	STEPHEN D. HEY, L.D.S.
Dental Anatomy and Physiology	A. ALAN FORTY, L.D.S.
Dental Mechanics	CHARLES RIPPON, L.D.S.
Dental Metallurgy	WILLIAM LOWSON, B.Sc., *London* and *Leeds*, F.I.C.

University Library

Honorary Librarian: Professor C. E. VAUGHAN.
Librarian: Miss F. J. PASSAVANT.
Assistants: Miss F. M. EKINS.
Miss F. E. WRIGHT.

Photographer: Miss E. RAMSDEN.

Lyddon Hall

(*Hall of Residence for Men Students*).

Warden:

Professor J. KAY JAMIESON, M.B., C.M.

University Hall for Women *(Residential).*

Warden:

Miss IDA THOMSON, M.A., St. Andrews.

External Examiners

Faculty of Arts

Greek: Rev. G. C. RICHARDS, M.A., Fellow and Tutor of Oriel College, University of Oxford.

Latin: J. WIGHT DUFF, M.A., Professor of Classics and Ancient History, Armstrong College, Newcastle-upon-Tyne.

English Language: ALLAN MAWER, M.A., Professor of English Language and Literature, Armstrong College, Newcastle-upon-Tyne.

English Literature: R. H. CASE, B.A., Associate Professor of English Literature, University of Liverpool.

French: LEON KASTNER, M.A., Professor of French, Victoria University of Manchester.

German: J. G. ROBERTSON, M.A., Ph.D., B.Sc., Professor of German Literature, University of London.

History: E. BARKER, M.A., St. John's College, University of Oxford.

Philosophy: C. C. J. WEBB, M.A., Fellow of Magdalen College, University of Oxford.

Economics: J. H. CLAPHAM, M.A., Fellow of King's College, University of Cambridge.

Education: J. W. ADAMSON, B.A., Professor of Education, King's College, London.

Music: W. G. WHITTAKER, Mus.B., F.R.C.O., Lecturer in Music, Armstrong College, Newcastle-on-Tyne.

Law: H. BOND, LL.D., Fellow of Trinity Hall, University of Cambridge.

Faculty of Science

Mathematics: A. BERRY, M.A., Lecturer in Mathematics, King's College, University of Cambridge.

Physics: J. S. E. TOWNSEND, M.A., F.R.S., Wykeham Professor of Physics, New College, University of Oxford.

Chemistry: P. P. BEDSON, M.A. D.Sc., Professor of Chemistry, Armstrong College, Newcastle-upon-Tyne.

Zoology: S. J. HICKSON, D.Sc., F.R.S., Beyer Professor of Zoology, Victoria University of Manchester.

Botany: W. H. LANG, M.B., C.M., D.Sc., Barker Professor of Cryptogamic Botany, Victoria University of Manchester.

Geology: W. W. WATTS, M.A., F.R.S., Professor of Geology, Royal College of Science, London.

Faculty of Technology

Engineering: J. T. NICOLSON, D.Sc., M.Inst.C.E., M.Sc.Tech. Municipal School of Technology, Manchester.

Electrical Engineering: E. WILSON, M.I.E.E., Professor of Electrical Engineering, King's College, University of London.

Mining: F. W. HARDWICK, M.A., Professor of Mining, University of Sheffield.

Fuel and Metallurgy: H. C. H. CARPENTER, M.A., Ph.D., Professor of Metallurgy, Victoria University of Manchester.

Colour Chemistry and Dyeing: J. T. HEWITT, M.A., D.Sc., Ph.D., Professor of Chemistry, East London Technical College.

Leather Industries: Dr. J. GORDON PARKER, Principal of the Leathersellers' Technical College, London.

Agriculture: JAMES WILSON, M.A., B.Sc., Professor of Agriculture, Royal College of Science, Dublin.

Faculty of Medicine

Anatomy: E. FAWCETT, M.D., C.M., Professor of Anatomy, University of Bristol.

Physiology: W. D. HALLIBURTON, M.D., F.R.C.P., F.R.S., Professor of Physiology, King's College, London.

Materia Medica and Pharmacy, Pharmacology and Therapeutics: A. R. CUSHNY, C.M., M.D., F.R.S., Professor of Pharmacology, University College, London.

Pathology and Bacteriology and Aetiology of Disease: G. SIMS WOODHEAD, M.A., Professor of Pathology, University of Cambridge.

Forensic Medicine and Toxicology: F. J. SMITH, M.D., F.R.C.P., London Hospital, London.

Public Health: S. M. COPEMAN, M.A., M.D., F.R.C.S., Local Government Board, Whitehall, London

Medicine and Mental Diseases: L. E. SHAW, M.D., F.R.C.P., Physician to Guy's Hospital, London.

Surgery: L. A. DUNN, M.B, F.R.C.S., Surgeon to Guy's Hospital, London.

Obstetrics and Gynæcology: J. S. FAIRBAIRN, M.B., F.R.C.P., F.R.C.S., Obstetric Physician with charge of out-patients, St. Thomas's Hospital, London.

Dentistry: A. HOPEWELL-SMITH, M.R.C.S., L.R.C.P., L.D.S.

Psychological Medicine: SIR THOMAS CLOUSTON, M.D., LL.D., F.R.C.P., L.R.C.S.

REPRESENTATIVES OF THE UNIVERSITY ON COMMITTEES AND OTHER INSTITUTIONS

A. Joint Matriculation Board

	Appointment Expires
[1]The VICE-CHANCELLOR	Dec., 1912
[1]Professor CONNAL	,, ,,
[1]Miss COOKE	,, ,,
[1]Professor GARSTANG	,, ,,
[1]Professor SCHUDDEKOPF	,, ,,

B. Courts of other Universities

Bristol,	[3]	
Liverpool,	[3]The VICE-CHANCELLOR	Nov., 1914
Sheffield,	[3] ,, ,,	

C. The General Medical Council

[3]Professor BARRS	Oct., 1913

D. Education Committees

West Riding	Sir GEORGE J. COCKBURN	
North Riding	[3]Sir J. N. BARRAN, Bart., M.P.	Mar., 1913
East Riding	[1]The Hon. E. F. L. WOOD, M.P.	Mar., 1913
,, ,,	[1]Professor WELTON	,,
Yorkshire Council for Agricultural Education	[1]The PRO-CHANCELLOR	
,, ,,	[1]The Hon. E. F. L. WOOD, M.P.	Mar., 1913
,, ,,	[1]Sir J. N. BARRAN, Bart., M.P.	
,, ,,	[1]EDWIN WOODHOUSE	
City of York	[1]D. S. CRICHTON	Feb., 1913
Borough of Doncaster	[1]J. A. CLAXTON	Dec., 1912
,, Harrogate	[1]Professor MOORMAN	Dec., 1912

E. Affiliated Institutions

College of the Resurrection, Mirfield	[3]Professor ROBERTS	June, 1915
Huddersfield Technical College	[1]Professor GARSTANG	June, 1913

The number prefixed to a name indicates the number of years in the term of the appointment.

F. Schools, etc.

Akroyd Foundation -	[5]J. Rawlinson Ford [5]The Vice-Chancellor	Sept., 1915
Almondbury Grammar School -	[3]C. L. Brook	Jan., 1913
Barnsley Grammar School -	[3]G. Blake Walker	Nov., 1912
Batley Grammar School - -	[3]Samuel Crowther	June, 1914
Bentham—Collingwood and Baynes Foundation -	[5]A. O. Allen	Dec., 1913
Beverley Grammar School- -	[3]Mark Sykes, M.P.	Dec., 1912
Bingley Grammar School -	[3]Professor Bragg	June, 1915
Bishopside (Ripon) — Lupton and Watson's Foundation	[4]Sir J. N. Barran, Bart., M.P.	Feb., 1916
Bradford Grammar School -	[3]Professor Cohen	Dec., 1912
Bradford Girls' Grammar School	[4]Miss H. Robertson	Mar., 1913
Bridlington Grammar School -	[3]A. T. Clay	April, 1915
Brighouse School for Girls -	[3]Miss H. Robertson	June, 1915
Castleford Secondary School -	[3]Professor Gillespie	Oct., 1912
Cleckheaton Grammar School -	[3]Professor Grünbaum	May, 1914
Coxwold Charity - - -	[3]Dr. H. M. Dawson	Oct., 1914
Dewsbury—Endowed Schools Foundation	[3]Professor Macgregor	Dec., 1914
Doncaster Grammar School -	[3]C. B. Cooke-Yarborough	Oct., 1914
Drax Free School - - -	[5]Rev. W. Seed, M.A.	Feb., 1913
Giggleswick Grammar School -	[5]Professor Grant	Mar., 1913
Halifax–Heath Grammar School	[5]Professor Connal	May, 1913
Harrogate Secondary School -	[3]Miss H. Robertson	Feb., 1913
Heckmondwike Secondary School - - - - -	[3]Professor Grünbaum	June, 1913
Hipperholme Grammar School -	[5]Professor Kendall	July, 1913
Holmfirth Secondary School -	[3]Professor Green	Nov., 1913
Ilkley Grammar School - -	[5]Professor Procter	Dec., 1913
Keighley--Drake and Tonson's Charity	[4]Professor Gillespie	June, 1914
Leeds Grammar School - -	[5]The Vice-Chancellor [5]Professor Smithells	May, 1913
Leeds Girls' High School -	[3]Lady Bodington	June, 1915
Leeds Maternity Hospital - -	[4]The Vice-Chancellor	June, 1915
Leeds, Mount St. Mary's College - - - - -	[3]Miss H. Robertson	Nov., 1912
Malton (Old) Grammar School -	[3]Hugh W. Pearson	Oct., 1913
Normanton Grammar School -	[3]Professor Smithells	Dec., 1913

The number prefixed to a name indicates the number of years in the term of the appointment.

Northallerton Grammar School	[3]WILLIAM BROWN	June, 1914
Ossett Grammar School	[3]Professor WELTON	May, 1913
Otley Grammar School	[3]Professor GRANT	July, 1915
Pickering Grammar School	[3]Mrs. KITCHING	Nov., 1914
Pocklington Grammar School	[5]Professor GARSTANG	June, 1914
Pontefract Grammar School	[5]Professor CONNAL	June, 1915
Pontefract Girls' High School	[3]Miss M. V. LEBOUR	Nov., 1913
Rastrick Grammar School	[3]Professor ROBERTS	Dec., 1914
Ripon Grammar School	[3]Sir J. N. BARRAN, Bart., M.P.	Feb., 1915
Ripon Girls' Secondary School	[3]Miss H. ROBERTSON	June, 1915
Sedbergh Grammar School	[5]Professor VAUGHAN	Oct., 1914
Selby Secondary School	[3]Miss H. ROBERTSON	Nov., 1912
Settle Girls' High School	[3]Miss A. M. COOKE	Mar., 1913
Skipton—Ermysted's Grammar School	[5]Professor PHILLIPS	Dec., 1913
Skipton Girls' Endowed School	[5]Professor PRIESTLEY	June, 1914
Slaithwaite Grammar School	[3]J. A. BROOKE	June, 1913
Sowerby-in-Halifax—Bairstow's Endowed School	[3]J. A. BROOKE	June, 1914
Tadcaster Grammar School	[3]Professor ROGERS	Dec., 1914
Thornton-in-Bradford—Endowed Schools	[5]Professor MOORMAN	Dec., 1913
Wakefield Grammar School	[3]Professor BARBIER	Dec., 1914
West Riding Examining Board	[1]The VICE-CHANCELLOR	Dec., 1912
West Riding Territorial Association	[1]The VICE-CHANCELLOR	Dec. 1912
Wortley—Sunderland and Farrer Foundation	[3]The PRO-CHANCELLOR	May, 1913
York—St. Peter's School	[5]Rev. J. M. MARSHALL	Feb., 1914
Yorkshire Board of Legal Studies	[1]The VICE-CHANCELLOR	Dec., 1913

The number prefixed to a name indicates the number of years in the term of the appointment.

THE
UNIVERSITY OF LEEDS

Session 1912-1913

Faculties of Arts (including Commerce and Law), Science and Technology

UNIVERSITY TERMS

The University session, or academic year, is divided into three terms. The first term begins Monday, September 30, 1912, and ends Wednesday, December 18, 1912; the second term begins Wednesday, January 8, 1913, and ends Wednesday, March 19, 1913; the third term begins Wednesday, April 23, 1913, and ends Saturday, July 5, 1913.

ADMISSION OF STUDENTS

The classes and laboratories are open to men and women on the same terms. Special arrangements are made for the convenience of women students.

No day students are admitted under the age of sixteen years. Students under seventeen years of age may be required to pass an entrance examination.

Candidates for admission to the University who are under nineteen years of age, and who have been at a school or other educational institution within one year of their application for admission, are required to produce a certificate of good conduct from the head of such institution.

Applications for admission to the University from persons residing out of the United Kingdom, must in all cases be

accompanied by certificates of good conduct duly authenticated. Indian students are, in addition, required to produce certificates of identity, which should also, as a rule, be furnished by students from foreign countries.

All students are required, prior to admission, to sign a declaration that they will observe the statutes, ordinances, and regulations of the University for the time being.

The Vice-Chancellor will admit students on MONDAY, SEPTEMBER 30, from 9.30 a.m. to 12.30 p.m., and on TUESDAY, OCTOBER 1, from 9.30 a.m. to 12.30 p.m. The Professors and Lecturers will be present to confer with intending students and to give them advice respecting their courses of study. Women students are requested to consult the Tutor of Women Students as to their studies before presenting themselves to the Vice-Chancellor. The Accountant will be in attendance to receive the fees and to register students whose courses of study have been approved by the Vice-Chancellor.

All students (excepting those entering the department of Agriculture[1]) are expected to register their names on one of these days.

REGULATIONS TO BE OBSERVED BY STUDENTS

1. All students in regular attendance who are not living with their parents, or with relatives or personal friends, will be required to reside either at some Hall of Residence or Hostel approved by the University, or in registered lodgings, or in lodgings which, if not registered when taken by the student, shall receive the approval of the University. Students taking lodgings which have not been registered are required to report immediately to the Office the address of such lodgings.

2. Students who do not return punctually at the beginning of the term are liable to be refused permission to keep the term. In case of delay in entering, due to illness or other unavoidable cause, a communication must be made to the Vice-Chancellor.

[1]The winter course in Agriculture begins Monday, October 14, 1912.

3. When a student is absent from illness or other unavoidable cause a written explanation must at once be sent to the Vice-Chancellor, who will communicate it to the heads of the departments in which the student is attending. Students desiring leave of absence must obtain it from the Vice-Chancellor.

4. Students are required to keep the Secretary informed of their addresses. Any alteration of address must be communicated without delay.

5. Students are required to provide themselves with the books used in the classes which they attend, and with a copy of the University Calendar.

6. A student dismissed for idleness or misconduct will forfeit all fees and privileges.

7. Students are required to replace or repair any apparatus or other property destroyed or damaged by their fault.

8. The Students' Common Rooms are under the management of the University Union, and the Committee of the Union are empowered to impose fines in case of damage done to the property in their charge. An appeal against any decision of the Union may be made to the Senate.

9. All students of the University who are reading for degrees are required to enter their names in the Matriculation Register.

10. No student is permitted, except with the leave of the Vice-Chancellor, to attend any lecture course or laboratory work until he has received from the Accountant his class ticket, which must be presented to the heads of the departments in which he enters before his course of study is begun.

11. Students who fail in their class examinations may be required to repeat their courses of study. In cases of repetition of courses the full fees will have to be paid for the repeated course.

12. Students will not ordinarily be permitted, while attending courses at the University in any Faculty except that of Law, to keep terms at the Bar during their courses of study.

13. Students are not at liberty to publish the results of research work done in the University without the specific consent of the head of the department, or to publish any matter given in the lectures.

Vacation Study

The Senate desire it to be understood that study is expected from students during vacations. Arrangements are made by which the laboratories are open during a portion of the Long Vacation to students capable of independent work. Application for admission must be made to the heads of departments, with whom the decision as to the suitability of students for admission rests.

In many cases the vacation time of students in technical departments can be most profitably employed in obtaining practical experience in works. Assistance to obtain admission to works will, so far as practicable, be given by the Professors. In other cases, before the vacation begins, Professors and Lecturers will be prepared to make recommendations to students as to the private study which should be carried on during the vacation in preparation for the next session.

ENTRANCE EXAMINATIONS

1. For Degree Students

All students who intend to present themselves as candidates for a degree in the University of Leeds are required, before entering upon their degree course, to have passed the Matriculation examination of the Universities of Manchester, Liverpool, Leeds and Sheffield, or some examination recognised by the Joint Matriculation Board of those Universities as exempting from the Matriculation examination.

The Matriculation examination is held at each University in July and September. Candidates for entrance to

the Faculties *other than the Faculty of Medicine* are required to satisfy the examiners in: (1) English Language and Literature. (2) English History. (3) Mathematics. (4) *Three* of the following, *one* of which must be a language: (i) Greek; (ii) Latin; (iii) French; (iv) German; (v) Some other Language approved by the Board; (vi) *Either* Mechanics *or* Physics; (vii) Chemistry; (viii) Geography (Physical, Political and Commercial); (ix) *Either* Natural History (Plants and Animals) *or* Botany. A complete syllabus of the examination may be obtained from the Secretary, the Joint Matriculation Board, 24, Dover Street Manchester, to whom all applications for exemption should also be addressed.

2. For other Students

Students under seventeen years of age who wish to pursue a course of study in the day classes of the University without proceeding to a degree are required, before entering, to have satisfied *one* of the following requirements:

(*a*) To have passed the Matriculation examination.

(*b*) To have passed some other public examination approved by the Vice-Chancellor.

(*c*) To have gained a scholarship or exhibition awarded by the University after open competition.

(*d*) To have passed the special examination for entrance to the Engineering departments (see below), including English Composition and Dictation.

(*e*) To have passed an Entrance examination in each of the following subjects: Arithmetic, including decimals and proportion; Algebra, to simple equations; Geometry, the first book of Euclid or its equivalent; English Composition and Dictation.

This examination will be held on Tuesday, October 1, 1912, the English subjects at 10 a.m., and the mathematical subjects at 2 p.m.; and no subsequent examination for entrance will be held during the session. No candidate can be examined whose name has not been notified to the Clerk to the Senate by the morning of Monday, September 30.

The Vice-Chancellor may dispense with the requirement of an entrance examination in the case of students who are presenting themselves for one or two lecture courses only.

Candidates for admission to the departments of Civil, Mechanical, Electrical or Mining Engineering are required *either* to have passed the Matriculation or some other approved examination, including Mathematics, *or* to pass a special entrance examination. This examination is not imposed, however, in the case of students who have taken a satisfactory position in the Evening Class examinations. For particulars of subjects, dates, and conditions of this examination see Courses in Technology (Engineering).

DEGREE COURSES

Candidates for degrees in Arts, Commerce, Law and Science are ordinarily required (*a*) to have completed not less than three years of study in the University, all of which must be subsequent to the date of passing the Matriculation examination, and (*b*) to have passed prescribed examinations in the subjects of study. Full particulars of the requirements of the University in these respects will be found in subsequent pages.

FEES

All Fees are payable to the Accountant. Cheques should be made payable to "The University of Leeds," and crossed "Beckett & Co."

1. Registration and Library Fee

In addition to class fees, each student attending any regular day class for which a fee of £1 1s. or upwards is charged will, if he has not paid a composition fee for the year, be required to pay, on entering the University, a registration and library fee of £1 1s. Those day students who attend one or two courses of lectures only, or are engaged in laboratory work not exceeding one day per week or an equivalent thereto may pay, in lieu of the registration and library fee of £1 1s., a sessional fee of 7s. for each class attended.

2. University Union Fee

Students attending the University for more than six hours a week, who have not paid the composition fee for the year will, except in special cases to be determined by the Vice-Chancellor, be required to pay to the Accountant at the beginning of each session a subscription of 10s. 6d. to the University Union. This subscription entitles students to the use of the Common Rooms (which are supplied with the daily papers, and periodicals, &c.), to free instruction in the University gymnasium, and to the use of the athletic grounds, fives courts and tennis courts.

3. Lecture and Laboratory Fees

(*a*) *General Regulations*

The fees for lecture and laboratory courses are payable in advance. On presentation of a form signed by the Dean of the Faculty authorising attendance upon courses of study, the Accountant will supply a class ticket entitling the student to attend such courses upon payment of fees. This class ticket must be presented by the student to the Professors or Lecturers whose classes or lectures he is authorised to attend before commencing attendance.

In the case of the withdrawal from the University of any student during the session, no claim to a return of fees is recognised.

(*b*) *Composition Fees for Complete Courses, inclusive of Registration and Library and Union Fees.*

The following tables of composition fees apply to all students, but students who entered the University in or before the session 1909-10 may, if they desire, pay the fees previously in force.

Students who have paid a composition fee of £19 or upwards will be admitted without further charge to any additional classes for which they have obtained the sanction of the Vice-Chancellor and the Head of the Department.

Arts. £19 each session.

Science. £27 each session.

Technology. £31 each session.

The composition fee for Applied Science (Technology) will be applicable to all students whose courses of study include an average attendance of six hours a week per session in one or more of the Technological departments.

Law. (1) Degree of LL.B.
Intermediate Course. £9 9s. for the session.

Final Course. £15 15s., to be paid at the beginning of the first year of the Final Course.

(2) Final examinations of the Law Society. £15 15s. to be paid at the beginning of the first year of the Final Course.

Students may enter for both the Final LL.B. Course and the Final Course for the Law Society's examinations on payment of one composition fee of £15 15s., to be paid at the beginning of the first year of the Final Course in each case.

Agriculture. Special Winter Course, £10.
Summer Course, £5.

Agricultural students who are preparing for the B.Sc. degree will be charged the Science Composition Fee.

First Examination in Medicine and First Examination in Dental Surgery. (*Parts 1 and 2.*) £27.

Conjoint Board First Examination. £23.

Preliminary Examination in Science for the Diploma in Dental Surgery. £15.

Diploma in Education (*excluding Registration and Library and Union fees*) £15.

(*c*) *Fees for lectures and laboratory work when paid for separately.*

The following fees will be charged for lectures and laboratory work when paid for separately, except in the case of classes for which a special fee has been fixed.

For a class meeting	1 hour per week...	£2 10s.	each session.
,, ,,	2 hours ,, ..	£3 10s.	,,
,, ,,	3 ,, ,, ..	£4 10s.	,,
,, ,,	4 ,, ,, ...	£5 10s.	,,

The fees payable for laboratory and for practical work are at the uniform rate of £3 per half-day of three hours a week each session.

For two terms three-quarters of these amounts will be charged. For one term half of these amounts will be charged.

Students who are deemed by the head of the department concerned to be capable of independent work may be admitted to work in vacations only, on the following scale of fees:—

1 day a week	... ...	£1 1 0	per month	
2 days	,, ...	£1 11 6	,,	
3 ,,	,, ...	£2 2 0	,,	
4 ,,	,, and upwards	£2 12 6	,,	

(*d*) *Fees for Research Students*

Persons desiring to pursue original research may be admitted as research students to any of the University laboratories upon the following conditions:—

(1) Applications for admission as research students must be made to the head of the department concerned. The admission is subject to the approval of the Senate.

(2) Graduates and advanced students will, if admitted as research students, be charged a fee of seven guineas for the session (including the portions of the vacations for which the respective laboratories are open); if admitted for shorter periods they will be charged £2 12s. 6d. a term, or one guinea a month. This scale will in no case apply to students preparing for a Bachelor's degree unless they have completed the third year course of study in the University.

(3) Persons prosecuting private industrial investigations will, if admitted as research students, be charged ordinarily at the rate of two guineas a month.

(4) Research students will not be charged the registration and library fee; they will not be entitled to the use of the students' Common Rooms except on payment of the subscription of 10s. 6d. to the Students' Union.

(5) Students who are engaged in research work may be admitted as research students in vacations as well as in term time at £1 1s. a month.

4. Examination Fees

No fee will entitle to admittance to more than *one* examination. Unless otherwise stated, the fee for a second or subsequent examination is the same as that for the first.

For the Matriculation examination, £2, but a candidate who has failed in the July examination in any year will be admitted to the September examination in the same year for £1 10s.

For the Intermediate examination for the degree of B.A., or B.Sc., or LL.B., or B.Com., £1.

For the Final examination for the Ordinary or Honours degree of B.A. or B.Sc., or LL.B., or B.Com., £1.

For the Final examination for the Honours degree of B.A. or B.Sc., in cases where no fee has been paid for the Intermediate examination, £2.

For the Final examination for a degree in Honours when the Ordinary Final examination has previously been taken, £1.

For the examination or report upon dissertation for the degree of M.A. or M.Sc. or LL.M., £1.

For the examination or report upon dissertation for the degree of Litt.D., or D.Sc., or LL.D., £5.

For the examination in Education for the Government Certificate, 5s.

For the Final examination for any Diploma in the Faculties of Arts, Science and Technology (including the final terminal examination in cases where students are not taking any special examination in the main subject of study), £1.

Candidates who are allowed to take any examination in two or more parts will be required to pay the full fee for such examination when entering for the first part.

Candidates who, having failed at an Intermediate or Final examination or an examination for a Diploma in Arts or Science, present themselves again for examination will be charged the same fee as that for the first examination. This rule is subject to the following conditions for special cases :—

When the regulations allow a candidate to take part of an Intermediate or Final examination separately, the following fees will be charged for re-examination, viz. :—

(*a*) For the additional subject at Intermediate stage for B.Sc., 5s.

(*b*) For a subsidiary subject at Final stage for B.A. or B.Sc., 5s.

(*c*) For the Essay for B.Sc., 5s.

(*d*) For a principal subject at Final stage for B.Sc., £1, except in the case of an Honours Candidate who is taking a principal subject as a part of such Honours examination, in which case the fee will be 10s.

Students who have graduated in the Faculties of Arts or Science will be required to pay an additional fee of 10s. when a Diploma is granted consequent upon the attainment of their degree without further examination.

5. Degree Fees[1]

On the conferment of any degree in the Faculties of Arts (including Commerce and Law) and Science, £5.

ENTRANCE SCHOLARSHIPS

The following Scholarships, tenable from October, 1913, at Day Classes in the University of Leeds, will be offered for competition to candidates who have not been registered students of the University and who will be not less than 16 or more than 19 years of age on October 1st, 1913.

1 These do not apply to Honorary Degrees.

Attendances on University classes or laboratories not exceeding three hours a week in any session will not be held to preclude a student from becoming a candidate for an Entrance Scholarship under this regulation. The latest date of entry for these Scholarships is *May 1st*, after which no application will be received. In most instances they are awarded in connection with the July Matriculation examination. Particulars of conditions, &c., may be obtained on application to the Clerk to the Senate.

1. Awarded on Results of Matriculation Examination

Name of Scholarship.	Number offered.	Annual Value of each.	Periods for which tenable.	Departments in which tenable.
Emsley	Two ..	£20	2 years	Arts, Sci., Tech. exc. Tex.
Edward Baines ..	One ..	£20	2 years	Arts, Sci., Tech. exc. Tex.
Charles Wheatley ..	One ..	£25	3 years	Arts.
William Summers ..	One ..	£35	3 years	Arts.
Brown	One ..	£40	2 years and renewable	Science, Tech.
Akroyd	Two ..	£40	2 years and renewable	Science, Tech.
Medical	One ..	Fees for complete course (excluding clinical instruction).		Medicine
Craven	One ..	£25	3 years	Tech. (Engineering).

2. Awarded by Special Examination

William Cooke & Co.	One ..	£21	2 years	Tech. (Mining)

In addition to the above Scholarships the University offers a certain number of Advanced or Senior Scholarships, full particulars of which are given in subsequent pages.

Scholarships are also offered by the Leeds City Council and the County Councils of the North, East, and West Ridings of Yorkshire, tenable at the University of Leeds in common with other institutions, in scientific and technical subjects, (including Agriculture) as well as in Arts subjects. In the West Riding exhibitions are also offered in Coal Mining, and Free Studentships tenable at the University.

In certain cases assistance is offered to students in Evening Classes.

For further information apply as follows :—

For Leeds City Council Scholarships : The Secretary for Education (Higher Section), Education Department, Leeds.

For West Riding Scholarships and Free Studentships : The Education Department, County Hall, Wakefield. Applicants should ask for Section X of Part II. of the Handbook of the Education Committee.

For North Riding Scholarships : The Secretary, Education Offices, County Hall, Northallerton.

For East Riding Scholarships : The Clerk, East Riding County Council, Beverley.

OFFICERS' TRAINING CORPS

Commanding Officer :

Major E. KITSON CLARK, 7th Bn. W. Yorks. Regt. (seconded)

Subalterns :

1st Lt. H. BROWN, Unattached List Territorial Force.
2nd Lt. J. H. PRIESTLEY, ,, ,, ,, ,,

Adjutant :

Captain F. H. NUGENT, The Rifle Brigade (attd. General Staff).

Staff Sergeant : Colour Sergeant Instructor W. H. FEAR.

A contingent of the Senior Division of the Officers' Training Corps was formed at the University in January, 1910, and was accepted by the War Office. The Officers' Training Corps includes as Senior Division all Members of existing University Cadet Corps throughout the country, and many Universities, including Leeds, have joined it.

Its primary object is to provide students at schools and Universities with a standardised measure of elementary military training, with a view to their eventually accepting commissions in the Special Reserve or the Territorial Force.

The Officers' Training Corps does not form part of the Territorial Force ; it is independent of County Associations, and for purposes of organisation and control is directly under the War Office. Its training is under the direction of

the Chief of the General Staff. Cadets, on joining the Corps, are not enlisted and incur no legal liability to service. They agree, however, to abide by the rules of the contingent which have been approved by the War Office.

Two certificates of proficiency are obtainable in the Corps, which confer special advantages on cadets who accept commissions in the Special Reserve or the Territorial Force, or offer themselves as candidates for Woolwich, Sandhurst or the R.A.M.C. By means of the facilities thus offered to men who wish to serve their country with the least possible interference with their civil career, it is hoped that the supply of officers may be increased, so that all arms and services may be fully complete on mobilization.

The Leeds University Contingent consists of one company of infantry; strength (1911-12), 3 officers and 122 cadets. All students attending University classes, as well as members of the University staff, are eligible for enrolment. Cadets enrol for two years, and there is an annual subscription of five shillings. A portion of Woodhouse Lodge has been given by the University for use as headquarters by the Contingent. Drills are held at headquarters and at Carlton Barracks, and the Contingent has the use of the 8th Batt. West Yorks. Rifle Range.

Camp is held for a fortnight annually at the end of July and beginning of August, contingents from different Universities being generally brigaded together. Full particulars as to the rules, &c. of the Contingent, and as to the terms of service and the pay in the Special Reserve and the Territorial Force can be obtained at headquarters.

UNIVERSITY LIBRARY

Honorary Librarian: Professor VAUGHAN
Librarian: Miss F. J. PASSAVANT
Assistants:
Miss F. M. EKINS Miss F. E. WRIGHT

The Library is open (*a*) daily during term and the months of July and September from 9 a.m. to 5.30 p.m. (on Saturday from 9 a.m. to 1 p.m.); (*b*) during the second half of August and during the Christmas and Easter vacations from 10 a.m. to 1 p.m.

It is closed during the first half of August, one week at Christmas, Good Friday, and the following Saturday, Monday, and Tuesday, and Whit-Monday and Tuesday.

General Regulations

1. No book shall be removed from the Library unless the borrower shall have first filled in the form provided and handed it to a member of the Library staff.

2. No mark of any kind may be made in the Library books or periodicals. Any loss of, or injury to, a book shall be reported by the Librarian to the Library Committee, who shall require the person responsible to pay a sum not exceeding that which will be required to make the loss or injury good.

3. The Honorary Librarian has power to suspend the Library privileges of any person who breaks the rules of the Library.

4. No atlases, dictionaries, or other books with special labels shall be taken out of the Library, except in so far as provided in subsequent paragraphs.

5. No person shall be allowed to take a book out of the Library if he has in his possession any book which he has kept beyond the time allowed by the regulations, or if any fine or charge which he has incurred has not been paid.

6. Persons not members of the University who are engaged in special studies may be given the right to use the Library by the Honorary Librarian.

7. The Honorary Librarian shall be at liberty to grant special facilities for the use of books during a limited time to any person entitled to the use of the Library.

Regulations affecting Members of the Academic Staff

8. Any member of the Academic Staff shall be entitled to take out such books as he requires and to retain them until the end of term, unless he receives a notice that any of these books are overdue, in which case such book or books shall be returned without delay to the Library. A book shall be regarded as overdue when it has been in the possession of the borrower for a fortnight and is required by some other person. This regulation shall apply, *mutatis mutandis*, to books taken out at the beginning of, or during, any of the vacations.

9. A book which is not overdue according to Rule 8 may be renewed for the vacation on application in writing to the Librarian.

10. All books must be brought back to the Library at the end of the third term, but books not required by any other person may be renewed on presentation.

11. Current University Calendars and current serials may be taken out of the Library for one night only, and not before 5 p.m. Other unbound serials may be taken out of the Library for a period not exceeding 48 hours.

12. At the close of each session, *i.e.*, between June 15th—20th, notice shall be sent to each member of the Academic Staff of the books which at that date he has still in his possession, and a day named on or before which they must be returned to the Library. In case they are not returned by that day, a second notice shall be sent to the borrower; and, in case the books are not returned within three days after the sending of this notice, he shall be liable to a fine of 2s.6d. for each volume, or, if there be further delay, to be charged with the sum required for the replacing of the missing volume or volumes.

Regulations affecting present and past Students of the University

13. All graduates of the University and Associates of the Yorkshire College are entitled to the free use of the Library.

14. All registered students who have paid the registration and Library fee are entitled to the use of the Library. Day students who have paid the sessional fee of 7s. are entitled to the use of the Library during the session covered by that fee.

15. All other day students, all evening students, and all past students who are not graduates are entitled to the use of the Library on payment of a fee of 2s. 6d. per session.

16. Not more than three volumes, whether of the same or of different works, may be entered to the same person at one time.

17. Every book must be returned to the Library on or before the Saturday in the week following that in which it was taken out. A book may, however, be renewed from week to week until four weeks have elapsed since its first issue, provided that no application for the use of the book by another person has been received in the meantime.

18. All books must be brought to the Librarian for renewal, except when an application for renewal has been made and granted on the day before that on which the return of the book falls due. Applications for renewal may be made personally or by post.

19. At the end of each term all books must be returned to the Library.

20. Books of reference and books which, owing to their constant use, are temporarily placed on the list of books of reference, may not be removed from the Library (except under Rule 21), until after 5 p.m., and then only on condition that they be returned before 10 o'clock on the following morning.

21. Students provided with a written recommendation from a Professor or Lecturer shall be entitled to take out books of reference, but books taken out under this rule must be returned to the Library before the person using them leaves the University buildings.

22. Any person borrowing a book under Rule 20 or Rule 21, and failing to return it by the time therein specified, shall be fined 2d. a day, and any person who does not comply with Rule 17, shall be fined 1d. a day for every day a book is kept out after it ought to have been returned. A notice shall be posted to the borrower on the business day following that on which the return of the book was due, informing him that a fine is being incurred.

23. Books may, subject to the provision of regulation 24, be taken out at the beginning of, or during, any of the vacations, and may be retained until the borrower receives notice that they are overdue. A book shall be regarded as overdue when, having been in the possession of the borrower for a fortnight, it is required by some other person. All books taken out at the beginning of the long vacation shall be returned not later than the first of September.

24. Students desiring to borrow books for the vacation are required to procure a recommendation signed by a Professor or Lecturer of the University. Printed forms for this purpose may be obtained from the Librarian.

Regulations respecting Seminar Rooms.

1. *General status of Seminar rooms.*—Seminar rooms, being departments of the University Library, are subject to the Regulations of the University Library, except in so far as modified by the following rules.

2. *Hours of opening.*—Seminar rooms shall be open during the hours in which the University Library is open to readers.

3. *Supervision.*—The Head of a Department to which a Seminar room is assigned shall appoint an Honorary Keeper to supervise the use of the Seminar room and books, under the general control of the Head of the Department.

4. *Admission to Seminar rooms.*—The use of a Seminar room is restricted, except as provided in Rule 9, to persons recognised by the Head of the Department as members of the Seminar. A list of such members shall be posted from time to time in the Seminar room by the Head of the Department, who shall supply the Librarian with a copy of the list.

5. *Seminar Libraries.*—A Seminar library shall consist of books selected by the Head of the Department, in consultation with the Honorary Librarian, and approved by the Library Committee. A special catalogue of each Seminar library shall be prepared in duplicate, of which one copy shall be kept in the Seminar room and one in the General Library.

6. *Books confined to a Seminar.*—A list of books strictly confined to a Seminar room shall be drawn up by the Head of the Department, in consultation with the Honorary Librarian, and posted in the Seminar room. Books included in this list must not be removed from the Seminar room except for purposes of consultation in the General Library under Rule 8.

7. *Use of Seminar libraries by members.*—(*a*) Members of a Seminar may, subject to the provisions of paragraph 6, borrow books from a Seminar library under the Regulations of the University Library.

(*b*) An issue-slip must be filled in when books are taken out of the General Library for use in a Seminar room. The member who takes out books for this purpose must return them to the Librarian on leaving.

8. *Use of Seminar libraries by non-members.*—Persons who are not members of a Seminar may, subject to the provisions of paragraph 6, (*a*) consult in the General Library. (*b*) borrow, under the Regulations of the Library, books kept in a Seminar room, upon filling in an issue-slip and presenting it to the Librarian, who will cause the books applied for to be brought into the General Library. Such books whether consulted or borrowed must be returned to the Librarian when done with.

9. *Use of Seminar libraries by members of the staff.*—Members of the Academic staff shall have access to any Seminar room for the purpose of consulting books kept in it, except at times when teaching is proceeding in the Seminar room.

They may borrow books from a Seminar library under the Regulations of the University Library applicable to members of the Academic staff, subject to the restrictions following :—

(*a*) They are not entitled to borrow books strictly confined to a Seminar room under the provisions of paragraph 6.

(*b*) They are not entitled to borrow reference books kept in a Seminar room, except after 5 p.m., and they must return books so borrowed before 10 a.m. on the following day.

ACADEMIC DRESS

All Hoods are to be of a Green shade, combined with Black, White, Scarlet, or with one another, to produce the variations required for the several Degrees, namely :

B.A., a self-coloured Hood of Dark Green shade.

B.Sc., a self-coloured Hood of Middle Green shade.

LL.B., a self-coloured Hood of Light Green shade.

M.B. and Ch.B., a Hood of Dark Green, lined with Light Green.

M.A., a Dark Green Hood, with White Lining.

M.Sc., a Middle Green Hood, with White Lining.

LL.M., a Light Green Hood, with White Lining.

M.Ch., a Dark Green Hood, edged with Light Green, and lined with White.

All Bachelors' Hoods are to be lined, and all Bachelors' and Masters' Hoods are to be of the single or Oxford pattern.

The Doctor's Gown is to be of Scarlet, with facings and sleeve linings of the shade of Green distinctive of his faculty. The Hood is to be of Scarlet, lined with the distinctive shade or shades of Green. The Full Dress Cap is to be of the usual pattern, with a Gold Cord, and a lining of the shade of Green distinctive of the faculty.

ROBEMAKERS TO THE UNIVERSITY

Ede, Son & Ravenscroft, 93 and 94, Chancery Lane, London.

Representatives of the firm attend on Degree Days to robe those who are to be presented for degrees.

ARMS OF THE UNIVERSITY

The Arms of the University are "Vert an open Book proper edged and clasped Gold inscribed with the words 'Et Augebitur Scientia' between in chief three Mullets Argent and in base a Rose of the last seeded proper, and for the Crest on a Wreath of the Colours A Greek Sphinx sejant Gules."

STUDENTS' SOCIETIES

The University Union comprises the Cricket, Football (Rugby and Association), and Tennis Clubs, and undertakes the management of the Gymnasium, the Fives Courts and the Debating Society. Among other University Societies are the Women's Representative Committee, the Literary and Historical Society, the Debating Society, the Education Society, the Cavendish Society, the Natural History Society, the Engineering Society, the Textile Society, the Agricultural Society, the Society for Social Study, the Women's Discussion Society, and the Christian Union.

GYMNASIUM

Instructor: MASON CLARK

The Gymnasium is free to all members of the University Union. It is reserved for the use of women students at suitable hours, which, together with those arranged for other classes, will be announced at the beginning of the session.

LOCKERS FOR COATS AND BOOKS

The use of a coat locker during the whole or part of one session may be obtained for the session, or a part of it, by depositing 5s. with the Hall Porter, who will lend the student a key, which will, however, remain the property of the University. A charge of 3s. per session will be made, the balance of the deposit money being repaid when the key is returned, provided the return be made not later than one week after the end of the session.

Smaller lockers, for books, &c., are also provided, and the use of one of these may be obtained on a deposit of 3s. for the session or term, 2s. of which will be repaid on the above conditions being complied with.

A student will be charged for any damage done to the lockers while in his possession, or for loss of keys. The loss of a key should be immediately reported to the Hall Porter.

LODGING AND BOARDING HOUSES

A Register of approved lodging-houses is kept at the University, and printed lists can be sent at any time to parents, guardians, or students who desire to take lodgings.

If a student takes lodgings which are not already on the register, he must immediately apply to the Secretary for a form of application for registration of lodgings. This form must be filled in and returned at once, when the lodgings will be visited on behalf of the University, and if they do not satisfy the prescribed conditions the student will be required to leave them.

No back-to-back houses will be regarded as fulfilling the prescribed conditions.

University Hall has been opened to provide a residence for women students attending the University. All enquiries and applications for admission to the Hall should be made to the Warden, University Hall for Women, De Grey Road, Leeds.

All communications with regard to lodgings should be addressed to the supervisor of students in lodgings, Mr. W. H. Perkins, M.Sc., The University, Leeds.

LYDDON HALL

Resident Staff:

Warden: Professor J. Kay Jamieson

Sub-Warden: F. M. Rowe, M.Sc.

The object of this Institution is to supply day students and graduates in the University with the advantages of a common collegiate life, by providing a Hall of Residence similar to those which have been established in connection with most of the modern Universities.

The Hall of Residence has been erected upon a suitable site within five minutes' walk from the University, and is furnished with every attention to the health and comfort of the students. The accommodation consists of Dining Hall, Recreation Room, and other rooms for common use, and a separate room furnished as a private study and bedroom for each student. The charge is twenty-one guineas for each of the winter terms and eighteen guineas for the summer term.

Applications for admission should be sent to the Warden, Lyddon Hall, Virginia Road, Leeds.

UNIVERSITY HALL FOR WOMEN

De Grey Road, Leeds

Resident Staff:

Warden: Miss Ida Thomson, M.A.

University Hall was opened in September, 1911, by the University of Leeds to provide a residence for women students attending the University. Women on the teaching staff of the University, students studying outside the University and others approved by the Committee are also eligible for admission if there are vacancies. The Hall adjoins the University. At present there is accommodation for twenty-two residents. Arrangements have been made to extend the Hall if further accommodation is required.

The fees charged for the University session of 32 weeks are as follows :—

£40 is charged for a study-bedroom.

£37 5s. is charged for a study-bedroom shared with another student.

£34 10s. for a single bedroom.

£31 10s. (30 guineas) for a bedroom shared with another student.

These charges include board and residence, electric light, study fires for the two winter terms (one scuttle of coal a day), the use of a common Room and Study, *household* laundry. They are paid in three instalments proportioned to the length of the term.

The charges for residents who do not keep the University terms are calculated approximately on the above scale according to the number of weeks and room occupied. The fees charged are paid in advance for agreed periods and notice of leaving must be given a corresponding period in advance or the fees for the coming period will be charged.

Further particulars can be had on application to the Secretary, The University, Leeds.

REFECTORY

For the convenience of students, dinners are served daily in the University Refectory, from 12.30 to 2 p.m. Cold meats may also be obtained after the latter hour ; tea, coffee, and other light refreshments up to 6 p.m. The Refectory is closed on Saturdays at 2 p.m.

Term tickets may be had on application to the Accountant, entitling students to dine at the Refectory, College Road, daily (except Saturdays) during the session. The cost of such tickets, which must be prepaid, is £6 10s. per session or £2 10s. per term for the first and second terms, and £2 5s. for the third term for men students, and £5 10s. per session or £2 5s. per term for the first and second terms, and £2 for the third term for women students. Places will be reserved for those who pay for their dinners by the term.

CECIL DUNCOMBE OBSERVATORY

Curator: A. GILLIGAN, B.Sc.

The Cecil Duncombe Observatory was opened on May 4th, 1906, by Dr. H. H. Turner, Savilian Professor of Astronomy in the University of Oxford. It is built on a site in Woodhouse Moor contributed by the Leeds City Council. The telescope, an $18\frac{1}{4}$ inch reflector of the Newtonian type, was given to the University by Major Duncombe, of Nawton Grange, and formerly belonged to his father, the late Hon. Cecil Duncombe. Its large mirror, made by Mr. G. Carver, of Walpole, Sussex, for Dr. Common, was the first successful large glass mirror made in England. In addition to the large equatorial there are a 3 inch transit instrument and a sidereal clock.

The Observatory is administered by a Committee representing the University, the Leeds Astronomical Society, and the Leeds City Council.

Regulations

1. The Observatory and instruments shall be under the control of the Curator, and no person shall be allowed to go into the Observatory or to use the instruments unless he is present, except as provided for in Rule 6.

2. The Curator will attend at the Observatory, on an average, two nights per week during the session of the University, when persons eligible under Rule 4 may attend. All arrangements as to classes and observing nights must be made with the Curator.

3. Not more than twelve persons shall be admitted to the Observatory at any one time.

4. The following will be allowed to use the Observatory under Rule 2:

(*a*) Members of the University staff;

(*b*) Students of the University, on the recommendation of heads of departments;

(*c*) Members of Astronomical Societies;

(*d*) Teachers in the schools of the Leeds Education Committee, in groups of not more than six persons;

(*e*) Senior scholars from schools of the Leeds Education Committee, if accompanied by a teacher, who should, if possible, be one interested in the subject;

(*f*) Teachers in Leeds schools other than those of the Leeds Education Committee, by special arrangement with the Curator;

(*g*) Such other persons as the Observatory Committee may from time to time determine.

5. Persons wishing to use the Observatory under Rule 4, sections (*a* and (*e*), must apply for a recommendation to the Leeds Education Committee.

6. Permission to use the Observatory for research work in the absence of the Curator may be granted by the Observatory Committee (1) to Professors and Lecturers of the University teaching Physical Geography or Surveying, who may, subject to Rule 3, use the Observatory for class purposes, (2) to such persons as may be specially recommended by the Committee of an Astronomical Society as competent to use the instruments, it being understood that the permission will apply to the authorised person only, who may not admit any other person, and (3) to other persons approved by the Observatory Committee.

7: A list of persons authorised to use the Observatory under Rule 6 shall be supplied to the Hall Porter at the University, who will issue a key of the Observatory to the authorised observer on personal application.

The key must be returned immediately on leaving the Observatory, or before noon on the day following.

8. Permission to use the Observatory under Rule 6 may be withdrawn by the Committee at any time; and the Observatory will only be available under that rule when it is not required for class purposes.

9. Persons using the instruments under Rule 6 shall be held responsible for their proper use during the time they or their students may occupy the Observatory, and shall be liable to make good any damage they or any of them may do to the instruments.

They will also be responsible for the safe closing and locking of the building on leaving it.

10. A book shall be kept in the Observatory in which all persons using the instruments will be expected to enter their names, with the hours during which they have been present, and the nature of the work upon which they have been employed.

11. The Curator is empowered to refuse admission to any person, or to require him to withdraw from the Observatory, without giving any reason to the person concerned; but any such action shall be reported to the Committee at its next meeting.

MATRICULATION EXAMINATION

The Regulations regarding the Matriculation examination are subject to modification. For authentic information the Syllabus of the Joint Board for 1913 must be consulted.

All communications relating to this examination should be addressed to "The Secretary, Joint Matriculation Board, 24, Dover Street, Manchester."

For particulars of the Matriculation examination in the Faculty of Medicine see Syllabus of the Joint Board for 1913.

The Matriculation examination is conducted by a Joint Board representing the Victoria University of Manchester, the University of Liverpool, the University of Leeds, and the University of Sheffield. Candidates for degrees in any one of these Universities are required to have passed this examination, or to have obtained exemption therefrom, before beginning a degree course. Any application for exemption must be addressed to the Joint Matriculation Board, and must be accompanied by the certificate or certificates upon which the application is based. Grants of exemption will be subject to and conditional upon the payment of the registration fee of £2. The examination is held in July and September of each year in the buildings of each University. The July examination is held at such other centres as the Board may authorise, and it is also held at schools as a form examination. Information as to the conditions may be obtained from the Secretary to the Joint Board.

Candidates must apply to the Secretary of the Joint Board for a form of entry, which must be forwarded to the Secretary on or before MAY 24th or AUGUST 30th respectively, accompanied by the proper fee. The fee for the examination is £2; but a candidate who has failed in the July examination in any year will be admitted to the September examination in the same year for a fee of £1 10s. Cheques and postal

and money orders should be made payable to "The Secretary, Joint Matriculation Board," and crossed "Williams Deacon's Bank, Ltd., Chorlton-on-Medlock Branch."

The names of candidates who have passed the Matriculation examination are published in two divisions, the names in each division being arranged in alphabetical order.

[1]Conditions of Exemption from the Matriculation Examination

A student is entitled to exemption from the Matriculation examination provided he has satisfied any one of the following conditions:

(*a*) Has passed Responsions of the University of Oxford, including both Geometry and Algebra, and one Additional Subject.

(*b*) Has passed Parts I. and II. of the Previous Examination of the University of Cambridge, and also passed in one of the Additional Subjects of that examination.

(*c*) Has passed the Matriculation examination of the University of London and presents a certificate containing, beyond the obligatory subjects of English and Elementary Mathematics, *three* of the following subjects, of which one must be a Language: Greek, Latin, French, German, Mechanics, Chemistry, Geography.

(*d*) Has gained a Higher Certificate or Higher Certificates of the Oxford and Cambridge Schools Examination Board, including (1) one foreign language, (2) *either* English *or* English History, in either case with English Essay; (3) Elementary Mathematics together with Algebra and Geometry as required for passing in Additional Mathematics; (4) *two* other subjects (of which Scripture Knowledge shall not be one) which may include the alternative subject not taken under (2), and Additional Mathematics. These conditions will be satisfied if a girl candidate presents a certificate which does not satisfy these conditions, providing that she presents also a later "Letter" containing the subjects wanting on the certificate.

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1 The holder of a certificate who desires exemption must submit the certificate to the Secretary, Joint Matriculation Board, for verification of the subjects.

(*e*) Has obtained a School Certificate of the Oxford and Cambridge Schools Examination Board, provided the candidate has passed at one and the same examination, (1) in English (passing separately in (*a*) English Composition and Précis-writing, (*b*) Reproduction of a passage read to the candidate, (*c*) English Literature); (2) in History; (3) in Additional Mathematics (having obtained 50 per cent. of the total in the three papers on Arithmetic, Algebra, and Geometry taken together); (4) in *two* of the following subjects (one of which must be a language): (*a*) Greek, (*b*) Latin, (*c*) French, (*d*) German, (*e*) Geography, (*f*) Statics, Dynamics, and Trigonometry, (*g*) Chemistry, (*h*) Physics, (*i*) Physics and Chemistry.

(*f*) Has obtained an Oxford Senior Local Certificate, provided that the candidate has passed at one and the same examination in (1) English Language and Literature, including Composition; (2) Arithmetic, Geometry, and Algebra; and (3) *either* History *or* Geography, and *two* of the following nine sections, one at least being a language, namely: (*a*) Latin, (*b*) Greek, (*c*) French, (*d*) German, (*e*) Italian, (*f*) Spanish, (*g*) one subject in Higher Mathematics, (*h*) Chemistry, (*i*) one subject in Physics (excluding Physical Geography).

(*g*) Has obtained a Cambridge Senior Local Certificate, provided that the candidate has passed at one and the same examination in (1) English Language and Literature, including Composition; (2) Arithmetic, Geometry, and Algebra; and (3) *either* History *or* Geography, and *two* of the following eight sections or parts of sections, one at least being a language, namely: (*a*) Latin, (*b*) Greek, (*c*) French, (*d*) German, (*e*) Spanish, (*f*) an additional subject in Mathematics, (*g*) Chemistry, (*h*) one subject in Physics.

(*h*) Has obtained the Leaving Certificate of the Scotch Education Department, provided that the candidate has passed at one and the same examination at the Higher or Honours Grade in (1) English, (2) Mathematics, and (3) in *three* other subjects included in the schedule of the Matriculation examination of the Board, one at least of these being a language.

(*i*) Has obtained the Senior Certificate of the Central Welsh Board, provided the candidate has passed at one and the same examination in (1) English Language and Literature, (2) English History, (3) Mathematics, (4) *three* of the following subjects, *one* at least being a language: (*a*) Latin, (*b*) Greek, (*c*) French, (*d*) German, (*e*) Italian, (*f*) Spanish, (*g*) Physics, (*h*) Chemistry, (*i*) Elementary Biology, (*j*) Geography.

Privileges of Holders of Matriculation Certificates

The Board of Education accepts the Matriculation certificate for the purpose of admission to Training Colleges. For the conditions consult the Regulations for the Training of Teachers for Elementary Schools, 1912.

Women candidates who have passed the examination and taken two languages are eligible for the Honours examinations at Oxford.

Provided Latin be one of the subjects taken, the certificate is accepted by the Law Society in lieu of the Preliminary examination.

Provided certain conditions (for which see syllabus) are complied with, the certificate is accepted by the Universities of Oxford, Cambridge and London in lieu of the examination in stated subjects at Responsions, the Previous examination and the Matriculation examination respectively.

The certificate is accepted by the Joint Board of Examiners of the Scottish Universities in lieu of the Preliminary examinations in Medicine.

The certificate will be accepted by the Institution of Civil Engineers in lieu of the Studentship examination provided it includes *either* Mechanics *or* Physics, *or* Chemistry, and *either* the Higher Alternative Papers in Mathematics *or* the additional paper in Mathematics.

The certificate of having passed the examination is accepted by the General Medical Council for the purpose

of registration as a Medical student, provided Latin and *either* Greek *or* a Modern Language be included among the subjects.

The certificate is accepted by the Institute of Chartered Accountants in lieu of the Preliminary examination, except as to dictation.

The certificate of having passed a public examination of a University is accepted by the Inns of Court, by the Royal Institute of British Architects, and by the Institute of Chemistry.

For the present and until otherwise determined, Barristers called to the Bar and Solicitors admitted on the rolls previous to the 1st of January, 1893, will be exempt from the Matriculation examination (Faculty of Law). The Board is prepared to consider applications for exemption in the Faculty of Law from persons called to the Bar, or admitted on the rolls, previous to the 1st of January, 1896.

The Board is prepared to receive and consider applications for exemption from the Matriculation examination to proceed in the Faculty of Law from Solicitors who have obtained Honours in the Final examination of the Law Society, or from Barristers who have been placed in the first or the second class in the Bar Final examination, such applications being made not earlier than three years after their call to the Bar or admission on the rolls respectively.

Subjects of Examination

Candidates for entrance to the Faculties *other than the Faculty of Medicine* presenting themselves for the Matriculation examination are required to enter for and satisfy the Examiners in six subjects, three obligatory and three selected:

1. English Language and Literature
2. English History
3. Mathematics

4. *Three* of the following, *one* of which must be a language

i. Greek
ii. Latin
iii. French
iv. German
v. Some other Language approved by the Board[1]
[The following languages have been approved:—Arabic, Sanskrit, Persian, Spanish, Portugese, Italian, Russian, Hebrew, Chinese, Pali.]
vi. *Either* Mechanics *or* Physics
vii. Chemistry
viii. Geography (Physical, Political, and Commercial)
ix. *Either* Natural History (Plants and Animals) *or* Botany.

Details of Subjects

ENGLISH LANGUAGE AND LITERATURE:

(1) An essay.

(2) (*a*) Set books for general reading; (*b*) Set books for special study; (*c*) Questions on the use of the English Language arising from the set books.

ENGLISH HISTORY:

The outlines of English History. The paper will be divided into two sections, respectively containing questions on History previous to 1603 and subsequent to 1603.

MATHEMATICS:

Arithmetic. The elementary geometry of triangles, parallelograms, and circles, and of similar rectilinear figures. Algebra to quadratic equations (inclusive), with the arithmetical and geometrical progressions and an elementary treatment of irrational quantities and of proportion.

Mathematics (additional paper). Graphs of simple rational integral algebraic functions, Theory of Indices, Logarithms, the Binomial Theorem for a positive integral index, Trigonometry up to and including the solution of triangles.

GREEK:

Either one prose and one verse book including questions on the language and subject matter *or* passages from unprepared books, with grammar questions. Grammar. Translation at sight of easy Greek passages into English. Translation of English passages into Greek.

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1 Application for permission to present this must be made to the Secretary, Joint Matriculation Board, 24, Dover Street, Manchester, and the fee must be paid on or before March 1st of the year in question.

Special stress will be laid upon accuracy in the answers to the grammar questions, and on the correct rendering of English into Greek.

LATIN :

Either one prose and one verse book including questions on the language and subject matter *or* passages from unprepared books, with grammar questions. Grammar. Translation at sight of easy Latin passages into English. Translation of an easy passage of English prose into Latin.

Candidates, in order to pass, must satisfy the examiners in translation at sight from English into Latin, from Latin into English, and in grammar.

FRENCH :

Either one prose and one verse book, including questions on the language and subject matter *or* passages from unprepared books, with grammar questions. Accidence and elementary syntax. Translation at sight of French prose into English. Translation of English passages into French.

Candidates, in order to pass, must satisfy the examiners in both translation at sight and grammar.

GERMAN :

Either one prose and one verse book, including questions on the language and subject matter *or* passages from unprepared books, with grammar questions. Accidence and elementary syntax. Translation at sight of German prose into English. Translation of English passages into German.

Candidates, in order to pass, must satisfy the examiners in both translation at sight and grammar.

OTHER LANGUAGES :

Passages for translation from unprepared books with grammar questions. Accidence and elementary syntax. Translation of English passages into the language prescribed.

Candidates, in order to pass, must satisfy the examiners in both translation into English and grammar.

MECHANICS :

The elementary portions of statics, kinetics, and of the properties of liquids and gases, including: Laws of motion. Uniform acceleration. Composition and resolution of forces in one plane. Moments of forces. Work and energy. Centre of gravity. Uniform circular motion. Simple pendulum. Direct impact. Fluid pressure. Specific gravity. Boyle's Law.

PHYSICS :

Not less than one-third of this paper will consist of easy questions in *mechanics*.

Candidates must satisfy the examiners in the *mechanics* portion of the paper and in *one* of the two following groups of subjects :

(*a*) Heat and light.

(*b*) Magnetism and electricity.

(*a*) *Heat:*

Temperature, Thermometers, Expansion of Solids and Liquids, Laws of Gases, Quantity of Heat, Specific Heat, Latent Heat, Vapour Pressure, Conduction, Radiation.

Light:

Laws of Reflexion and Refraction, Photometry, Formation of Images by Mirrors and Lenses, Chromatic Dispersion, Standard Combinations of two Lenses.

(*b*) *Magnetism* :

Magnets. Magnetic properties and magnetic induction. Magnetic force. Magnetic field. Lines of force. Terrestrial magnetism.

Electricity :

Elementary facts of statical electricity (including condensers, law of electric force and potential). Simple voltaic cell. Magnetic field of current. Measurements of current. Galvanometer. Electromotive force. Resistance. Ohm's law. Electrolysis. Heating effects of currents. Electro-magnetic induction.

In setting the questions regard will be paid to the conditions under which the subjects may be best taught experimentally in schools.

CHEMISTRY :

General properties of matter. Chemical combination and decomposition and the laws governing them. Preparation, classification, and chemical behaviour of the chief elements and their compounds, especially of the non-metals. The outlines of chemical theory.

Candidates will be expected to show by their answers that they have seen experiments illustrative of all the subjects included in this syllabus, and that they have themselves performed a variety of simple qualitative and quantitative experiments.

GEOGRAPHY (Physical, Political, and Commercial) :

(*a*) Distribution of land and water. Land-forms and agencies modifying them. Distribution of temperature, winds, rainfall, vegetation and animal life. Human occupations and activities (agricultural, industrial, and commercial) as determined by these physical conditions.

(*b*) The following regions to be studied so as to illustrate the subjects stated in section (*a*).

(1) The British Isles (with outlines of the historical geography in addition).

(2) A special region or regions (to be specified yearly) in less detail.

(3) The rest of the World on broad lines only.

(*c*) Candidates will be expected to be able to read an ordnance map.

NATURAL HISTORY:

Candidates will be expected to possess a knowledge of those portions of elementary Chemistry and Physics which are necessary to the proper understanding of the subject-matter of the Syllabus.

Candidates will be expected to show by their answers that their knowledge of the subject has been acquired by the observation and study of living plants and animals, by simple preparations, and by experiments they have themselves performed.

The microscope is not required except for the demonstration of stomata and pollen grains, and, if these alternatives are selected, for the study of Hydra and the circulation in the Frog's foot.

Candidates will be required to select one-third of the questions to be answered from the "Plant" section of the paper, and two-thirds from the "Animals" section.

Specimens will be supplied for identification and description, and candidates must bring to the examination a hand lens, a sharp knife or a pair of mounted needles, drawing pencil, and india-rubber.

Plants.

(1) The form and function of roots, stems and leaves of a green herbaceous plant, and the adaptation of such plants to their environment and to seasonal changes.

(2) The elementary facts of the growth and nutrition of a green plant as shown by simple experiments illustrating the following physiological functions: respiration, transpiration, root-absorption, and photo-synthesis.

(3) The general habit and manner of growth of a tree as compared with that of a herbaceous plant. The external features of twigs of Horse-chestnut, Sycamore, Beech, and Lime in their winter and summer condition. Determination of the age of a branch by its external characters and by an examination of its annual rings.

(4) The structure of a typical flower and the functions of its various parts.

(5) The structure of a seed and its mode of germination as seen in the Bean, the Melon, and the Maize *or* Wheat.

(6) The modes of pollination of common flowers and the methods of dispersal of seeds and fruits.

(7) The vegetative propagation of plants by bulbs, corms tubers and otherwise.

Animals.

(1) The general plan of structure of Hydra *or* a Sea-Anemone, a Lobster *or* Crayfish, and a Rabbit *or* Fish (preferably a Roach or Herring) as types of Cœlenterate, Arthropod, and Vertebrate organisation, and with special regard to the organs of prehension, of digestion, distribution, and absorption of food, and of respiration and movement.

(2) The external characters of an Earthworm, a Moth *or* Butterfly, a Fish (including the scales), a Frog and (including tha teeth in each case) a Cat *or* Dog, a Sheep.

(3) The habits of life and modes of feeding observed in examples of the above-mentioned types; the nature of respiration as determined by observation and simple experiments: the external evidences of a circulation of the blood in a larval insect, *or* young Earthworm, and in the web of a Frog's foot *or* in Man; an elementary knowledge of the processes of digestion and assimilation.

(4) The fundamental resemblances between animal and plant life; the difference as regards nutrition; the relative importance of movement; the general character of muscular, nervous, sensory, and skeletal organs as aids to movement.

(5) The relation of body-heat to external temperature in cold-blooded and warm-blooded animals; the seasonal activities of animals of both types as illustrated from a country district familiar to the candidate; the utility of down and fur in Birds and Mammals; periodicity of growth; significance of hibernation and bird-migration, with illustrative examples.

(6) Adaptation of form and colour as aids to concealment, with examples.

(7) The growth and transformations from the egg of a Moth *or* Butterfly, and of the Frog.

BOTANY:

Candidates will be expected to possess a knowledge of those portions of elementary Chemistry and Physics which are necessary to the proper understanding of the subject-matter of the Syllabus.

Candidates will be expected to show by their answers that their knowledge of the subject has been acquired by the observation and study of living plants, by simple preparations, and by experiments they have themselves performed.

Specimens will be supplied for identification and description, and candidates must bring to the examination a hand lens, a sharp knife or a pair of mounted needles, drawing pencil, and india-rubber.

(1) The form and function of roots, stems, and leaves of a green herbaceous plant and of a woody perennial, and the adaptation of such plants to their environment and to seasonal changes.

(2) The elementary facts of the growth and nutrition of a green plant as shown by simple experiments illustrating the following physiological functions; respiration, transpiration, root-absorption, photo-synthesis. Etiolation, heliotropism, geotropism, and hydrotropism, and their biological significance.

(3) The adaptation in structure, and the physiological and biological characteristics of climbing plants, epiphytes, insectivorous plants, saprophytes, and parasites.

(4) The structure of a typical flower and the functions of its various parts. The modes of pollination of common flowers.

(5) The structure and methods of dispersal of seeds and fruits.

(6) The germination of seeds as seen, for example, in the Bean, the Melon, and in the Maize *or* Wheat.

(7) The vegetative propagation of plants by bulbs, corms, tubers and otherwise.

(8) The distinctive features of the foliage, flower, fruit, bark, and the mode of growth of trees commonly grown in Britain.

(9) The principles of a natural classification.
The general characters of the following British natural orders, and the range of forms observable in each—Liliaceæ, Amaryllidaceæ, Ranunculaceæ, Cruciferæ, Violaceæ, Leguminosæ, Rosaceæ, Primulaceæ, Labiatæ, Compositæ, Salicaceæ, Cupuliferæ.
The conception of species and genus as illustrated by the practical study of a few species of common genera of Ranunculaceæ.

(10) The general features of the life-history of a Fern, a Moss *or* Liverwort, and a Brown Seaweed.

Books prescribed for 1913

ENGLISH LANGUAGE AND LITERATURE:

For general reading:
Scott, *The Fortunes of Nigel.*
Shelley, *Poems* (Golden Treasury Series).

For special reading:
Three selections, *one* from each of (*a*), (*b*), and (*c*):

(*a*) Shakespeare, *Twelfth Night*, *or* Shakespeare, *Richard II.*

(*b*) Milton, *Paradise Lost*, Books iii and iv, *or* Wordsworth's *Poems* (Golden Treasury Series).

(*c*) Goldsmith, *She Stoops to Conquer* and *The Good Natured Man*, *or* Carlyle, *Lectures* on *Heroes;* Lecture iii (The Hero as Poet); Lecture v (The Hero as Man of Letters); Lecture vi (The Hero as King).

GREEK, *two* books, *one* selection from each of (*a*) and (*b*):

(*a*) Thucydides vi, cc. xxx—liii and lx—cv, *or* Xenophon, *Anabasis* vi.

(*b*) Euripides, *Medea* (lines 1—95, 213—626, 764—822, 866—975, 1002—1080, 1116—1250, 1293—1388); *or* Homer, *Odyssey* x and xi.

(*Candidates will be expected to parse and give the Attic equivalents of Homeric forms of common occurrence, but of these only.*

LATIN, *two* books, *one* selection from each of (*a*) and (*b*) :

(*a*) Caesar, *Bellum Civile*, I, cc 24 to end ; *or* Pliny *Letters*, vi.

(*b*) Aeneæ facta et fata (selections from Vergil, *Aeneid*, i, ii and iv, by E. V. Arnold, lines 1—730, 805—980. Dent & Co.); *or* Horace, *Odes* i (omitting 13. 18, 25, 27, 33. 36).

FRENCH, *two* books, *one* selected from each of (*a*) and (*b*) :

(*a*) Erckmann Chatrian, *Madame Thérèse* (Pitt Press) *or* Georges Sand, *La Petite Fadette* (Rivingtons); *or* Coppée, *Le Pater* (Ginn).

(*b*) Coppée, *Le Pater* (Ginn) *or* Rostand, *Romanesques* (Ginn).

GERMAN, *two* books, *one* selected from each of (*a*) and (*b*) :

(*a*) Wagner, *Ballads* illustrating German History. Nos. 1, 2, 5, 7, 8, 12, 13, 14, 20, 30, 31, 34, 41, 42 (Pitt Press), *or* Korner, *Selected Poems* (Blackie).

(*b*) Heine, *Die Harzreise* (selections from) (Blackie & Co.); *or* Hoffmann, *Das Gymnasium zu Stolpenburg* (ed Buchner, Heath).

GEOGRAPHY, Asia, with special reference to the Monsoon Lands.

Higher Papers

Alternative papers of a higher standard are set *at the July examination only* in English Literature, English History, Mathematics, Greek, Latin, French, German, *either* Physics *or* Applied Mathematics, Chemistry, and *either* Natural History *or* Botany.

Matriculation Calendar and Syllabus

For full information as to the Matriculation examination, including reprint of examination papers, see the Calendar of the Joint Matriculation Board, to be obtained from any local bookseller, price 1/-, or post free 1/3.

A Syllabus containing the complete regulations but without examination papers, is issued free, and is obtainable from "The Secretary, Joint Matriculation Board, 24, Dover Street, Manchester."

DEGREES IN ARTS

1. The degrees in Arts shall be : Ordinance

Bachelor of Arts (B.A.)
Master of Arts (M.A.)
Doctor of Letters (Litt.D.).

DEGREE OF BACHELOR OF ARTS

2. The degree of Bachelor of Arts shall be conferred either as an Ordinary degree or as a degree with Honours.

3. All candidates for the degree of Bachelor of Arts shall be required to have passed the Matriculation examination, and thereafter to have pursued approved courses of study for not less than three academic years.

Candidates will not be admitted to the courses of study for the degree of Bachelor of Arts unless they have (1) passed the Matriculation examination in Latin, or (2) given evidence of possessing a knowledge of Latin equivalent to that required at the Matriculation examination. Regulation.

Ordinary Degree of Bachelor of Arts

4. The complete course of study for the Ordinary degree of Bachelor of Arts shall be divided into two parts, called respectively the Intermediate course and the Final course. Ordinance.

5. Every candidate shall be required to pass two examinations, the Intermediate and the Final.

6. The Intermediate and Final examinations shall ordinarily be held in June of each year. There shall also be a supplementary Intermediate examination in September, at which those candidates only may present themselves who have obtained the permission of the Senate.

7. Candidates who have failed at an Intermediate examination in June, and have obtained permission to present themselves at the following supplementary examination, may be excused such part of the supplementary examination as the combined examination committee, on report from the separate examination committee concerned, may determine.

8. Candidates who have failed at a Final examination may present at the June examination of the following year those books and periods in which they have already been examined.

9. All candidates shall be required, before presenting themselves for the Intermediate or Final examination, to furnish to the Registrar certificates testifying that they have regularly attended the prescribed courses of study, and performed the class exercises to the satisfaction of the Professor or Lecturer, in each of the subjects which they offer at the examination. Some modification of the amount of attendance required may, in exceptional cases, be made by the Vice-Chancellor, on the recommendation of the head of the department concerned.

N.B.—In 1913 the Intermediate and Final examinations in June will begin about Thursday, June 12th. The latest date of entry and of payment of fees will be SATURDAY, MARCH 1st.

Intermediate Course and Examination

10. Every candidate shall be required, after passing the Matriculation examination, to attend during one academic year approved courses of study in five subjects, and to pass in each of the subjects selected, viz.:

i, ii. Two languages from the following list: Greek; Latin; French; German; one of which must be Greek or Latin.

iii. *Either* (*a*) English Literature; *or* (*b*) History (Ancient or Modern); *or* (*c*) Political Economy.

iv. *Either* (*a*) Logic; *or* (*b*) Mathematics; *or* (*c*) one of the following Natural Sciences: Physics, Chemistry, Zoology, Botany, Geology.

v. Any subject under i, ii, iii, iv not already selected, provided that no candidate may take (*a*) both Ancient and Modern History; (*b*) two Natural Sciences.

The examination in each modern language shall include an oral examination.

Detailed subjects of study and of examination.

GREEK :

Prose composition. Translation at sight from Greek into English. Regulations.
Prescribed books : portions from two authors, one prose and one verse, to be studied in their literary and linguistic aspects.

Books prescribed for 1912-13
Thucydides ii. cc 1-65 ; Homer, *Iliad* xxiv.

Books prescribed for 1913-14
Plato, *Apology* and concluding chapters (from c. 63) of the *Phædo*; Euripides, *Hippolytus*.

LATIN :

Prose composition. Translation at sight from Latin into English. Prescribed books : portions from two authors, one prose and one verse, to be studied in their literary and linguistic aspects.

Books prescribed for 1912-13
Livy v, 15-50 ; Horace, *Odes* i, ii.

Books prescribed for 1913-14
Cicero, *Pro Roscio Amerino*; Virgil, *Georgics I, II*.

FRENCH :

Prose composition. Syntax of the French language. Translation at sight from French into English. Prescribed books : at least two texts, including both prose and verse, to be studied in their literary and linguistic aspects. Dictation, reading aloud and conversation in French.

Books prescribed for 1912-13
Sully Prudhomme, *Les Ecuries d'Augias* and *Impressions de la Guerre* (except *Le Renouveau*) (Paris, Alphonse Lemerre) ; Balzac, *Pierrette* (Oxford Higher Series).

Books prescribed for 1913-14
Alphonse Daudet, *Jack*; Théophile Gautier, Selection from *Emaux et Camées*.

GERMAN :

Prose composition. Syntax of the German language. Translation at sight from German into English. Prescribed books : two texts, one prose and one verse, to be studied in their literary and linguistic aspects. Dictation, reading aloud and conversation in German.

Books prescribed for 1912-13
Lessing, *Minna von Barnhelm* (Clarendon Press) ; Uhland, *Poems* (ed. Hewett, Macmillan) the following selection : *Dante, Bertran de Born, Schwäbische Kunde, Roland Schildträger, Taillefer, Das Glück von Edenhall, Graf Eberhard der Rauschebart, Des Sängers Fluch.*

Books prescribed for 1913-14
Heinrich Heine, *Die Harzreise* (in Heines *Prosa*, ed. Buchheim, Clarendon Press) ; Schiller's Ballads (*Taucher, Handschuh, Ring des Polykrates, Kampf mit dem Drachen, Bürgschaft*), ed. Johnson, Heath & Co.

ENGLISH LITERATURE:

A period of English Literature. Books prescribed for special study.

Period prescribed for 1912-13

1558-1603.

Books prescribed for 1912-13

Spenser, *Faerie Queene*, Book i; Marlowe, *Faustus*; Sidney, *Apology for Poetry*; Shakespeare, *Macbeth*, *Midsummer Night's Dream*; Bacon, Essays on *Truth*, *Death*, *Adversity*, *Revenge*, *Atheism*, *Superstition*, *Friendship*, *Greatness of Kingdoms and Estates*, *Innovations*; *Golden Treasury*, book i. Also Chaucer, *Prologue to Canterbury Tales*; Pope, *Epistle to Arbuthnot*; Keats, *Hyperion*.

Period prescribed for 1913-14

1635-1674.

Books prescribed for 1913-14

Milton, *Comus* and *Paradise Lost*, I, II; Dryden, *Absalom and Achitophel*, I, and *Preface to the Fables*; *Golden Treasury*, Book II. Also Chaucer, *Prologue to Canterbury Tales*; Shakespeare, *Twelfth Night*; Swift, *Gulliver's Travels*, I, II; Goldsmith, *Vicar of Wakefield*; *Golden Treasury*, Book IV.

ANCIENT HISTORY:

Introduction to Ancient History, with special reference to selected periods of Greek and Roman History.

Special Subjects for 1912-13

Plutarch's *Lives of Pelopidas*, *Aristides*, *Lysander*, *Cimon*, *Marcus Cato*, *Marius*, *Lucullus*, *Flamininus*.

Special Subjects for 1913-14

Plutarch's *Lives of Agesilaus*, *Alexander*, *Phocion*, *Eumenes*, *Crassus*, *Pompeius*, *Cæsar*, *Cato*.

MODERN HISTORY:

A selected period of Modern History.

Period prescribed for 1912-13 *and* 1913-14

Modern European History from 1763.

POLITICAL ECONOMY:

The physical geography of industry and trade. The occupations and earnings of the chief classes of the community.

LOGIC:

The elements of Deductive and Inductive Logic.

MATHEMATICS:

Trigonometry to the solution of triangles. The first principles of Analytical Geometry and the elements of the Differential Calculus, as applied to the tracing of graphs and the determination of maxima and minima ordinates. The Algebra required for the above subjects.

PHYSICS:

The properties of matter. The chief phenomena of Sound, Heat, Light, Electricity and Magnetism, treated in an elementary manner. Practical Physics.

CHEMISTRY:

The general principles of Inorganic Chemistry and their application. The elements of Organic Chemistry. Practical Chemistry.

ZOOLOGY:

The structure and life-history of animals as exemplified by a progressive series of selected types. Outlines of embryology. Practical Zoology.

BOTANY:

The structure and mode of life of a flowering plant. The structure and physiology of a flowering plant. Evolution of plants as shown by representatives of the chief groups of plants. Elements of the classification of flowering plants. Practical Botany.

GEOLOGY:

General Physical and Stratigraphical Geology, and Geology in relation to the study of Geography. Practical Geology.

Final Course and Examination

No candidate shall be permitted to enter on the Final Course, or any part thereof, until he has passed the Intermediate Examination. Regulation.

11. Every candidate shall be required to attend approved courses of study in three principal subjects and one subsidiary subject, and to pass in each of the subjects selected. The same subject may not be taken both as a principal and as a subsidiary subject. An essay paper shall be set for all candidates at the Final examination. Ordinance.

12. The course of study in each principal subject shall extend over two academic years, and the course of study in the subsidiary subject shall extend over one academic year.

13. The principal subjects shall be selected from the following list: Greek, Latin, French, German, English Language and Literature, History, Philosophy, Economics, Education, Pure and Applied Mathematics. Every candidate shall be required to take as a principal subject one of the following: Greek, Latin, French, German. The examination in each modern language shall include an oral examination.

14. The subsidiary subjects shall be selected from the following list: English Literature, History, Philosophy, Economics, Education, Pure Mathematics, Applied Mathematics. The course of study in a subsidiary subject may be taken either in the first or second year of the Final course.

15. Candidates who have attended, during the first year of their Final course, the prescribed course of study in a subsidiary subject, may present themselves in June of that year for examination in such subsidiary subject. Part of the examination in Education, to be defined by Regulation, may also be taken at the end of the first year of the Final course.

Regulations.

Detailed subjects of study and of examination.

I. Principal Subjects, studied for Two Years.

GREEK:

Prose composition. Translation at sight from Greek into English. The study of portions from various authors, three of which (two prose and one verse or one prose and two verse) will be prescribed as subjects of the Final examination.

Books prescribed for 1912-13
Herodotus iii; Aeschylus, *Prometheus Vinctus;* Aristophanes, *Clouds.*

Books prescribed for 1913-14
Herodotus, Book viii; Plato, *Gorgias;* Aristophanes, *Birds.*

LATIN:

Prose composition. Translation at sight from Latin into English. The study of portions from various authors, three of which (two prose and one verse or one prose and two verse) will be prescribed as subjects of the Final examination.

Books prescribed for 1912-13
Cicero, *Second Philippic;* Tacitus, *Agricola;* Virgil, *Georgics* iv; *Aeneid* ii.

Books prescribed for 1913-14
Tacitus, *Annals* I; Juvenal i, iii, iv, x, xi, xiv; Horace, *Odes* i, ii.

FRENCH:

The study of various texts, three of which (two prose and one verse, or one prose and two verse) will be prescribed as subjects of the Final examination. Translation at sight from French into English. Principles of Phonetics and Principles of Historical Grammar. Composition and the study of style. A period or periods of French Literature. Dictation, reading aloud and conversation in French.

Books prescribed for 1912-13

(*a*) Corneille, *Polyeucte*; Racine, *Athalie;*
(*b*) Rousseau, *Extraits* (ed. Brunel, Hachette et Cie).

Periods prescribed for 1912-13

(*a*) French Classical Tragedy to the end of the 17th Century.
(*b*) Rousseau's Life and Works.

Books prescribed for 1913-14

(*a*) Molière, *Le Misanthrope* and *Les Femmes Savantes.*
(*b*) Rousseau, *Extraits* (ed. Brunel, Hachette et Cie).

Periods prescribed for 1913-14

(*a*) French Classical Comedy to the end of the 17th Century.
(*b*) Rousseau's Life and Works.

GERMAN:

The study of various texts, three of which (two prose and one verse, or one prose and two verse) will be prescribed as subjects of the Final examination. Translation at sight from German into English. Principles of Phonetics and Principles of Historical Grammar. Composition and the study of style. A period or periods of German Literature. Dictation, reading aloud and conversation in German.

Books prescribed for 1912-13

Schiller, *Maria Stuart;* Hans Sachs, *Selections,* in Kinzel's *Denkmäler der älteren deutschen Literatur,* III, i, (Halle); Kleist, *Prinz Friedrich von Homburg* (ed. Heuwes, Paderborn).

Periods prescribed for 1912-13

Schiller's Life and Works; The Romantic Period.

Books prescribed for 1913-14

Kleist, *Prinz Friedrich von Homburg* (ed. Heuwes, Paderborn); Goethe, *Torquato Tasso* (ed. Calvin Thomas, Heath & Co.); Heine, *Über Deutschland* (in Heines *Prosa,* ed. Buchheim, Clarendon Press, pp. 148-191).

Periods prescribed for 1913-14

Die Romantische Schule; Goethe's Life and Works.

ENGLISH LANGUAGE AND LITERATURE:

English Language

This course is pursued, in the last year of their studies for the B.A. Degree, by those who take English as a principal subject. It consists of a study of Old and Middle English (Language and Literature) with prescribed books (prose and verse) and unseen translation.

Books prescribed for 1912-13

Cook, *First Book in Old English* (Grammar and Extracts i-xv); Sweet, *Anglo-Saxon Reader,* Extracts ii, v, x, xxvi; Chaucer, *Clerk's Tale*; Morris and Skeat, *Specimens of Early English,* ii, extracts x, xx.

Books prescribed for 1913-14

Sweet, *Anglo-Saxon Primer* and *Anglo-Saxon Reader*, Extracts vi, vii, viii, xxvi; Chaucer, *Pardoner's Prologue and Tale*; *Piers Plowman*, *Prologue*; *King Horn*.

Candidates may, with the consent of the Board of the Faculty of Arts, be permitted to substitute a further study of English Literature for the above course in English Language.

English Literature

In each year the study of a selected period of English Literature, with a knowledge of prescribed books and questions of literary history and criticism arising from them.

Period prescribed for 1912-13
1558-1630.

Books prescribed for 1912-13

(*a*) Spenser, *Shepherd's Calendar*; Marlowe, *Faustus*; Sidney, *Apology for Poetry*; Bacon, *Essays* (same selection as for Intermediate Course); Shakespeare, *Lear*, *Twelfth Night*; Jonson, *Volpone*; Webster, *Duchess of Malfi*. Also Chaucer, *Nonnes Prestes Tale*; Milton, *Samson Agonistes*; Dryden, *Absalom and Achitophel*, part I; *Golden Treasury*, book IV.

(*b*) Outlines of English Literature.

Period prescribed for 1913-14
1635-1700.

Books prescribed for 1913-14

(*a*) Butler, *Hudibras* I; Milton, *Paradise Lost*, I, II, *Samson Agonistes* and *Areopagitica*; Dryden, *Aurengzebe* and *Essay of Dramatic Poesy*; *Golden Treasury*, Book II. Also Chaucer, *Pardoner's Prologue and Tale*; Shakespeare, *Othello*; Goldsmith, *Vicar of Wakefield*; Byron, *Manfred*; Shelley, *Adonais*; Tennyson, *Ulysses*, *The Passing of Arthur*.

(*b*) Outlines of English Literature.

History:

First Year Course: A general sketch of European History from the third century A.D., *or* a special period.

Second Year Course: Two prescribed periods of History, studied in connection with some of the original authorities and selected from the following: Greek, Roman, English, Constitutional, European, Economic History.

Periods prescribed for 1912-13

First Year Course: Outlines of European History.

Second Year Course: Greek History, 600-445 B.C.; Roman History, 510-134 B.C.; English History, 1760-1815; European History, The Thirteenth Century.

Periods prescribed for 1913-14

First Year Course: as for 1912-13.

Second Year Course: Greek History, 445-371 B.C.; Roman History, 134-31 B.C.; English History, 1327-1485; European History, 1871-1900.

PHILOSOPHY:

Two of the following:

History of Ancient Philosophy: general outlines of Greek Philosophy, with the special study of selected works.

History of Modern Philosophy: general outlines of Modern Philosophy from Bacon to Kant, with the special study of selected works.

Psychology: systematic Psychology, with more detailed study of some part of the subject.

Ethics: the general principles of Ethics, with the special study of selected ethical systems.

Theory of Knowledge: general outlines with the special study of selected works.

ECONOMICS:

First Year Course: General principles of Economics, together with the outlines of recent economic history.

Second Year Course: More advanced treatment of economic principles, with description of industrial and commercial organisation.

EDUCATION:

The course extends over three years, and is divided into two parts, Part I., Theory of Education, extending over two years, with an examination at the end of the second year; and Part II., History of Education, extending over one year. Candidates presenting themselves for examination in Part II. must present their other principal subjects at the same examination. Candidates ordinarily attend the courses of instruction in Part I. during the year of their attendance on the Intermediate Course for the degree, and the first year of their attendance on the Final Course.

Part I. Theory of Education.

Functions and agents of Education. The ethical, logical, and psychological bases of mental and moral Education. The general principles of teaching, with application to the primary school curriculum. The general principles of discipline, with applications to school life. School organisation. The general principles of physical training with reference to the work of the school; school hygiene.

Part II. History of Education.

General outline of the history of educational thought in Europe from the Renascence to the present time, with special reference to England and special emphasis on the Nineteenth Century. A prescribed book. The book prescribed for 1912-13 is Plato, *Republic*, ii, iii, iv.

MATHEMATICS :
Pure Mathematics :
Analytical Geometry up to but not including the general equation of the second degree. The more elementary portions of the Differential and Integral Calculus.
Applied Mathematics :
Statics and Dynamics as far as they can be taken without the Integral Calculus. Hydrostatics.

II. Subsidiary Subjects, studied for One Year.

ENGLISH LITERATURE :
A selected period of English Literature, with a knowledge of prescribed books and questions of literary history and criticism arising thereon.
Periods and books prescribed for 1912-13 *and* 1913-14
The same as for English Literature as a principal subject.

HISTORY :
General sketch of European History since the Roman Empire.

PHILOSOPHY :
One of the subjects prescribed for Philosophy taken as a principal subject.

ECONOMICS :
General principles of Economics, together with the outlines of recent economic history.

EDUCATION :
Part I. of the course prescribed for Education taken as a principal subject.

PURE MATHEMATICS :
Analytical Geometry up to but not including the general equation of the second degree. The more elementary portions of the Differential and Integral Calculus.

APPLIED MATHEMATICS :
Statics and Dynamics as far as they can be taken without the Integral Calculus. Hydrostatics.

Degree of Bachelor of Arts with Honours

Ordinance. 1. Candidates for the degree of Bachelor of Arts with Honours shall, except as hereinafter stated, be required to furnish certificates of having attended courses of instruction approved by the University and extending over not less than three academic years in one of the Honours Schools of the University hereafter enumerated.

2. Every candidate for the degree of Bachelor of Arts with Honours shall be required to present himself for

examination at the end of the third or fourth academic year from the time when he has entered upon one of the courses of instruction approved by the University for such degree, unless he shall present a medical certificate of illness satisfactory to the Senate. This examination shall ordinarily be held in June of each year.

3. Candidates for the degree of Bachelor of Arts with Honours may present themselves for examination in any of the following Honours Schools on furnishing certificates of having pursued, to the satisfaction of the Senate, the courses required for such Honours Schools in the University, viz. :

Classics
English Language and Literature
Modern Languages and Literatures
History
Philosophy
Economic and Political Science

4. Candidates who have passed the Final examination for an Ordinary degree of Bachelor of Arts may, with the sanction of the Senate and on furnishing certificates of having attended, during the academic year following such Final examination for the Ordinary degree, the third year's, or, during the two academical years following such Final examination, the second and third years' course approved by the University for any one of its Honours Schools, present themselves for examination for the degree of Bachelor of Arts with Honours in such School.

5. No candidate for a degree of Bachelor of Arts with Honours shall be admitted more than once to examination in the same Honours School ; but students who have passed the Final examination in any of the Honours Schools may be admitted to the Final examination in any other Honours School after the expiration of one or two years, on presenting certificates of having attended, during the period in question, courses approved by the University.

Provided that in the said other Honours School selected, candidates shall not present themselves for the Final examination more than two academic years after the Final examination in Honours already passed by them, and also that no candidate be admitted to examination in any

Honours School after a longer period than five years has elapsed since the date of his first entrance upon a prescribed course of study for an Honours School.

6. Names of candidates who have passed the examination for the degree of Bachelor of Arts with Honours shall be published in such form as to distinguish the Honours School in which severally they may have passed; the names of those who have passed in Honours being drawn up in three classes, and each class being arranged in alphabetical order.

7. Candidates who have not acquitted themselves so as to deserve Honours may be excused the whole or such part of the examinations for the Ordinary degree as the combined examination committee may determine.

N.B.—In 1913, the examinations in the Honours Schools will begin in the second or third week in June. The latest date of entry and of payment of fees will be SATURDAY, MARCH 1st.

Classics

Regulations. Candidates for the degree of Bachelor of Arts with Honours in Classics shall be required to pursue courses of study and to submit themselves for examination in the following subjects:

Translation from prescribed Greek and Latin books.
Translation at sight from Greek and Latin authors.
Greek and Latin Composition.
Greek and Latin Literature.
Two of the following:
Ancient History
Ancient Philosophy
A special subject connected with Greek or Latin literature.

Attendance in the subjects of the school shall be required as follows: Not less than ten hours a week in the first and second years, and eight hours a week in the third year. Attendance on the full course for the Intermediate examination for the Ordinary degree of Bachelor of Arts may be accepted as the required attendance for the first year of the Honours course, provided that the subjects chosen by the candidate are substantially and to the satisfaction of the Board of the Faculty of Arts those required for the first year's course of the Honours School of Classics.

Examination

Greek Prose Composition, one paper.

Latin Prose Composition, one paper.

Greek Unprepared Translation, one paper.

Latin Unprepared Translation, one paper.

Translation from prescribed Greek books, with questions on grammar and subject matter, two papers.

Translation from prescribed Latin books, with questions on grammar and subject matter, two papers.

Critical and Essay paper.

Two of the following:
Ancient History, one paper.
Ancient Philosophy, one paper.
Special subject in Greek or Latin Literature, one paper.

Greek and Latin Verse Composition, one paper (optional).

Books prescribed for 1912-13

GREEK: Homer, *Iliad* i, vi, xviii, *Odyssey* v, vi, ix, xi, xiii; Pindar, *Olympian Odes*; Selections from the Greek Lyric Poets; Aeschylus, *Prometheus Vinctus*, **Agamemnon*; Sophocles, **Ajax*; Euripides, *Hercules Furens*; Aristophanes, *Clouds*, **Frogs*; Theocritus i-xv; Herodotus iii; Thucydides ii, *vii; Plato, *Republic* i, ii, iii; Demosthenes, **De Corona*, *Conon*, *Callicles*; Aristotle, *Rhetoric*, book *iii.

Books prescribed for 1913-14

GREEK: As for 1912-13, substituting Aristotle, *Rhetoric*, book *i, and the First Letter of Dionysius to Ammaeus for Aristotle, *Rhetoric*, book *iii.

Books prescribed for 1912-13

LATIN: Plautus, *Trinummus;* Catullus (Simpson's selection); Lucretius iii, *v; Virgil, *Georgics* i, ii; *Aeneid* i, ii, *iv, *vi; Horace, *Odes*, *i, *ii, iii, iv, *Epistles* i; *Satires* i, 5, 6, 9, ii, 5, 6; Juvenal i,* iii, *iv, *x, xi, xiv; Cicero, *in Catilinam* i-iv, **Second Philippic*, *Letters* (Tyrrell's selection), 1-32 (omitting 6, 11, 12, 19, 21, 24, 25), 38, 40, 42, 60, 61, 67, 73, 78; Sallust, *Catilina;* Livy xxi, xxii; Tacitus, *Histories* i-*iii, *Agricola.*

Books prescribed for 1913-14

LATIN: As for 1912-13, substituting Tacitus, *Annals*, *i, ii, for *Histories* i-*iii, and *De Oratore*, for *Letters.*

N.B.—The books marked with an asterisk are to be studed with special care in all their bearings, textual, grammatical, literary, historical, etc.

English Language and Literature

In this School there shall be alternative schemes of study: Scheme A, in which special attention will be paid to Literature;

and Scheme B, in which special attention will be paid to Language. Under both schemes a competent knowledge of one classical and of at least one modern language shall be required for the attainment of high Honours.

Honours students, under either scheme, will, as a rule, be expected to take the Intermediate B.A. examination (see following paragraphs, including those in small print on the next page) at the end of their first year.

The course of study for the first academic year, shall embrace the following four subjects, as for the Intermediate examination for the Ordinary Degree of B.A.: (i) Latin or Greek, (ii) French or German, (iii) English Literature, (iv) Modern History, and in addition (v) English Language and Early English Literature.

(Candidates who have passed the above Intermediate examination, but are unable to continue their Honours course, may apply to the Senate for permission to proceed to the Final course and examination for the Ordinary degree of B.A.)

Candidates who, instead of the above-mentioned examination, have passed the Intermediate examination for the Ordinary B.A. degree, may be permitted to enter on an Honours Course in English at the beginning of their second year, on condition that (i) they take Scheme A; (ii) that, before entering on their second year course, they satisfy the head of the department that they possess a sufficient knowledge of the English Language to enable them to profit by the subsequent courses in that subject.

Scheme A

Candidates shall be required to attend the following courses in the subjects of the School: in the first year, three hours a week in English Literature, and three hours a week in English Language (see below); in the second year, not less than six hours a week in English Literature and Language; in the third year, not less than five hours a week in English Literature and Language.

Candidates shall be also required to attend, during the first and second years, approved courses in subjects other than English Language and Literature; such courses shall include an approved course in Latin or Greek, and shall average not less than five hours a week in the first year and not less than three hours a week in the second year; and during the third year, a course of two hours a week in some approved subject or subjects.

The first year courses in English Language, including the History of the Language, and Early English Literature will be as follows:—

History of the English Language. Old and Middle English prose; books and passages selected from works before the close of the Fourteenth Century.

Books prescribed in Old and Middle English for 1912-13

Cook, *First Book in Old English:* grammar and extracts i-xv; Sweet, *Anglo-Saxon Reader*, extracts ii, v, x; Morris and Skeat, *Specimens of Early English*, vol. II, extracts ix, x; Chaucer, *Prologue to Canterbury Tales.*

Books prescribed in Old and Middle English for 1913-14

Sweet, *Anglo-Saxon Primer* and *Anglo-Saxon Reader*, extracts vi, vii, viii; Chaucer, *Prologue to Canterbury Tales*; Morris and Skeat, *Specimens of Early English*, vol. II, extracts vii, ix.

Final Examination

Essay, one paper.

Translation of unseen passages of Old and Middle English, with literary and linguistic questions, one paper.

Prescribed books in Old and Middle English, with literary and linguistic questions, one paper.

Outlines of English Literature, one paper.

Special period of English Literature, with prescribed books, two papers.

An English author, or selected subject from English Literature, one paper.

History of Criticism, one paper.

Oral examination.

In addition, candidates shall be required to present a dissertation on a subject approved by the Board of the Faculty of Arts.

Period and Books prescribed for 1912-13

(*a*) Books prescribed in Old and Middle English for 1912-13: *Beowulf*, either vv, 1-1887 or vv, 1888-end; *William of Palerne*, (Early English Text Society).

(*b*) Special Period: 1785-1850.

(*c*) Books in Special Period: Wordsworth, *Michael, Prelude*, books I and II; Wordsworth and Coleridge, *Lyrical Ballads*; Shelley, *Adonais, Prometheus Unbound*; Keats, *Hyperion, Eve of St. Agnes, Lamia*; Blake, *Poems* (ed. Sampson); Burke, *Reflections on the French Revolution*; Carlyle, *Lectures on Heroes*; Scott, *Guy Mannering, Bride of Lammermoor*; Miss Austen, *Pride and Prejudice, Emma*; Tennyson, *Holy Grail, Passing of Arthur, Maud*; Browning, *Men and Women*; Swinburne, *Poems and Ballads* (First Series), *Atalanta in Calydon*; Morris, *Earthly Paradise* (Prologue: and Tales from *March* to *June*); George Eliot, *The Mill on the Floss*; Meredith, *The Ordeal of Richard Feverel*; *Golden Treasury*, Book IV.

(*d*) Special Author: Shakespeare, with a special study of *Hamlet* and *Henry VIII.*

History of Criticism:

Special Books suggested for study: Aristotle, *Poetics*; Horace, *Ars Poetica*; Dante, *De Vulgari Eloquio*; du Bellay, *Défense et Illustration de la Langue française*; Sidney, *Defence of Poesy*; Ben Jonson, *Discoveries*; Dryden, *Essay on Dramatic Poetry*; Boileau, *L'Art poétique*; Lessing, *Laokoon* and *Hamburgische Dramaturgie*; Wordsworth, Prefaces and Appendices to *Lyrical Ballads*; Shelley, *Defence of Poetry*; Coleridge, *Biographia Literaria*; Charles Lamb, Literary Criticisms; Hazlitt, *Shakspere's Characters*; Victor Hugo, *Préface de Cromwell*; Arnold, *Essays in Criticism*, Second Series.

Period and Books prescribed for 1913-14

(*a*) *Books prescribed in Old and Middle English for* 1913-14: *Beowulf*, either vv, 1-1887, or vv, 1888 to end; *William of Palerne* (Early English Text Society).

(*b*) Special Period: 1558-1635.

(*c*) Books in Special Period: Sackville, *Prologue to Mirror for Magistrates* and *Gorboduc*; Lyly, *Alexander and Campaspe*; *Euphues*; Spenser, *Shepherd's Calendar and Faerie Queene*, Books I-VI; Marlowe, *Tamburlaine, Faustus* and *Edward II*; Bacon, *Essays* and *Advancement of Learning*, Book I; Hooker, *Ecclesiastical Polity*, Book I; Sidney, *Apology for Poetry* and *Astrophel and Stella*; Jonson, *Every Man in his Humour* and *Volpone*; Beaumont and Fletcher, *Bonduca* and *The Elder Brother*; Webster, *The Duchess of Mafi*; Ford, *The Broken Heart*; Heywood, *A Woman killed with Kindness*; Drayton, *The Barons' Wars*; Donne, *Songs and Sonnets, Satires*; Lodge, *Rosalind*; Nash, *Jack Wilton*; England's Helicon (ed. Bullen).

(*d*) Special Author:

History of Criticism: as for 1912-13.

Scheme B

Candidates shall be required to attend the following courses in the subjects of the School: (i) during three academic years courses in English Language, including the History of the Language, Early English prose and verse, and Gothic, such courses amounting to not less than three hours a week for the first year and not less than four hours a week for the second and third years; (ii) during three academic years courses of three hours a week on periods of English Literature; (iii) during one academic year a course on the Outlines of English Literature.

Candidates shall be also required

(1) *either* (*a*) to attend approved courses in *two* of the following languages: Old Icelandic, Old High German, Old French; *or* (*b*) to present a dissertation in a subject approved by the Board of the Faculty of Arts;

(2) to attend for two years approved courses of two hours a week in History, English *or* European; for two years approved courses in French *or* German; and for a third year an approved course in the History of the French Language and Literature, *or* in the History of the German Language and Literature. They are further required to attend, during the first year, an approved course in Latin *or* Greek.

First year courses in English Language: as in Scheme A.

Final Examination

Essay, one paper.

Translation of unseen passages of Old and Middle English, with literary and linguistic questions, one paper.

Prescribed books in Old and Middle English, with literary and linguistic questions, one paper.

Outlines of English Literature, with prescribed books, two papers.

Grammar of Old and Middle English dialects, with illustrative passages for translation or comment, two papers.

History of English, with reference to general principles of linguistic development, one paper.

Gothic, one paper.

Either two of the following: Old Icelandic, one paper; Old High German, one paper; Old French, one paper; *or* a dissertation on a subject approved by the Board of the Faculty of Arts.

Oral examination.

Special Period and Books prescribed for 1912-13: as in Scheme A for 1912-13.

Special Period and Books prescribed for 1913-14: as in Scheme A for 1913-14.

Outlines of English Literature for 1912-13

A general knowledge of English Literature from the earliest times, together with a special study of the following books:

Shakespeare, *Richard II*, *King Lear*; Bacon, *Advancement of Learning*; Marlowe, *Faustus;* Jonson, *Every Man in his Humour*; Spenser, *Shepherd's Calendar* (ed. Herford); Milton, *Samson Agonistes*, *Areopagitica*; Dryden, *Religio Laici*, *Essay of Dramatic Poetry*; Pope, *Moral Essays*; Burke, *Reflections on the French Revolution*; Coleridge, *Ancient Mariner*, *Christabel*, *Ode on Dejection*; Shelley, *Prometheus Unbound*; Tennyson, *In Memoriam*; Browning, *Selections* (Smith, Elder, 1/-), Carlyle, *Sartor Resartus;* Palgrave, *Golden Treasury*.

Modern Languages

The languages studied in the School shall be French, German, English.

Candidates for the degree of Bachelor of Arts with Honours in the School of Modern Languages shall be required to pursue courses of study and to submit themselves for examination in any two of the above subjects.

Candidates shall also be required to study auxiliary subjects, of which Latin shall ordinarily form part. Exemptions may be granted to specially qualified candidates.

The names of candidates, who, being placed in the First or Second Class, have shown conspicuous merit shall be distinguished in the class list by some mark to indicate the subject or subjects in which they have shown such merit.

I. French and German:

The course of study and subjects of examination in French or German shall be: Prescribed texts of before 1500, studied from a literary and linguistic standpoint; prescribed texts of after 1500, studied in the same

way; unprepared translation; literature (outlines and special periods); the history of the language (including phonetics, versification, &c.); composition.

Candidates taking French or German shall be required to attend for at least two years classes in composition, translation and phonetics; for one hour a week for each of three years a class in Literature; for three hours a week for two years, and at least two hours a week for one of the three years classes on the history of the language, and the linguistic and literary study of texts prior to 1500; for one hour a week for two terms in one year a class in French or German Institutions.

II. ENGLISH:

The courses of study and subjects of examination in English are as follows:

Language. During the first year, a course of not less than three hours a week in the English Language. During the second and third years, a course, or courses, in the English Language of not less than two hours a week; and, in addition, during one of these years, a course of not less than one hour a week in Gothic, or in Anglo-Norman (if French be not taken as a principal subject).

Literature. During each year, a course in English Literature of not less than two hours a week, together with an additional course of one hour a week, during one of these years.

Examination

The examination in each subject of the School shall consist of an oral examination and of the following papers:

FRENCH OR GERMAN:

Composition and Essay, one paper.

Unprepared Translation, one paper.

Prescribed Texts of before 1500, with literary and linguistic questions, one paper.

Prescribed Texts of after 1500, with literary and linguistic questions, one paper.

Literature, one paper.

Grammar: History of the language and versification, one paper.

ENGLISH:

Translation of unseen passages of English, and of passages from Gothic and Old French, with questions suggested by the passages, two papers.

Translation from prescribed English books, with literary and linguistic questions, one paper.

A period of literature, one paper.

Outlines of English literature, one paper.

History of the language and historical grammar, one paper.

I. FRENCH:

Books and Periods prescribed for 1912-13

Books before 1500: E. Koschwitz, *Les plus Anciens Monuments de la Langue Française* (Serments, St. Eulalie, St. Léger); Chrétien de Troyes, *Le Chevalier au Lion*, vv. 1406-2165; Guillaume de Berneville, *Vie de St. Gilles*, 1-1318; Bartsch, *Chrestomathie* (ed. 1908) pieces 78, 79, 81-84, 87, 88, 95-98.

Books after 1500: Darmesteter and Hatzfeld, *Morceaux Choisis des Ecrivains du 16e siècle*; Descartes, *Discours de la Méthode*; Corneille, *Le Cid*, *Polyeucte*; Racine, *Athalie*; Molière, *Le Misanthrope*, *Les Femmes Savantes*; Rousseau, *Extraits*; Victor Hugo, *Notre Dame*; Lamartine, *Les Premières Méditations*.

Periods of Literature; (*a*) French Classical Tragedy to the end of the 17th Century; (*b*) Rousseau's Life and Works; (*c*) The French Novel from 1820 to 1850.

Books and Periods prescribed for 1913-14

Books before 1500: as for 1912-13.

Books after 1500: as for 1912-13.

Periods of Literature: (*a*) French Classical Tragedy and Comedy to the end of the 17th Century; (*b*) Rousseau's Life and Works.

II. GERMAN:

Books and Periods prescribed for 1912-13

Books before 1500: Braune, *Althochdeutsches Lesebuch* ii, iv, vi-viii, xii, xiv, xv, xvi (1-8), xvii, xxiii (1-5), xxiv, xxviii-xxxi, xxxii (1-4), xxxiv. xxxvi, xli; Gudrun ix-xxi; Bartsch, *Liederdichter*, xxi; Hartman von Aue, *Der Arme Heinrich* (ed. Robertson, Sonnenschein).

Books after 1500: Hans Sachs, *Selections* (ed. Kinzel, Halle) *in Denkmäler der älteren deutschen Literatur* III, i; Goethe, *Faust*, part i, *Torquato Tasso*; Schiller, *Maria Stuart*, *Gedichte der dritten Periode* (in Mayr, *Schillers Gedichte*, *Wien*); Lessing, *Nathan der Weise*, *Hamburgische Dramaturgie* (ed. Lyon, Velhagen and Klasing); Gerhart Hauptmann, *die versunkene Glocke*; Kleist, *Prinz Friedrich von Homburg*, ed. Heuwes (Paderborn, Schöningh).

Period of Literature: Die zweite klassische Periode.

Books and Periods prescribed for 1913-14

Books before 1500: as for 1912-13.

Books after 1500: as for 1912-13, adding Heine, *Über Deutschland* (in Heines *Prosa*, ed. Buchheim, Clarendon Press, pp. 148-191).

Period of Literature: as for 1912-13.

III. ENGLISH:

(*a*) Language

Books prescribed for 1912-13

OLD AND MIDDLE ENGLISH: as for English Honours, Scheme A, 1912-13.

Books prescribed for 1913-14

OLD AND MIDDLE ENGLISH: as for English Honours, Scheme A, 1913-14.

(*b*) Literature

Books and Periods prescribed for 1912-13

(*a*) Outlines of English Literature.

(*b*) Special period and books as for English Honours, 1912-13.

Books and Periods prescribed for 1913-14

(*a*) Outlines of English Literature.

(*b*) Special period and books as for English Honours, 1913-14.

History

Candidates for the degree of Bachelor of Arts with Honours in History shall be required to pursue courses of study as follows:

The course of study for the first academic year shall embrace the following subjects, as for the Intermediate examination for the Ordinary degree of B.A.: (1) Latin or Greek; (2) French or German; (3) Logic or English Literature, or a third Language; (4) History; and in addition (5) a second historical subject. An examination will be held in these subjects at the end of the first year, and must be passed before proceeding to further study.

(Candidates who have passed the above Intermediate examination, but are unable to continue their Honours course, may apply to the Senate for permission to proceed to the Final course and examination for the Ordinary degree of B.A.)

Attendance on the full course for the Intermediate examination for the Ordinary degree of Bachelor of Arts may also be accepted by the Senate as the required attendance for the first year of the Honours course.

The course of study for the second academic year in the subject of the School must include ten hours a week, and for the third academic year, eight hours a week.

Examination

Essay, one paper.

English (including Constitutional) History, two papers.

Outlines of European History, two papers.

Special period, studied in connection with the original authorities, two papers.

Economics and Economic History, one paper.

Political Theory, one paper.

In addition, candidates shall be required to present a dissertation on some subject approved by the Board of the Faculty of Arts.

Candidates shall also be required to show in the examination some knowledge of at least one foreign language (ancient or modern).

Special Periods for 1912-13

(1) Roman History, 31 B.C.-37 A.D.; (2) European History, 1789-1804; (3) The Life and Times of Saint Francis of Assisi; (4) The Age of Elizabeth (1558-1603).

Special Periods for 1913-14

As for 1912-13, adding (5) England and France 1660-1702; (6) The Era of the Great Councils (early 15th Century).

For list of original authorities see page 190.

Philosophy

Candidates for the degree of Bachelor of Arts with Honours in Philosophy shall be required to pursue the following courses of study, and to submit themselves to the following examinations:

The course of study for the first year is the same as that for the Intermediate examination for the Ordinary degree, provided that Logic must be taken as the fourth subject, and that a second philosophical subject may be taken as the fifth subject. Candidates must pass an examination on the first year's course before proceeding to further study.

(Candidates who have taken the second philosophical subject in the above examination, and have passed the examination, but who are unable to continue their Honours

course, may apply to the Senate for permission to proceed to the Final course and examination for the Ordinary degree of B.A.)

During the second and third years candidates shall be required to attend approved courses in Philosophy of not less than five hours a week in each year.

They shall also be required to attend, during the second and third years, approved courses of lectures on other subjects, the number of lectures amounting to not less than two hours a week in each year.

Examination

Essay, one paper.

General Questions, one paper.

Logic, Deductive and Inductive, one paper.

Psychology, one paper.

Ethics, one paper.

Advanced Psychology *or* Moral and Political Philosophy, one paper.

Either History of Ancient Philosophy, one paper, and two papers on *one* of the following:

- Descartes, Malebranche, Spinoza.
- Spinoza and Leibniz.
- English Philosophy from Locke to Hume, with reference to Bacon and Hobbes and to Reid and the Scottish Philosophy.
- Kant.

Or, History of Modern Philosophy, one paper, and two papers on *one* of the following:

- Greek Philosophy before Socrates.
- Socrates and Plato.
- Aristotle.
- Post-Aristotelian Philosophy.

Economic and Political Science.

Candidates for the degree of Bachelor of Arts with Honours in Economic and Political Science shall be required to pursue courses of study, and to submit themselves to examination, as follows:—

The course of study for the first academic year shall include the following subjects, as for the Intermediate examination for the Ordinary degree of B.A., (1) Latin or

Greek; (2) French or German; (3) Modern History or English Literature, or, if not taken under (2), French or German; (4) Political Economy; and, in addition, (5) Economic Geography. An examination will be held in these subjects at the end of the first year, and must be passed before proceeding to further study.

(Candidates who have passed the above Intermediate examination, but are unable to continue their Honours course, may apply to the Senate for permission to proceed to the Final Course and examination for the Ordinary degree of B.A.).

Attendance on the full course for the Intermediate examination for the degree of B.A. may also be accepted by the Senate as the required attendance for the first year of the Honours course.

During the second and third years candidates shall be required to attend approved courses in the subjects of the school of not less than five hours a week in each year.

They shall also be required to attend, during the second and third years, approved courses of lectures on other subjects, the number of lectures amounting to not less than two hours a week in each year.

Examination.

Essay, one paper.
Political Economy, two papers.
Social Economy, one paper.
Recent Industrial History of England, two papers.
Political Theory, one paper.
A special subject, studied in connection with original sources of information, two papers.
The special subject may be chosen by the candidate, subject to the approval of the Board of the Faculty of Arts.

DEGREE OF MASTER OF ARTS

I

Ordinance. 1. The degree of Master of Arts may be conferred, on payment of the proper fee, upon registered Bachelors of Arts when of not less than one year's standing from the date of their graduation as Bachelors, subject to the conditions contained in the following paragraphs.

2. Bachelors of Arts who have graduated with Honours may proceed to the degree of Master of Arts on presenting a dissertation satisfactory to the Senate on a subject approved by the Board of the Faculty of Arts.

3. Bachelors of Arts who have obtained the Ordinary degree shall be required to pass an examination in a subject or group of subjects upon which instruction is given in the Faculty of Arts, and to present a dissertation satisfactory to he Senate on a subject approved by the Board of the Faculty of Arts, or, if they do not present a dissertation, to pass a more extended examination. In special cases it shall be in the power of the Senate, on the application of the candidate and on the special recommendation of the Board of the Faculty of Arts, to award the degree upon a dissertation only. Candidates wishing to apply for such remission must make application to the Board of the Faculty of Arts not later than the end of the October preceding the examination. Regulations shall determine the subjects and groups of subjects in which the examination will be held. Certificates of attendance on courses of study in the University shall not be required. Bachelors of Arts who have obtained Honours in any school after the Ordinary degree shall be held to have satisfied the requirements of this clause.

4. All candidates who offer a dissertation either as sole test or in combination with other tests, may be called upon to present themselves for an examination—written, or oral, or both—in the theme of their dissertation.

5. The names of candidates who have passed the examination for the degree of Master of Arts shall be arranged in alphabetical order without distinction of classes.

II

Graduates or persons who have passed the Final examination for a degree of other approved Universities shall, if they present evidence satisfactory to the Senate that they are qualified to pursue a course of advanced study or research,

be permitted to enter the University and to become candidates for the degree of M.A., without taking the B.A. degree, after not less than two years of such advanced study or research. Such candidates shall be required to give evidence to the Senate at the end of the first year of their period of study that their work has been satisfactory, and at the end of their second year they shall be required to present a dissertation, and to satisfy such further test, if any, as the Senate shall deem expedient. They will, as a rule, be called upon to present themselves for an examination—written, or oral, or both—in the theme of their dissertation.

N.B.—In 1913 the latest date of entry and payment of fee for candidates presenting themselves for examination will be SATURDAY, MARCH 1st, and the examination held under I, 3, will begin in the second or third week in June. Candidates proceeding to the degree of M.A. by dissertation only must make their entry, pay the prescribed fee, and send in their dissertations not later than THURSDAY, MAY 1st. It is desirable that all candidates who present a dissertation should furnish at least two copies of such dissertation.

Examination

Regulations. Bachelors of Arts who have obtained the Ordinary degree and are candidates for the degree of Master of Arts may present themselves for examination *either* in *one* of the following subjects, viz., Greek, Latin, French, German, English Language and Literature, History, Philosophy, Economics, Education, *or* in *two* of the following: Greek, Latin, French, German, English Language and Literature, History, Philosophy, Economics. Candidates who offer two subjects must submit their choice of subjects for approval by the Board of the Faculty of Arts.

Greek

I. As a single subject.

Translation from Greek books selected, as a rule, from those prescribed for Honours in Classics, one paper.

Translation at sight and questions on the subject matter of the specified books, one paper.

Translation at sight and Greek prose composition, one paper.

A dissertation on some subject approved by the Board of the Faculty of Arts.

II. In combination with another subject.

As above, with the omission of the dissertation.

Books prescribed for 1912-13 and 1913-14

Homer, *Iliad* i, vi, *Odyssey* ix ; Sophocles, *Ajax* ; Euripides, *Hercules Furens* ; Aristophanes, *Clouds* ; Herodotus iii ; Thucydides vii ; Plato, *Republic* ii, iii.

Latin

I. As a single subject.

Translation from Latin books selected, as a rule, from those prescribed for Honours in Classics, one paper.

Translation at sight and questions on the subject matter of the specified books, one paper.

Translation at sight and Latin prose composition, one paper.

A dissertation on some subject approved by the Board of the Faculty of Arts.

II. In combination with another subject.

As above, with the omission of the dissertation.

Books prescribed for 1912-13

Plautus, *Trinummus* ; Lucretius v ; Horace, *Odes* ii-iii ; Virgil, *Georgics* i, ii ; *Aeneid* i-iv ; Cicero, *Second Philippic* ; Livy xxi ; Tacitus, *Agricola*, *Histories* iii ; Juvenal i, iii, iv, x, xi, xiv ; Catullus i-v, xii, xiii, xxxi, xxxiv, xxxviii, xliv, xlix, li, lxi, lxx, lxxxiv, ci.

Books prescribed for 1913-14

As for 1912-13 substituting Tacitus, *Annals* i for *Histories* iii, and Cicero, *De Oratore* i for *Second Philippic*.

French

I. As a single subject.

Composition and essay, one paper.

Prescribed texts in Old and Modern French, including literary and linguistic study, one paper.

Unprepared translation and historical grammar, one paper.

French Literature (general outlines and special period or periods), one paper.

Oral examination.

A dissertation on some subject approved by the Board of the Faculty of Arts.

II. In combination with another subject.

As above, with the omission of the dissertation.

Books prescribed for 1912-13

G. Paris et Langlois, *Chrestomathie du Moyen Age* ; Darmesteter et Hatzfeld, *Morceaux choisis des Ecrivains du 16e Siècle* (prose only) ; Corneille, *Polyeucte* ; Molière, *Le Misanthrope*, *les Femmes Savantes* ; Racine, *Athalie* ; Rousseau, *Extraits* ; Victor Hugo, *Notre Dame*.

Period of Literature prescribed for 1912-13

Rousseau's Life and Works.

Books prescribed for 1913-14
As for 1912-13

Period of Literature prescribed for 1913-14
French Classical Comedy to the end of the 17th Century.

German

I. As a single subject.

Composition and essay, one paper.
Prescribed texts in Middle High German and New High German, including literary and linguistic study, one paper.
Unprepared translation and historical grammar, one paper.
German Literature (general outlines and special period or periods), one paper.
Oral examination.
A dissertation on some subject approved by the Board of the Faculty of Arts.

II. In combination with another subject.

As above with the omission of the dissertation.

Books prescribed for 1912-13
Bartsch, *Liederdichter* xxi; Hartman von Aue, *der Arme Heinrich* (ed. Robertson, Sonnenschein); Hans Sachs, *Selections in Denkmäler der älteren deutschen Literatur*, III, i (ed. Kinzel, Halle); Schiller, *Maria Stuart*; Goethe, *Faust* i.; Lessing, *Nathan der Weise*; Kleist, *Prinz Friedrich von Homburg* (ed. Heuwes, Paderborn, Schöningh).

Period of Literature prescribed for 1912-13:
Schiller's Life and Works; The Romantic Period.

Books prescribed for 1913-14
As for 1912–13, omitting Hans Sachs and adding Goethe, *Torquato Tasso*, and Heine, *Über Deutschland* (in Heines *Prosa*, Clarendon Press, ed. Buchheim, pp. 148-191).

Period of Literature prescribed for 1913-14
Die Romantische Schule; Goethe's Life and Works.

English Language and Literature

. *As a single subject.*

Either

A (*a*) A dissertation.
(*b*) Examination, written or oral or both, in subjects connected with the candidate's dissertation.
(*c*) Outlines of English Literature with prescribed books, two papers.

Or

B (*a*) An essay, one paper.
(*b*) Translation from prescribed books in Old and Middle English, and unseen translation, two papers.
(*c*) Outlines of English Literature with prescribed books, two papers.

(*d*) *One* of the following:
(i) Old and Middle English Dialects, one paper, with Gothic, one paper.
or (ii) Shakespeare, two papers.

II. In combination with another subject.
Either
A (*a*) An essay, one paper.
(*b*) Translation from prescribed books in Old and Middle English, and unseen translation, two papers.
(*c*) Gothic, one paper.
Or
B (*a*) An essay, one paper.
(*b*) Outlines of English Literature with prescribed books, two papers.
(*c*) A special author or subject, one paper.

Books and periods prescribed for 1912-13 *and* 1913-14

I. As a single subject.
A (*c*) Outlines of English Literature, with prescribed books as for English Honours, Scheme B, 1912-13.
B (*b*) Prescribed books in Old and Middle English: *Either* (i) *Beowulf*, vv. 1-1651, or vv. 2223 to end, and *Sir Bevis of Hamtoun*, *or* (ii) Sweet's *Anglo-Saxon Primer*, and Chaucer, *Minor Poems* (Clarendon Press, ed. Skeat). [In 1913-14, substitute *William of Palermo* for *Sir Bevis of Hamtoun*.]
(*c*) Outlines of English Literature, with prescribed books as for English Honours, Scheme B, 1912-13.
(*d*) *Either* (i) Wright's *Primer of Gothic Language*, or (ii) a general knowledge of Shakespeare's Plays and Poems.

II. In combination with another subject.
A (*b*) Prescribed books in Old and Middle English: *Either* (i) *Beowulf*, vv. 1-1651, or vv. 2223 to end, and Morris and Skeat's *Specimens of Early English*, vol. i, extracts ii, vi, x, xii, xix, *or* (ii) Sweet's *Anglo-Saxon Primer*, and Chaucer, *Minor Poems* (Clarendon Press, ed. Skeat).
(*c*) Wright's *Primer of Gothic Language*.
B (*b*) Outlines of English Literature, with prescribed books as for English Honours, Scheme B, 1912-13.
(*c*) Shakespeare, *Tragedies*.

History

I. As a single subject.
An essay, one paper.
Either Ancient History (to 337 A.D.) General, two papers with special period in Ancient History, two papers.
Or Mediæval History (300 to 1500 A.D.), General, two papers, with special period in Mediæval History, two papers.
Or Modern History (since 1500 A.D.), General, two papers, with special period in Modern History, two papers.
Candidates may substitute a dissertation for the essay and the two papers on the special period.

II. In combination with another subject.

(*a*) Ancient or Medieval or Modern History, one paper.

(*b*) A special subject in the period taken under (*a*), two papers.

Candidates must in every case satisfy the Board of the Faculty of Arts that the subjects they offer under (*a*) and (*b*) form a suitable combination.

Special Periods prescribed for 1912-13

(1) Roman History, 31 B.C.-37 A.D.; (2) Life and Times of Saint Francis of Assisi; (3) The Age of Queen Elizabeth; (4) European History, 1789-1804 A.D.

The following is the list (subject to revision) of the original authorities set for the Honours periods:

1. Suetonius, *Lives of Augustus and Tiberius*; Velleius Paterculus, *Historiæ Romanæ*, *Liber II*, from ch. 85 to end; Tacitus, *Tacitus Annals*, Books I and II.
2. The Constitutional Documents in Legg's *Select Documents of the French Revolution*; a selection from Morse Stephen's *Orators of the French Revolution*; *England and Napoleon in 1803* (Oscar Browning's edition of Lord Whitworth's despatches); a selection from Napoleon's correspondence.
3. *S. Francisci Opera* in Böhmer's *Analekten Zur Geschichte des Franciscus von Assisi*; *S. Francisci Assisiensis Vita Prima*, anct. Celano, ed. E. d'Alançon; *Speculum Perfectionis*, anct. fratre Leone; *Legenda Trium Sociorum*, ed. M. Faloci-Pulignani.
4. Statutes and Constitutional Documents relating to the Reign of Queen Elizabeth (Prothero); The Leicester Correspondence (Camden Society); Selection from Hakluyt's Voyages (in Payne and Beasley's "Voyages of the Elizabethan Seamen"); Spenser's View of the State of Ireland; Selections from the Spanish Calendar.
5. Selections from *Pepy's Diary* and Barnet's *History of My Own Times*; Halifax, *Letter to a Dissenter*; Grant-Robertson's *Constitutional Documents*; Selections from Saint Simon's *Memoir*; Vaut, *Grands Traités de Louis XIV.*

Philosophy

I. As a single subject.

(*a*) General Questions, one paper.

(*b*) *Three* of the following:

Logic, one paper.
Psychology, one paper.
Ethics, one paper.
History of Philosophy, Ancient or Modern, one paper.
Advanced Psychology *or* Moral and Political Philosophy, one paper.

(*c*) *One* of the following special subjects, one paper.

Greek Philosophy before Socrates.
Socrates and Plato.
Aristotle.

Post-Aristotelian Philosophy.
Descartes, Malebranche, Spinoza.
Spinoza and Leibniz.
English Philosophy, from Locke to Hume, with reference to Bacon and Hobbes, and to Reid and the Scottish Philosophy.
Kant.

Candidates may as an alternative present a dissertation on a subject approved by the Board of the Faculty of Arts and present themselves for examination in three papers from section (*b*) or in two papers from section (*b*) and one paper from section (*c*).

II. In combination with another subject.
History of Philosophy, Ancient or Modern, one paper.
Logic, or Ethics, or Psychology, or History of Philosophy, Modern or Ancient, one paper.
A special subject, approved by the Board of the Faculty of Arts, one paper.

Economics

I. As a single subject.
(*a*) An essay, one paper.
(*b*) English Economic History, including the special study of a set period, two papers.
(*c*) *One* of the following:
General Principles of Economics, two papers.
A special Economic subject, two papers.
History of Economic Theory, including the special study of the work of a particular economist, two papers.

Candidates who have taken Economics as a subject for the degree of B.A. may not offer General Principles of Economics.

Candidates may as an alternative present a dissertation on a subject approved by the Board of the Faculty of Arts, and present themselves for examination in (*b*) or in one subject of (*c*). Such candidates may not offer a special Economic subject and a dissertation on the same subject.

II. In combination with another subject.
English Economic History *or* History of Economic Theory, one paper.
A special Economic subject, two papers.

Special period for 1912-13: 1760-1900.
Economist for special study for 1912-13: Adam Smith.

Education

(*A*) A dissertation on some subject related to Education and approved by the Board of the Faculty of Arts.
And (*B*) *Either* The Theory of Education, two papers, viz:
(1) The aim and form of Education and the organisation of its means, and their relations with Social Philosophy, Ethics and Logic, one paper.
(2) The processes of Education and their relations with the Physiology and Psychology of Development, one paper.

Or The History of Education—two papers on one of the following periods, with study of certain original authorities, as arranged after consultation with the Professor, viz:

(1) From beginnings of Greek education to 400 A.D.
(2) 400 A.D.—1000 A.D.
(3) 1000 A.D.—1400 A.D.
(4) 1400 A.D.—1760 A.D.
(5) 1760 A.D. to present time

Or a detailed study, based on personal knowledge, of the educational system of any one country, selected by the candidate with the approval of the Board of the Faculty of Arts. The examination on this subject may consist of an inspection of the reports and note books presented by the candidate.

DEGREE OF DOCTOR OF LETTERS

Ordinance.

1. The degree of Doctor of Letters shall be conferred by the University upon registered Masters of Arts of the University who shall be deemed by the Senate, after considering a report from the Board of the Faculty of Arts, to have distinguished themselves by special research or learning.

Provided that the Senate may, in such cases as it shall think fit, after considering a report from the Board of the Faculty of Arts, also require candidates to pass such an examination as it may from time to time determine.

2. A Master of Arts of the University may make application for the degree of Doctor of Letters in the sixth or any subsequent year from the date of his admission to the Bachelor's degree.

3. Such applications shall be made in writing to the Registrar, and shall contain a full statement of the grounds on which the claim for the degree is based, together with one or more copies of any thesis, whether in print or in manuscript, which the applicant may desire to submit in support of the application.

4. If the application be approved by the Senate, the degree may be conferred at the expiration of not less than six years from the date of admission to the Bachelor's degree.

N.B.—In 1913 the latest date for application and payment of fee will be SATURDAY, MARCH 1st, and the examination, if required, will begin about Thursday, June 12th.

DIPLOMAS

In Arts, Applied Science and Technology

Diplomas shall be granted by the University, in such subjects as the Council may from time to time determine, to students who pursue the courses of study and pass the examinations prescribed. Ordinance.

The Council is empowered to make from time to time Regulations under which such Diplomas shall be awarded.

The award of Diplomas under the provisions of this Ordinance is delegated to the Senate.

Candidates for Diplomas are required to give satisfactory attendance upon all the subjects which form part of their course of study, and to present themselves for any class examinations that may be held in the same. Those who do not pass satisfactorily in these examinations in any year will be disqualified for the Diploma unless they repeat the course in whole or in part, as may be required by the Senate. Regulations.

At the close of the course, candidates will be required to present themselves for such examination in the main subject of study as may be prescribed.

Some deviation from these courses may be sanctioned in special cases, and students who on entering upon a Diploma course produce evidence that they possess a sufficient knowledge of the work done during a part of the course will be allowed to dispense with a certain amount of attendance. Applications for exemption from attendance should be made to the head of the department concerned, who shall bring them before the Standing Committee of the Senate appointed to deal with such matters.

For special regulations for Diplomas in Applied Science and Technology, see page 288.

Diploma in Education

1. Candidates for the diploma in Education must be graduates of some University in the United Kingdom or must have obtained such other academic qualifications as shall be approved by the Senate of the University. At present the course is only open to women students. Regulations.

2. The session for students in this department will open at the beginning of September and will close about the middle of July.

3. In accordance with the requirement of the Board of Education at least sixty days will be devoted to class work in school.

4. The course is both theoretical and practical.

I. Theoretical Instruction

Students will attend the following lectures:

(*a*) Psychological Bases of Education, Thursdays, 9.30-10.30 a.m. during the University session;

(*b*) Physical Education, Tuesdays and Saturdays, 9.30-10.30 a.m., during the first term;

(*c*) Logical Bases of Education, Tuesdays and Saturdays, 9.30-10.30 a.m., during the second term;

(*d*) Ethical Foundations of Moral Education, Saturdays, 9.30-10.30 a.m. during the second term.

(*e*) History of Education, Tuesdays and Thursdays, 10.30-11.30 a.m., during the session;

(*f*) Plato's Republic, Bks. II-IV., Thursdays, 2-3 p.m., during the session;

(*g*) Special courses in methods of teaching and discipline, with direct reference to work in Secondary Schools, twice a week in the 1st and 2nd terms;

(*h*) Voice Production.

Note 1.—The courses (*a*) (*b*) (*c*) (*d*) (*e*) will, as a rule, be those arranged for the subject of Education for the degree of B.A.

Note 2.—All the courses may be taken in one academic year, but they may be spread over two years.

II. Practical Work

This will be carried on under the immediate supervision of Miss H. Robertson, B.A., and certain teachers of special subjects in the practising schools.

Students who wish to specialise in one or more subjects of the school curriculum will be definitely attached throughout the year to certain selected schools which can provide special opportunities for the required training.

For several weeks previous to the opening of the University session at the beginning of October, students will be in continuous attendance at selected schools for the purpose of observing methods of organisation, teaching, discipline, &c.

During each week of the University session a certain amount of systematic teaching in school will be done by each student.

The third term will be devoted to practical work in the schools with the exception of such time as is required for attendance at courses of lectures at the University.

5. The written examination for the diploma will take place in June, at the same time as the degree examinations. The papers—except that in the Practice of Education—will, as a rule, be the same as those set for the degree.

The tests in practical skill will consist in the delivery of lessons and an inspection of records of the candidate's practical work in school. Importance will be attached to reports on the candidate's work and skill from the teacher of the school under whom she has worked, and from the staff of the University Education department. This examination will, as a rule, be held in June or July.

6. Graduates in Arts or Science of this University who have included Education in the Final examination for their degree may obtain the diploma in Education after a further year's attendance on a course approved by the Board of the Faculty in which the degree was taken. Such course must include :

(*a*) Attendance in schools as specified in 4. II above ;

(*b*) Attendance on course 4. I (*f*) ;

(*c*) Attendance on a course of study in Arts or Science (not included in those taken for a degree), approved by the Board of the Faculty as at least equivalent to the subject of Education taken as part of the Final course for the degree.

The examination for the diploma in Education will in these cases consist of the tests of practical skill, and the paper in the Practice of Education (§ 5).

The diploma in Education in this case will not be issued until the candidate has also passed the degree examination in the subject or subjects included under (*c*).

7. The list of successful candidates will be issued in alphabetical order, and no special honours will be assigned to any candidate.

8. No diploma will be issued until the candidate has passed in both the written and the practical parts of the examination. But a candidate who fails in the practical part only may, on the recommendation of the examiners, be allowed by the Senate to present that part at a subsequent date without further written examination. In such cases the candidate must produce a satisfactory report from the head teacher of the school in which he (or she) has been teaching, and must submit records of work done.

9. A fee of £15, exclusive of fees for extra classes, is charged to students taking the whole of the course for the diploma, whether in one or two years. The fee for the examination is £1.

10. The following have been recognised as efficient Practising Schools for students :

Leeds Girls' High School.
Mount St. Mary's College, Leeds.
Notre Dame Collegiate School.
Leeds Cockburn School.
West Leeds High School.
Leeds Modern (Girls') School.
Leeds Thoresby School.
Bradford Girls' Grammar School.
Wakefield Girls' High School.

Diploma for Teachers of French

The examinations for the diploma, to be conducted annually, will be:

1. The First examination of the same standard as the Final examination in French for the Ordinary degree of B.A., including the study of prescribed authors in their literary and linguistic aspect. The study of periods of literature will not be required.
2. The Second examination, in methods of teaching and in phonetics.

Candidates for the diploma will be required

(1) To pass the First examination, or to give satisfactory evidence that their knowledge of the French language is not below the standard of that examination.

(2) To attend for at least one year the University class preparatory to the Second examination.

(3) To pass the Second examination.

Fee for the whole examination (First and Second), £1.

Diploma for Teachers of German

The regulations for this diploma are the same as above, with the substitution of "German" for "French" throughout.

N.B.—In 1913 the latest date of entry and of payment of fees for these examinations will be SATURDAY, MARCH 1st.

Courses in Arts

CLASSICS

Professor Rhys Roberts
Professor Connal
Mr. Dodd

GREEK LANGUAGE AND LITERATURE

Int. Intermediate Course

The work in this course will comprise composition, translation at sight and the special study of Thucydides ii, cc 1—65; Homer, *Iliad* xxiv.

Mondays and Tuesdays at 9.30 a.m., Wednesdays at 11.30 a.m., Thursdays at 9.30 a.m.

Books recommended

Jebb, *Primer of Greek Literature* (Macmillan), and *Introduction to Homer* (Maclehose).

Marchant's Thucydides ii (Macmillan), and Edwards' Iliad xxiv (Cambridge University Press).

F1. Final Course (First Year)

The work in this course will comprise composition, translation at sight, and the special study of Herodotus iii and of other books to be selected when the class meets.

Mondays, Wednesdays and Fridays at 9.30 a.m. Composition class on Fridays at 4 p.m.

Books recommended

Murray's, Jevons's, or Mahaffy's *History of Greek Literature*; or Croiset's (the abridged edition).

Sidgwick's *Greek Prose Composition* (Rivington).

F2. Final Course (Second Year)

The work in this course will comprise composition, translation at sight, and the special study of Aeschylus, *Prometheus Vinctus*, and Aristophanes, *Clouds*.

Tuesdays, Thursdays and Fridays, at 9.30 a.m. Composition class on Fridays at 3 p.m.

Books recommended

Murray's, Jevons's, or Mahaffy's *History of Greek Literature*; or Croiset's (the abridged edition).

Shuckburgh's Herodotus viii (Cambridge University Press); Sikes and Willson's *Prometheus Vinctus of Aeschylus* (Macmillan), Merry's *Clouds of Aristophanes* (Oxford University Press).

H. Honours and M.A. Course

The work in this course will comprise composition, translation at sight, and the study of books prescribed for the examinations for Honours in Classics, and for the M.A. in Greek.

Mondays, Tuesdays, Thursdays and Fridays, at 10.30 a.m., and a composition class on Saturdays at 10.30 a.m.

SPECIAL CLASSES

S1. Elementary Class

This class is intended for beginners; it will not be held unless there is a reasonable number of applicants.

Saturdays at 9.30 a.m.

Special fee, £1 11s. 6d.

Books recommended

Chambers' *Greek War of Independence* (Swan Sonnenschein).

Sonnenschein's *Greek Grammar* (Swan Sonnenschein).

S2. Higher Elementary Class

The work in this class will comprise grammar, elementary composition, translation at sight, and the special study of two of the Greek books prescribed for the Matriculation examination of the Northern Universities. The class will not be held unless there is a reasonable number of applicants.

Mondays, Wednesdays, and Fridays at 11.30 a.m., and a composition class on Saturdays at 11.30 a.m.

Text books will be recommended by the lecturer at the beginning of the session.

LATIN LANGUAGE AND LITERATURE

Int. Intermediate Course

The work in this course will comprise composition, translation at sight, and the special study of Livy v, chapters 15-50, and Horace *Odes* i, ii.

Mondays and Wednesdays throughout the session and Fridays during the first and second terms, at 9.30 a.m., with a composition class on *either* Tuesdays at 10.30 a.m. *or* Thursdays at 9.30 a.m. throughout the session.

Books recommended

Livy v, Alford (Macmillan).
Horace, *Odes*, i and ii, Page (Macmillan).

F1. Final Course (First Year)

The work in this course will comprise composition, translation at sight, and the special study of selected books, two of which will be Horace, *Odes* i, ii, and Cicero, *pro Archia.*

Mondays, Wednesdays, and Fridays, at 11.30 a.m., and a composition class on Tuesdays, at 11.30 a.m.

Books recommended

Cicero, *pro Archia*, Nall (Macmillan.
Horace, *Odes* i, ii, Page (Macmillan).

F2. Final Course (Second Year)

The work in this course will comprise more advanced composition, translation at sight, and the special study of Cicero, *Second Philippic*, and Virgil, *Georgics* iv, *Aeneid* ii.

Mondays and Fridays at 4 p.m., and Wednesdays at 11.30 a.m., and a composition class on Tuesdays at 11.30 a.m.

Books recommended

Cicero, *Second Philippic*, Mayor (Macmillan).
Virgil, *Georgics* iv, Page (Macmillan).
Virgil, *Aeneid* ii, Page (Macmillan).

H. Honours and M.A. Course

The work in this course will comprise composition, translation at sight, and the study of books prescribed for the examinations for Honours in Classics and for the M.A. in Latin.

Mondays and Fridays at 11.30 a.m., and Saturdays at 9.30 a.m., and a composition class on Saturdays at 10.30 a.m.

Books recommended for Classical Students

Such books as the following will be found useful by classical students:

Murray's Ancient Greek Literature, Jevons's Greek Literature, Mahaffy's Greek Classical Literature, Croiset's Abridged History of Greek Literature, Mackail's Latin Literature, Cruttwell's History of Roman Literature, Wight Duff's Literary History of Rome.

Sandys' History of Classical Scholarship, Saintsbury's History of Criticism, Evelyn Abbott's Hellenica, Butcher's Aspects of the Greek Genius and Harvard Lectures on Greek Subjects, Jebb's Essays and Addresses, Dickinson's Greek View of Life, Tucker's Life in Ancient Athens, Whibley's Companion to Greek Studies, Greenidge's Roman Public Life, G. F. Hill's Greek and Roman Coins, P. Gardner's Grammar of Greek Art, E. A. Gardner's Handbook of Greek Sculpture, Michaelis' Century of Archaeological Discoveries, Reinach's Apollo, Marquand's Greek Architecture, Burrows' Discoveries in Crete, Hawes' Crete the Forerunner of Greece.

Jebb's Growth and Influence of Classical Greek Poetry, Symonds' Studies of the Greek Poets, Mackail's Lectures on Greek Poetry, Butcher's Aristotle's Theory of Poetry and the Fine Arts, Jebb's Introduction to Homer, Gilbert Murray's Rise of the Greek Epic, Browne's Homeric Study, Haigh's Attic Theatre and Tragic Drama of the Greeks, Decharme's Euripide et l'esprit de son Théâtre, Jebb's Attic Orators.

Tyrrell's Latin Poetry, Sellar's Roman Poets of the Republic and Roman Poets of the Augustan Age (Virgil, Horace), Glover's Studies in Virgil, Martha's Poème de Lucrèce, Boissier's Cicéron et ses amis, Warde Fowler's Social Life in the Age of Cicero, and Religious Experience of the Roman People, Sandys' Companion to Latin Studies.

Giles's Comparative Philology, V. Henry's Comparative Grammar of Greek and Latin, Goodwin's Greek Moods and Tenses, Gildersleeve's Greek Syntax, Monro's Homeric Grammar, the Latin Grammars of Roby, Madvig, Gildersleeve and Lodge, Sidgwick's Lectures on Greek Prose Composition.

ENGLISH LANGUAGE & LITERATURE

Professor VAUGHAN

Professor MOORMAN

Mr. CHARLTON

Int. Intermediate Course (Literature)

The work in this course will comprise the history of English literature from 1558 to 1603, and the special study of Spenser, *Faerie Queene*, Book i; Marlowe, *Dr. Faustus*; Sidney, *Apology for Poetry*; Shakespeare, *Midsummer Night's Dream*, *Macbeth*; Bacon, Essays on *Truth*, *Death*, *Adversity*, *Revenge*, *Atheism*, *Superstition*, *Friendship*, *Greatness of Kingdom and Estates*, *Innovations*; Palgrave's *Golden Treasury*, Bk. i. Also, Pope, *Epistle to Arbuthnot*; Keats, *Hyperion*, Chaucer, *Prologue to Canterbury Tales*.

Mondays, Wednesdays and Fridays at 10.30 a.m. throughout the session.

F1. Final Course (English Literature)

Students taking English in the Final course may offer English Literature and Language as a principal subject; or English Literature alone as a subsidiary subject.

The work in this course will comprise (i) the History of English Literature from 1558 to 1630, and the special study of Spenser, *Shepherd's Calendar*; Marlowe, *Dr. Faustus*; Sidney, *Apology for Poetry*; Bacon, *Essays* (same selection as for Intermediate Course); Shakespeare, *Twelfth Night*, *King Lear*; Jonson, *Volpone*; Webster, *Duchess of Malfi*; Chaucer, *Nonne Preestes Tale*; Milton, *Samson Agonistes*; Dryden, *Absalom and Achitophel*, part i; *Golden Treasury*, Bk. iv.

(ii) Outlines of English Literature.

Mondays, Wednesdays and Fridays, at 10.30 a.m., throughout the session.

F2. Final Course (English Literature and Language)

The work in this course, for those taking English as a principal subject, will comprise, in addition to what is

entered under F1, a study of the following books: Cook, *First Book in Old English* (Grammar and Extracts) i-xv; Sweet, *Anglo-Saxon Reader*, extracts ii, v, x, xxvi; Chaucer, *Clerk's Tale;* Morris and Skeat's *Specimens of Early English*, vol. ii, extracts x, xx.

Two hours a week throughout the session for students in the second year of their Final course.

H1. Honours Course, First Year (Language)

The work in this course will comprise the history of the English Language and the special study of Cook, *First Book in Old English* (Grammar and Extracts i-xv); Sweet, *Anglo-Saxon Reader*, extracts ii, v, x; Morris and Skeat, *Specimens of Early English*, vol. ii, extracts ix, x; Chaucer, *Prologue to Canterbury Tales*.

Mondays, Tuesdays and Fridays at 2 p.m.

H2. Honours Course, Second Year (Literature)

This course will be devoted to the study of the Outlines of English Literature.

One hour a week at a time to be arranged.

H3. Honours Course, Second Year (Literature)

This course will be devoted to the study of the works of Shakespeare.

One hour a week at a time to be arranged.

H4. Honours Course, Third Year (History of Criticism)

One hour a week at a time to be arranged.

H5. Honours and M.A. Course (Language)

Honours students in their second year attend this course for two hours a week, Honours students in their third year attend for one hour a week.

Translation from Old and Middle English texts, as prescribed for the Honours School.

H6. Seminar.

One hour a week at a time to be arranged, for Honours Students in their third year.

SPECIAL CLASS

S. Post-Graduate Course

A special course, intended for post-graduate students, may be delivered on a subject to be arranged.

One hour a week, during the first two terms, at a time to be arranged.

FRENCH LANGUAGE AND LITERATURE

Professor BARBIER
Dr. GUNNELL

Int. 1, Int. 2. Intermediate Courses

The work done in these two courses is the same in every respect. It will comprise grammar, composition, dictation, translation at sight, conversation in French, and the special study of Sully-Prudhomme, *Les Ecuries d' Augias* and *Impressions de la guerre* and Balzac, *Pierrette.*

Course Int. 1 will be held on Mondays, Wednesdays and Fridays at 11.30 a.m., Course Int. 2 at 4 p.m. on the same days.

Books recommended

Sully-Prudhomme, *Les Ecuries d' Augias* and *Impressions de la guerre* (except *le Renouveau*) (Paris, AlphonseLemerre);
Balzac, *Pierrette* (Oxford Higher Series).

Int. 3. French Literature (B)

Lectures in French on Balzac and Sully-Prudhomme will be given on Tuesdays at 3 p.m. during the first term.

Students taking French for the Intermediate examination are expected to join this class.

Special fee, £1 1s.

F1. Final Course

The work in this course will comprise more advanced syntax and composition, translation at sight, the elements of

historical grammar and phonetics, and the special study of Rousseau, *Extraits*.

Mondays, Tuesdays and Fridays, at 2 p.m.

Books recommended

Corneille, *Polyeucte*.
Racine, *Athalie*.
Rousseau, *Extraits* (ed Brunel, Hachette & Cie.)

F2. French Literature (A)

Lectures on Rousseau, his life and works, will be given in French on Tuesdays at 3 p.m. during the session.

No entry will be taken for less than two terms.

Special fee, £1 11s. 6d. for the session; £1 1s. for two terms.

H. Honours Course

Mondays at 4 p.m. and Tuesdays and Thursdays at 9.30 a.m.

SPECIAL CLASSES

S1. Commercial Course

Mondays at 10.30 a.m., and Fridays at 9.30 a.m.

In addition to the study of French correspondence, etc., a book bearing on French commercial life will be read.

S3. Saturday Morning Training Course (A)

This class will meet on Saturdays, from 10.15 a.m. to 12.15 p.m., beginning October 5th. (N.B. The hours may be slightly altered to meet the convenience of students living outside Leeds.)

The course will cover the work in language required for the First examination in connection with the University Diploma for teachers of French, but students who are not candidates for the Diploma will also be admitted on satisfying the Professor that they are sufficiently qualified.

There will be a short examination at the first meeting of the class for students wishing to enter for the first Diploma examination at the end of the session.

Special fee, £2 12s. 6d.

Books recommended

Molière, *Tartufe*.
Rousseau, *Lettre Sur les Spectacles*.
Theophile Gautier, *Voyage d'Espagne*.

S4. Saturday Morning Training Course (B)

This class will meet on Saturdays, from 10.15 a.m. to 12.15 p.m., beginning October 5th. (N.B. The hours may be slightly altered to meet the convenience of students living outside Leeds.)

The course will cover the work in phonetics and methods of teaching required for the Second examination in connection with the University Diploma for teachers of French, but students who are not candidates for the Diploma will also be admitted on satisfying the Professor that they are sufficiently qualified.

Special fee, £2 12s. 6d.

GERMAN LANGUAGE AND LITERATURE

Professor SCHÜDDEKOPF
Dr. GOUGH

Int. Intermediate Course

Mondays and Fridays at 3 p.m., and Thursdays at 10.30 a.m. *or* 2 p.m. (If necessary, the hours of this class *on Thursdays* will be altered).

This course is intended for candidates entering for the Intermediate examination in Arts, Science, and Commerce, and for general students who wish to acquire a greater proficiency in German. In addition to the prescribed work, syntax, dictation and composition will be studied, and the class will have practice in German conversation.

Books recommended

Kuno Meyer, *German Grammar*, parts i and ii (Sonnenschein).
Third German Reader and Writer (Sonnenschein).
Lessing, *Minna von Barnhelm* (ed. Wolstenholme, Pitt Press).
Uhland, *Poems* (ed. Hewett, Macmillan).

F. Final Course

Mondays, Wednesdays and Fridays, at 9.30 a.m.

The work of this class comprises revision of German syntax, the elements of historical grammar and phonetics, study of advanced texts, and composition. The class will be taught in German.

Books recommended

Kleist, *Prinz Friedrich von Homburg* (ed. Heuwes, Paderborn).
Hans Sachs, *Selections* (in Kinzel's Denkmäler der älteren deutschen Literatur, III 1; Halle).
Macaulay's *Critical and Historical Essays.*
Longmans' *German Composition* (Longmans).
Behaghel, *Die deutsche Sprache* (Leipzig, Freytag).
Rippmann, *Elements of Phonetics* (Dent).

H. Honours and M.A. Course

Mondays, Wednesdays and Fridays at 10.30 a.m.

The work of this class will comprise Old and Middle High German grammar and literature, and interpretation of Old High German and Middle High German texts. Part of the work taken in this course is also suitable for graduates reading for the M.A. examination.

Books and periods will be found under the Honours School of Modern Languages and Literatures for the B.A. degree with Honours.

SPECIAL CLASSES

S1. Lower Elementary Class

Mondays and Fridays at 2 p.m.

This class is intended for beginners. Special attention will be given to students of science.

Books recommended

Sonnenschein, *First German Reader and Writer* (Sonnenschein).
Fiedler-Sandbach, *First German Course for Science Students* (Moring).
Andersen, *Märchen* (Heath & Co.)

S2. Higher Elementary Class

Mondays and Fridays at 4 p.m.

This course is intended for students who already possess an elementary knowledge of German. In addition to the study of grammar and composition, the work of this class will include books of general literary interest, as well as texts bearing on various branches of science. German conversation will be practised.

Books recommended

Kuno Meyer, *German Grammar*, parts i and ii (Sonnenschein).
Second German Reader and Writer (Sonnenschein).
Seidel, *Leberecht Hühnchen* (ed. Spanhoofd, Heath & Co.)
Wallentin, *Grundzüge der Naturlehre* (ed. Palmer, Heath & Co.).

S3. German Literature

Lectures on *Goethes Leben und Werke* will be given in German on Tuesdays, at 4 p.m., during the first and second terms, commencing October 8th.

During the third term a German Literature Revision Class will be held for candidates reading for Honours or M.A. in German, or the Final B.A. examination.

Special fee, £1 11s. 6d. for the session; £1 1s. for two terms; 10s. 6d. for one term.

S4. Lower Commercial Course

The hours of this class will be arranged at the beginning of the first term.

In addition to the study of German correspondence, &c., a book bearing on German commercial life will be read, the title of which will be announced at the beginning of the first term. The class will be taught in German.

Book recommended

Whitfield-Kaiser, *Course of Commercial German* (Longmans).

S5. Higher Commercial Course

The hours of this class will be arranged at the beginning of the first term.

The study of German correspondence, etc., will be continued, and German books on economic subjects will be read, the titles of which will be announced at the beginning of the first term. The class will be taught in German.

Book recommended

Whitfield-Kaiser, *Course of Commercial German* (Longmans).

S6. German Institutions

A course of lectures on German Institutions will be delivered during the first and second terms, on Tuesdays, at 10.30 a.m., commencing October 8th.

S7. Saturday Morning Training Course (A)

This class will meet on Saturdays, from 10.30 a.m. to 12.30 p.m., beginning October 5th. (N.B. The hours may be slightly altered to meet the convenience of students living outside Leeds.)

The course will cover the work required for the First examination in connection with the University Diploma for teachers of German, but students who are not candidates for the Diploma will also be admitted on satisfying the Professor that they are sufficiently qualified.

There will be a short examination at the first meeting of the class for students wishing to enter for the first Diploma examination at the end of the session.

Special fee, £2 12s. 6d.

Books recommended

Goethe, *Torquato Tasso* (ed. Calvin Thomas, Heath & Co.)
German Dactylic Poetry (ed. Wagner, Pitt Press).
Schillers *Spaziergang* and Goethe, *Alexis und Dora.*
Heine, *Über Deutschland* (in Heines Prosa, ed. Buchheim, Clarendon Press, pp. 148-191).
Macaulay's *Critical and Historical Essays.*
Meyer's *German Grammar*, part i and ii (Sonnenschein).
Behaghel, *Die deutsche Sprache* (Leipzig, Freytag).

S8. Saturday Morning Training Course (B)

This class will meet on Saturdays, from 10.30 a.m. to 12.30 p.m., beginning October 5th. (N.B. The hours may be slightly altered to meet the convenience of students living outside Leeds.)

The course will cover the work in phonetics and methods of teaching required for the Second examination in connection with the University Diploma for teachers of German, but students who are not candidates for the Diploma will also be admitted on satisfying the Professor that they are sufficiently qualified. The titles of the books used in this class will be announced at the beginning of the first term.

Special fee, £2 12s. 6d.

HISTORY

Professor GRANT
Miss COOKE

INTERMEDIATE COURSES

Int. 1. Outlines of Greek and Roman History

Tuesdays and Thursdays at 11.30 a.m.
Greek History to the death of Alexander.
Roman History from 264 B.C. to 70 A.D.

The following Lives in Plutarch will be studied in connection with this course:—Pelopidas, Aristides, Lysander, Cimon, Marcus Cato, Marius, Lucullus, Flamininus.

The text used will be the translation of Stewart and Long in Bohn's Library. The above Lives are all contained in vol. ii, which can be procured separately for 2s.

Int.2. Modern History from 1763 to 1900

Two hours a week at times to be arranged.

This course will not be given unless there are candidates for the degree of B.Com.

FINAL COURSES

First Year: Final

F1. Outlines of European History since the decline of the Roman Empire

Tuesdays and Thursdays, at 10.30 a.m.

Books recommended

G. R. Adams, *European History* (Macmillan).
Grant, *Outlines of European History* (Longmans).
Myers, *General History* (Ginn).
Ramsay Muir, *New School Atlas of Modern History* (Phillips, 3/-).

This is also a course for the Special Intermediate examination for candidates for the B.A. degree with Honours in Literature.

F2. English Constitutional History

Tuesdays and Thursdays at 11.30 a.m.

Second Year: Final

F3. Greek History to 445 B.C.

Fridays at 11.30 a.m.

F4. Roman History to 132 A.D.

Tuesdays and Thursdays at 9.30 a.m. in the second and third terms.

F5. English History from 1760 to 1815

Mondays and Wednesdays at 9.30 a.m.

F6. European History: the Thirteenth Century

Tuesdays and Thursdays at 10.30 a.m.

This is also a course for the Special Intermediate examination for candidates for the degree of Honours in History.

Note:—The above periods will be studied in connection with certain of the original authorities which will be indicated at the beginning of the session.

F7. Economic History. (Professor MACGREGOR)

The commercial and industrial history of England, mainly in the nineteenth century.

Two hours a week at times to be arranged.

Candidates for the Final examination for the B.A. degree are recommended to take the course in English History and any one of the other courses.

HONOURS AND M.A. COURSES

H1. English Constitutional History

Tuesdays and Thursdays at 11.30 a.m.

H2. Roman History from 31 B.C. to 37 A.D.

One hour a week at times to be arranged.

H3. The Life and Times of Saint Francis of Assisi

Mondays and Wednesdays at 11.30 a.m.

H4. Supplementary Class on the Life and Times of Saint Francis of Assisi for students in their third year.

One hour a week; time to be arranged.

H5. English and European History: 1660 to 1690

Mondays and Wednesdays at 11-30 a.m.

H6. European History: 1789 to 1804

(Supplementary Class.)

Fridays at 10-30 a.m.

H7. Essay Class

One hour a week at times to be arranged

PHILOSOPHY

Professor GILLESPIE

Int. Intermediate Course: Logic

Two Lectures a week throughout the session at times to be arranged.

This course deals with the elements of logic, deductive and inductive. Students will find it useful to familiarise themselves with the elementary formal logic, in some such text-books as *Jevons* or *Fowler*, before entering the class.

F1. Final Course: Ethics

Two lectures and a tutorial class each week throughout the session, at hours to be arranged.

Subjects: The outlines of ethical theory, together with the elementary psychology of the will, and the study of selected ethical systems.

F2. Final Course: History of Ancient Philosophy

Two lectures and a tutorial class each week throughout the session, at hours to be arranged.

Subjects: The outlines of the history of Greek philosophy with more detailed study of special books.

Candidates for Honours in Classics attend this class.

F3. Final Course: History of Modern Philosophy

Two lectures and a tutorial class each week throughout the session, at hours to be arranged.

Subjects: The outlines of the history of modern philosophy from Descartes to Kant.

H. Honours Courses

Lectures will be delivered on Psychology, and the Philosophy of Kant, at hours to be arranged.

POLITICAL ECONOMY

Professor MACGREGOR

INTERMEDIATE COURSE

Int. Political Economy

This course deals with the physical geography of industry and trade, and gives a general outline of the occupations and earnings of the chief classes in the community.

Two hours a week at times to be arranged.

FINAL COURSES

F1. Principles of Political Economy

In the first term, the existing organisation of Land, Labour and Capital in England will be described historically. In the second and third terms the principles will be explained on which this organisation is based.

Two hours a week at times to be arranged.

F2. Studies of Industrial Questions

This course deals with the application of general principles to some of the chief questions of industry and trade. Among these are:—Money and banking, taxation, protection and free trade, trade unions, and labour problems.

Two hours a week at times to be arranged.

HONOURS AND M.A. COURSES

H1. Recent Industrial History of England (1800-1900)

This course includes (*a*) the history of land tenure, agricultural development, and land legislation; (*b*) labour organisation, and legislation affecting labour; (*c*) the organisation of capital; (*d*) commerce, the tariff, and the financial system; (*e*) the development of public opinion, and the chief social teachers of the period.

Two hours a week at times to be arranged.

H2. Social Economics

The influence of industrial conditions on social life; the problems of poverty, trade depression, large cities, small holdings, social betterment.

One hour a week, at a time to be arranged, during the first two terms.

Special fee, 10s. 6d.

Books recommended

Booth, *Life and Labour*, Vol. I., Part I., and Final Volume.
Rowntree, *Poverty.*
Meakin, *Model Villages and Factories.*
Hobson, *The Unemployed.*
The Reports on Housing, Sweating, Vagrancy, Physical Deterioration, Small Holdings, The Poor Laws, &c.

H3. Political Theory

The nature and duties of the State and the basis of citizenship.

Two hours a week at times to be arranged.

Tutorial Instruction in Special Subjects

Tutorial instruction will be given in the special subject which may be chosen from any branch of political or social economy, of industrial history, or of political theory.

EDUCATION

Vice-Chancellor of University and Principal of Training Department:
MICHAEL E. SADLER, Litt.D., LL.D., C.B.

Professor: J. WELTON, M A.

Lecturer in Education and Master of Method:
W. P. WELPTON, B.Sc.

Tutor of Women Students and Mistress of Method:
Miss H. ROBERTSON, B.A.

Assistant Lecturer in Education: A. J. MONAHAN, M.A.

Assistant Master of Method: F. W. TURNER, B.Sc.

Assistant Mistresses of Method:
Miss E. M. BLACKBURN, M.A. Miss E. PARRY, M.Sc.

Teacher of Music, Reading and Elocution:
T. J. HOGGETT, Mus.B.

Training Department for Teachers for Primary Schools.

A Training Department under the provisions of the Education Code, was established in 1891.

The following particulars are supplied for the information of candidates who desire to be admitted to the Leeds University Training Department, as King's Scholars.

CONDITIONS OF ADMISSION

1. Candidates, except as provided below, must be over 18 years of age on the 1st of August in the year of admission, and must have fulfilled the conditions stated in the sections following :—

i. Persons who have, during the three years immediately preceding their admission, been in regular attendance at a Secondary School, which is on the list of Secondary Schools recognised by the Board of Education as efficient, may be admitted as Three Year Students if they are over 17 years of age on the 1st of August in the year of admission.

ii. The qualifying examination must have been passed, as a rule, within the two years and six months preceding the 1st of August in the year of entering the Training Department.

iii. Persons who have been recognised as Bursars or as Pupil Teachers under the Board's Regulations for the Preliminary Education of Elementary School Teachers, will not be admitted to the Training Department until the termination of their period of recognition (see *Regulations for the Training of Teachers, Sec.* 44*a*).

2. Candidates, before being accepted, are required by the Regulations of the Board of Education to be examined by the Medical Officer of the Department, and can only be admitted if reported as without physical defect or organic disease, strong and in good health, and capable of entering on a three years' degree course with professional training without undue strain.

3. Candidates will be required to furnish certificates of good character.

4. All candidates will on admission be required to give an undertaking to the Board of Education for the purpose of securing that in return for the grant payable under the

Board's regulations, they will complete their training in the Department, and thereafter actually follow the profession of teacher in an approved school for such period or periods, or repay to the Board such proportion of that grant, as may respectively be specified in the undertaking.

An approved school includes any Public Elementary School, and any Secondary School, Pupil Teacher Centre or Training College, in respect of which grants are paid by the Board out of monies provided by Parliament *(see sect. 10b and App. B. Regulations for the Training of Teachers)*.

5. Candidates are required to have passed before admission one of the examinations which are recognised by the Board of Education as qualifying students for admission to a Training College for a three years' University Degree Course. Among the examinations so recognised are:—

i. The Matriculation Examination of the Northern Universities, provided that the candidate passes in the following subjects:

(*a*) English Literature.

(*b*) English History.

(*c*) Geography.

(*d*) Mathematics.

(*e*) One Language selected from Latin, Greek, French and German.

(*f*) Either a second Language, or Physics, or Chemistry, or Botany.

ii. The Matriculation Examination of the University of London, provided the candidate passes in the following subjects:

(*a*) English.

(*b*) Modern History.

(*c*) Geography.

(*d*) Mathematics.

(*e*) One Language selected from Latin, Greek, French and German.

(*f*) Either a second Language, or Physics, or Chemistry, or Botany.

iii. The Senior Local Examination of the University of Oxford and of the University of Cambridge, provided that the candidate passes in the following sections:

(*a*) Arithmetic.

(*b*) English Language and Literature (including Composition.)

(*c*) English History.

(*d*) Geography.

(*e*) Mathematics.

(*f*) One Language selected from Latin, Greek, French, German.

(*g*) Either a second Language, or Chemistry, or Physics, or Botany.

[*See Regulations for the Training of Teachers for 1911. Appendix A (ii).*]

6. All students of the Training Department are required to fulfil the requirements, to attend the classes and to enter for the examinations qualifying for a Degree of the University of Leeds. Hence candidates must before admission pass, or obtain exemption from, the Matriculation Examination of the Northern Universities, and must declare their intention, if admitted, of completing the three years' course required for a Degree.

Candidates who propose to read for a Degree in Arts must pass in Latin and one other Language at one of the qualifying examinations.

7. The selection of candidates admitted to the Training Department is determined by the results of the Matriculation Examination of the Northern Universities. Preference is given to those placed in the First Division, and who have taken alternative Higher Papers. Candidates who have passed the qualifying Examination previous to the year in which they seek admission are required to present themselves for two Alternative Papers of a Higher Standard at the Matriculation Examination of the Northern Universities, in the year in which they seek admission *(see Syllabus of the Matriculation Examination of the Northern Universities)*.

8. Candidates who have passed, or obtained exemption from, the Matriculation Examination of the Northern Universities, but who have omitted from their examination one or more of the subjects necessary for qualification must present themselves in the omitted subject or subjects before entrance. They may do this without entering again for the whole Matriculation Examination.

N.B.—All communications respecting the Matriculation Examination of the Northern Universities should be addressed to The Secretary of the Joint Matriculation Board, 24, Dover Street, Manchester.

9. Application and Testimonial Forms may be obtained from the Master of Method, The University, Leeds. Forms will be issued after October 1st in each year, and applications for admission should be made as early as possible, and in any case before the end of the following July.

RESIDENCE

10. Candidates accepted will generally come into residence at the beginning of October, but those who have had no experience in teaching will be required to begin in the practising Schools in the middle of September (*see Section 16*). They will be at liberty to reside at their own homes if these are within reasonable distance of the University.

Men students may, by permission of the Managing Committee of the Training Department, reside in lodgings which have been inspected, and are registered and subject to inspection, by the University authorities. A list of registered lodgings will be forwarded on application.

Women students who do not live with their parents or guardians are required to reside in the University Hall for Women.

TERMS

11. The Training Department session coincides nearly with that of the University, which begins in October, is divided into three terms of about eleven weeks each, and ends in June. Students in training will be engaged in practical training in schools during certain parts of the University vacations.

GRANTS AND FEES

12. The Government grant for maintenance of £25 a year for men and £20 a year for women students will be paid, at the times and in the instalments prescribed by the Board of Education, to such King's Scholars as reside at home or in registered lodgings.

All King's Scholars, with the exception of those residing in the University Hall for Women, are required to pay annually a tuition fee of £10, and also a sum of 10s. 6d., the compulsory annual fee payable for membership of the University Union.

The fee to women students residing in University Hall is £7 per term (three terms per year). This fee covers tuition, maintenance, and membership of the University Union. No Government grant for maintenance is paid to women students residing in University Hall.

The University examination fees to be paid by all King's Scholars are as follows:

Intermediate Examination in Science or Arts ...	£1
Final Examination in Science or Arts	£1
Graduation	£5

No further payment to the University will be required, but Scholars are required to provide their own books, and those who work in the University laboratories will have to supply themselves (by purchase or hire) with a small amount of scientific apparatus. The King's Scholars in residence will be admitted without additional fee to the lectures, classes, and laboratory work required for their prescribed courses of study.

EXAMINATIONS

13. All students entering the Department will attend the classes and will be required to enter for the examinations qualifying for a degree of the University.

N.B.—The attention of applicants is drawn to the following Regulation of the Board of Education:

Art. 44d.—As a condition of continued recognition a Three Year Student must in each year of the course make due progress towards obtaining his degree. No student will be regarded as making due progress unless he passes any

examination which may form an Intermediate stage in the course for a University degree not later than the time contemplated by the ordinary arrangement of the University course of study.

This imposes on students the necessity of passing the Intermediate examination for a degree at the end of the first year. Students who fail to do this can only continue to hold the King's Scholarship for one more year as non-degree students.

14. The Government certificate will be issued on the results of examinations conducted in part by the Board of Education and in part by the University. Students substitute approved University examinations for the greater part of the syllabus of the Certificate Examination conducted by the Board of Education.

N.B.—The attention of applicants is drawn to Art. 50 of the Regulations for the Training of Teachers of the Board of Education, which lays down the conditions on which University students may be certificated.

PROFESSIONAL TRAINING

15. The professional training of the students is conducted by the staff of the Department of Education. This training includes courses of lectures and written exercises in the History, Theory, and Art of Education forming part of the course for a pass degree, and attendance at exercises in Practical Teaching, supplemented by practical work in selected schools under the supervision of the professional staff.

16. Students who have had, previous to their entering the Department, no practical experience of teaching in Elementary Schools in a capacity recognised by the Board of Education, are required to spend a longer period in school practice than those who have had such practical experience.

17. Attendance on courses of instruction in Music, Drawing, Reading and Recitation, and Needlework (for women) is compulsory under the Regulations of the Board of Education. Satisfactory progress in these subjects is a condition of continued recognition and certification by the Board of Education.

Teachers for Secondary Schools

A full course of instruction in the theory and practice of education is provided for women students intending to become teachers in secondary schools. Such students attend the ordinary courses of lectures in Education and exercises in Practical Teaching, and special courses to prepare for the Diploma in Education of the University are provided as required.

Arrangements are also made for practical training in class teaching and management in certain selected secondary schools in Leeds or in the immediate neighbourhood.

The whole course may be taken in one session, or may be spread over two or three sessions.

Diploma in Education

For Regulations, see page 193.

LECTURE COURSES

F1. Education: First Year Course

Mondays and Fridays at 4 p.m.

Principles and Methods of Teaching.

Each Term—Exercise in Practical Teaching. One and a half hours a week on Thursdays at 3.15 p.m.

F2. Education: Second Year Course

A. Tuesdays and Saturdays at 9.30 a.m.

First Term—Physical education and school hygiene. School organization.

Second Term—The logical bases of education.

Third Term—The ethical foundations of moral education, with applications to school discipline.

B. Thursdays at 9.30 a.m.

Each Term—The psychological bases of education.

Each Term—Exercise in Practical Teaching. One and a half hours a week on Thursdays at 3.15 p.m.

F3. Education: Third Year Course

Course A. Tuesdays and Thursdays at 10.30 a.m. The history of educational thought in Western Europe from the Renascence to the present time, with special reference to England, and special emphasis on the Nineteenth Century.

Course B. Thursdays at 2 p.m. Plato, *Republic*, ii, iii, iv.

A discussion class on the Practice of Education will be held in the first and second terms, if a sufficient number of students wish to join it. Attendance optional. Time to be arranged.

Each Term—Exercise in Practical Teaching. One and a half hours per week on Thursdays at 3.15 p.m.

S1. Drawing and Elementary Design

This course is arranged to meet the requirements of the students in the Training Department, and consists of one lecture per week in the first and second years, together with at least one hour per week for practical work. The classes will be arranged after the beginning of the session.

Students wishing to prepare for any subjects which they may require in order to complete the Elementary Drawing Certificate of the Board of Education may do so by arrangement with the lecturer.

S2. Reading and Recitation

Classes will be held at times to be arranged.

S3. Music

For first and second year King's Scholars, on Thursdays, at 2 p.m. for choral music. Tutorial classes will be held at times to be arranged.

S4. Needlework

For first or second year King's Scholars two hours a week at times to be arranged.

DEGREE, DIPLOMAS, AND COURSES OF STUDY IN ECONOMICS AND COMMERCE

Students in the Department of Economics and Commerce may take a three years' course for the degree of Bachelor of Commerce, a two years' course for the Diploma in Commerce, or a one year's course for the Diploma in Social Organisation and Public Service, according to the ordinances and regulations which follow.

Degree of Bachelor of Commerce

1. The degree in Commerce shall be that of

Bachelor of Commerce (B. Com.).

2. All candidates for the degree of Bachelor of Commerce shall be required to have passed the Matriculation examination, with at least one modern foreign language as one of the subjects, and thereafter to have pursued approved courses of study for not less than three academic years.

3. The complete course of study for the degree of Bachelor of Commerce shall be divided into two parts, called respectively the Intermediate course and the Final course.

4. Every candidate shall be required to pass two examinations, the Intermediate and the Final.

5. The Intermediate and Final examinations shall ordinarily be held in June of each year. There shall also be a supplementary Intermediate examination in September, at which those candidates only may present themselves who have obtained the permission of the Senate.

6. Candidates who have failed at an Intermediate examination in June, and have obtained permission to present themselves at the following supplementary examination, may be excused such part of the supplementary examination as the combined examination committee, on report from the examination committee for the degree of Bachelor of Commerce, may determine.

7. All students shall be required, before presenting themselves for the Intermediate or Final examination, to furnish to the Registrar certificates testifying that they have regularly attended the prescribed courses of study, and performed the class exercises to the satisfaction of the Professor or Lecturer, in each of the subjects which they offer at the examination.

Intermediate Course and Examination

Ordinance

Every candidate shall be required, after passing the Matriculation examination, to attend during not less than one academic year approved courses of study in five subjects, viz.:

i. Economics: the outlines of the economic history of England in the Nineteenth Century, and the general elementary principles of Economics

ii. The economic geography of the British Empire

iii. A modern foreign language (French *or* German)

iv, v. *Two* of the following:

A second modern foreign language (French *or* German, whichever of the two has not been offered under iii)

Mathematics

European History from 1763,

and to pass in each of the subjects offered. The examination in each modern foreign language shall include an oral examination.

Regulation

Every candidate shall also be required to attend, during his first year, a course of lectures on Accountancy for at least one hour a week.

Final Course and Examination

Ordinance

Every candidate shall be required, except as provided in the following clause, to attend approved courses of study, extending over two years, and to pass an examination in each of the following principal subjects:

i. Economics: comprising (*a*) advanced general Economics (*b*) a special commercial or economic subject

ii. A modern foreign language (French *or* German)

iii. A second modern foreign language (French *or* German, whichever of the two has not been offered under ii)

iv. Accountancy.

The examination in each modern foreign language shall include an oral examination. An essay shall also form part of the examination.

For the second modern foreign language candidates may substitute the two following, studied each for one year as a subsidiary subject:

(*a*) The economic geography of the principal foreign countries

(*b*) Commercial Law

Candidates may take the course of study in a subsidiary subject in the first year of the Final course, and present themselves at the end of that year for examination in such subject.

N.B.—In 1913 the Intermediate and Final Examinations in June will begin about Thursday, June 12th. The latest date of entry and of payment of fees will be SATURDAY, MARCH 1st.

Diploma in Commerce

Regulations

In addition to the degree of Bachelor of Commerce the University offers a diploma in Commerce, the course of study for which extends over two years. Candidates for the diploma must have passed the Matriculation examination, with at least one modern foreign language as one of the subjects, or some other public examination, which in the opinion of the Senate is of sufficiently high standing, and must thereafter have pursued approved courses of study for not less than two years, and passed the prescribed examinations.

First Year Course and Examination

Economics

French *or* German

The economic geography of the British Empire

Accountancy
Mathematics *or* a second language *or* some other course to be approved by the Senate.

Second Year Course and Examination

I. Compulsory Subjects:

Economics, more advanced general course
French *or* German
The economic geography of the principal foreign countries
Accountancy, second year course
Commercial Law.

II. Optional Subjects:

Candidates for the diploma may also take, in their second year, an optional course in a second foreign language *or* a short course in the Textile, Engineering, or other Technological Department of the University.

Separate Classes in Commercial Subjects

Those who are unable to spare the necessary time for the acquisition of a degree or diploma in Commerce may be admitted to such of the classes in the department as may suit their requirements and their other engagements during the day, on payment of the fees for the separate classes, in addition to the registration and library fee.

Diploma in Social Organisation and Public Service

Regulations. The University offers a diploma in Social Organisation and Public Service, the course of study for which extends over one year. Candidates must be graduates of some University, or must satisfy the Senate that they have had an education and special experience that fits them for the Course. Their work will be under the supervision of the Professor of Economics as Director of the Course.

The Diploma will be given to students who have pursued the approved course of study and practical work for a year and acquitted themselves to the satisfaction of the Director.

The Course

Social Economics
Elements of Political Economy
Social Work of Public Departments and of Organised Charitable Agencies
Ethics of Citizenship
History and Principles of Social Work in England
Practical Work in connection with Charity Organisation Society, Guild of Help, Babies' Welcomes, University Working Men's Club, Yorkshire Ladies' Council of Education, Education and Public Health Authorities, etc.

Separate Classes in Social Organisation and Public Service

Those who are unable to spare the necessary time for the full diploma course are admitted to such of the classes as may suit their requirements and their other engagements on payment of the fees for the separate classes, in addition to registration and library fee. Arrangements can be made for practical work in connection with the classes.

Honours Degree in Arts

Economic and Political Science

Candidates for the Degree of Bachelor of Arts with Honours in Economic and Political Science shall be required to pursue courses of study, and to submit themselves to examination, as follows :—

The course of study for the first academic year shall include the following subjects, as for the Intermediate Examination for the Ordinary degree of B.A., (1) Latin or Greek ; (2) French or German ; (3) Modern History or English Literature, or, if not taken under (2), French or German ; (4) Political Economy ; and, in addition. (5) Economic Geography. An examination will be held in these subjects at the end of the first year, and must be passed before proceeding to further study.

(Candidates who have passed the above Intermediate examination, but are unable to continue their Honours

course, may apply to the Senate for permission to proceed to the Final Course and examination for the Ordinary degree of B.A.).

Attendance on the full course for the Intermediate examination for the degree of B.A. may also be accepted by the Senate as the required attendance for the first year of the Honours course.

During the second and third year candidates shall be required to attend approved courses in the subjects of the school of not less than five hours a week in each year.

They shall also be required to attend, during the second and third years, approved courses of lectures on other subjects, the number of lectures amounting to not less than two hours a week in each year.

Examination

Essay, one paper.
Political Economy, two papers.
Social Economy, one paper.
Recent Industrial History of England, two papers.
Political Theory, one paper.
A special subject, studied in connection with original sources of information, two papers.
The special subject may be chosen by the candidate, subject to the approval of the Board of the Faculty of Arts.

Courses of Study

The following syllabus explains more in detail the nature of the various courses.

Political Economy

Int. Intermediate Arts Class

This class is introductory, its aim being to present a picture of industrial life in its broad aspects, and to familiarise students with the use of economic terms and ideas. A study is made of (*a*) the physical basis of industry and trade, (*b*) the ideas of production, market value, distribution, competition, co-operation, national wealth and welfare, and other economic methods and relations, (*c*) the chief forms of industrial work and earnings.

Two hours a week at times to be arranged.

F1. Principles of Political Economy

The first term will be given to the study of the broad aspects of industrial development in England in recent times. This will lead up to an explanation of the chief features of the existing industrial organisation of the country. In the second and third terms this descriptive study will be used as a basis for the explanation of economic principles. The principles connected with the production and distribution of wealth; with wages, profits, interest, and rent; and the value of goods and services, will be dealt with.

Two hours a week at times to be arranged. Commercial students take this class in their first year, Arts students in their second year.

F2. Studies of Industrial Questions

This course will deal more in detail with particular departments of industrial and commercial activity. It will include such subjects as :—the money market; currency and banking; fluctuations and depressions of trade; rates, taxes, and debts; the different forms of wages; Trusts and Trade Unions; free trade and protection. The principles involved will be kept in view, but the course will also be descriptive of present conditions.

Two hours a week at times to be arranged. Commercial students take this class in their second year, Arts students in their third year.

H1. Recent Industrial History of England (1800—1900)

A course of lectures is given annually on the industrial history of England in the nineteenth century. The course includes :—(*a*) the history of land tenure, agricultural development and land legislation; (*b*) labour organisation, and legislation affecting labour; (*c*) the organisation of capital; (*d*) commerce, the tariff, and the financial system; (*e*) the development of public opinion, and the chief social teachers of the period.

Two hours a week at times to be arranged.

Social Organisation and Public Service

H2. Social Economics

This course deals with the various sides of the "social problem." The purpose of the lectures will be to explain :—(1) The results of recent enquiry, both public and private, into social conditions, and (2) the existing social legislation of the country. The problems dealt with include :—the nature and extent of poverty, the Poor Laws, trade depression, unemployment, land tenure, the growth of cities, sweating, co-partnership and co-operation, social betterment.

One hour a week during the first two terms, at a time to be arranged.

Special fee, 10s. 6d.

Elements of Political Economy

This Course deals in outline with the economic structure of society and the distribution of income. One hour a week during the first two terms, at a time to be arranged.

Social Work of Public Departments and of Organised Charitable Agencies

This course deals with the work of the Public Health and Education Departments of the Municipal Government, the Poor Law, the Labour Exchange and National Insurance organisation, Charity Organisation, and other forms of voluntary social work ; and is given by lecturers engaged in public and charities administration.

Two hours a week during first two terms, at a time to be arranged.

Ethics of Citizenship

This course deals with the nature and responsibilities of citizenship. Opportunity will be given for the discussion of Social Problems in their ethical and political aspects.

One hour a week in the third term at a time to be arranged.

Social Work

A Tutorial Class in the history and principles of Social Work in England. One hour a week during the third term at a time to be arranged.

Tutorial Instruction in Special Subjects

Tutorial instruction is given to students who wish to study in detail some special aspect of industry, commerce, or social economy. The subjects in which such instruction is given are fixed by the choice of students reading for a degree in Commerce, or an Honours degree in Arts. Examples of such subjects are:—Industrial Combination, Transport, Poor Law Administration, Foreign Trade, Industrial Peace, Municipal Trade, or the study of any particular industry.

Times to be arranged. A special subject must be taken by students for the B.Com. degree, and for the B.A. degree with Honours in Economic and Political Science.

Economic Geography

1. Intermediate Class—The United Kingdom

The physical geography of the United Kingdom, in its relation to industry and trade. The chief agricultural and pastoral areas. The railway and canal systems. The distribution of population, and the growth of manufacturing districts. The chief ports, and their hinter-lands. The main imports and exports, and their markets. The coal fields, and the sources of other raw materials.

Two hours a week, for candidates for a Degree in Arts with Honours in Political and Economic Science, at times to be arranged.

2. First Commercial Class—The British Empire

This class is similar to that on the United Kingdom. It deals with the physical conditions of the chief parts of the Empire, their chief products, and trade relations; the bearing of physical conditions on commercial federation will be considered. In addition to the United Kingdom, attention will be given to Canada, South Africa, Egypt, Australasia, and India.

Two hours a week at times to be arranged.

3. Second Commercial Class—The Chief Foreign Countries

Similar methods of study will be applied to the physical features, resources, transport systems, and trade relations of America, Germany, France, the Near East, the Far East.

Two hours a week at times to be arranged.

Agricultural Economics

A short course will be given in the Economics and Statistics of Agriculture, chiefly in the United Kingdom. The course will deal with the principles of rent, the forms of land tenure, and the returns of acreage, stock, and output of Great Britain and Ireland.

One hour a week in the second term, at a time to be arranged.

Special fee, 10s. 6d.

Labour and Capital

A course will be given in the second term for the study of Labour and Capital in modern business. This course will be non-theoretical, and is intended to meet the needs of students in the Technological departments, who wish to make a descriptive study of existing business conditions.

One hour a week at a time to be arranged.

Special fee, 10s. 6d.

Accountancy

First Year Course.—Tuesdays, 3 p.m.

Second Year Course.—Tuesdays, 4 p.m., and at a second hour to be arranged.

Third Year Course.—Hours to be arranged.

First Year: The course will deal with (1) the general principles of book-keeping, illustrated by the ordinary transactions of a merchant or manufacturer; (2) the special principle of book-keeping by double entry; (3) the books themselves—various subsidiary books, leading up to the ledger; (4) the trial balance and the various methods of

preparing it; (5) the preparation of the trading account, profit and loss account and balance sheet; (6) cheques, bills of exchange, and other important commercial documents.

Second Year: (1) Partnership accounts and other more complicated transactions; (2) the different forms of books and accounts suitable for various kinds of businesses; (3) the various methods of stock-taking; (4) the books and forms used for limited companies in connection with the share capital, debentures, &c., a study of the balance sheets of a number of companies; (5) departmental accounts; (6) the preparation of accounts required for income tax purposes.

Third Year: (1) The analysis of accounts with a view to the computation of earnings and comparison of expenses; (2) costing and cost accounts; (3) sinking funds, provision for depreciation, &c.; (4) the various methods of payment of wages and of remuneration for management; (5) limited companies—public and private—their advantages and disadvantages; (6) fixed charges and the relation of selling prices to cost prices; (7) goodwill.

Modern Languages (French and German)

In the degree course students in their first year will take the same work in languages as Arts students, including composition, translation at sight, dictation, conversation and the study of prescribed books. It is not thought desirable that the teaching should be specialised at this stage in the case of degree students.

During the second and third years, in preparation for the Final examination, students will continue some parts of the general work and teaching, but will also read specially selected books of an economic or commercial character, and they will have opportunities of studying (1) correspondence, and (2) the institutions of the country whose language they are learning.

Diploma Students must attend the Intermediate class in the first year, and the Final class in the second year. They must also attend for at least one year a commercial class.

Mathematics

The course in Mathematics will be that for the Intermediate B.A. It is intended for students who propose to enter a career such as that of an accountant, in which a mathematical training may be of special value.

Commercial Law (Law S1)

Wednesdays and Fridays at 3 p.m. throughout the session.

First Term: The general principles of the law of contract; the conception of contract in English Law; doctrine of consideration; statute of frauds; Sale of Goods Act—mistake—misrepresentation—fraud—illegality; assignment of contract, discharge of contract.

Second Term: Two independent short courses each of one hour a week: (*a*) Law of negotiable instruments; (*b*) Law of Bankruptcy.

Third Term: Two independent courses as in the second term: (*a*) Industrial Law or Law as to Employers and Employed; (*b*) Company Law.

Special fee, for the session, £3 3s.

DEGREES IN LAW

Ordinance

1. The degrees in Law shall be:

Bachelor of Laws (LL.B.)
Master of Laws (LL.M.)
Doctor of Laws (LL.D.).

Degree of Bachelor of Laws

2. All candidates for the degree of Bachelor of Laws shall be required to have passed the Matriculation examination, except those who may be exempted therefrom,[1] and thereafter to have pursued approved courses of study for not less than three academic years.

3. The complete course of study for the degree of Bachelor of Laws shall be divided into two parts, called respectively the Intermediate course and the Final course.

4. Every candidate shall be required to pass two examinations, the Intermediate and the Final.

5. The Intermediate and Final examinations shall ordinarily be held in June of each year.

6. All candidates shall be required, before presenting themselves for the Intermediate or Final examination, to furnish to the Registrar certificates testifying that they have regularly attended the prescribed courses of study in each of the subjects which they offer at the examination.

Intermediate Course and Examination

7. Every candidate shall be required, after passing the Matriculation examination or after obtaining exemption therefrom, to attend during one academic year approved courses of study, and to pass in each of the following subjects:

i. Roman Law
ii. Elements of English Law
iii. The Law and Custom of the English Constitution

1 For particulars of this examination, and conditions of exemption, apply to the Secretary, Joint Matriculation Board, 24, Dover Street, Manchester.

iv. Any subject included in the course for the Intermediate examination for the Ordinary degree of B.A. or B.Com.

Provided that candidates who are already graduates of this or any other University within the United Kingdom shall not be required to attend classes or to be examined in iv.

Regulations.

Detailed subjects of study and of examination

ROMAN LAW:

The *Institutes* of Justinian, edited by Moyle. The subjects of Intestate Succession and Procedure are to be studied in outline only. Students must, from the notes in the text book and from lectures, make themselves familiar with the general history of Roman Law, and particularly with the state of the law in the time of Gaius. Gneist's *Institutionum Syntagma.*

ELEMENTARY ENGLISH LAW:

Stephen's *Commentaries*, Vols. i, ii, iii.

LAW AND CUSTOM OF THE ENGLISH CONSTITUTION:

Dicey's *Law of the Constitution*; Anson's *Law of the Constitution*, Part I.

OTHER SUBJECTS:

See the Regulations for Intermediate courses for the Ordinary degree of B.A. and the degree of B.Com.

Final Course and Examination

Regulation. No candidate shall be permitted to enter on the Final Course, or any part thereof, until he has passed the Intermediate Examination.

Ordinance. 8. Every candidate shall be required to attend during two academic years one or other of the following courses of study, and to pass in each of the subjects of the selected course:

Course I.

i. Roman Law
ii. Jurisprudence
iii. Public *or* Private International Law.

An essay paper shall be set at the Final examination for all candidates taking this course.

Course II.

i. Property, Real and Personal (including Conveyancing)
ii. Equity (including Company Law)
iii. Common Law (including Criminal Law and Bankruptcy)
iv. Evidence and Procedure
v. Jurisprudence.

N.B.—In 1913 the Intermediate and Final examinations will begin about Thursday, June 12th. The latest date of entry and of payment of fees will be SATURDAY, MARCH 1st.

Detailed subjects of study and of examination Regulations.

Course I

ROMAN LAW :

The General History of Roman Law, including the History of the Roman Constitution ; the Principles of Roman Law as stated in the *Institutes* of Gaius and Justinian ; a selected Title or selected Titles of the *Digest*. (Title selected for 1912-13 : Book VII., Tit. I. De Usufructu.)

The following books are recommended (not prescribed) in order to show the scope of the course :

History of Roman Law : Roby's *Introduction to the Study of the Digest* ; Sohn's *Institutes of Roman Law* ; Muirhead's *Law of Rome.*

The Principles of Roman Law : Gaius, edited by Poste ; Justinian, edited by Moyle ; Roby's *Roman Private Law* ; Gneist's *Syntagma.*

JURISPRUDENCE. (Historical and Analytical) :

The following books are recommended (not prescribed) in order to show the scope of the course :

Austin's *Jurisprudence* ; Clark's *Practical Jurisprudence* ; Markby's *Elements of Law* ; Holland's *Jurisprudence* ; Maine's *Ancient Law*, *Village Communities*, *Early History of Institutions*, and *Early Law and Custom* ; Salmond's *Jurisprudence.*

INTERNATIONAL LAW :

The following books are recommended (not prescribed) in order to show the scope of the course :

(*a*) PUBLIC : Lawrence's *Principles of International Law* ; Oppenheim's *International Law* ; Maine's *Lectures on International Law* ; Pitt Cobbett's *Leading Cases in International Law* ; Grotius's *De Jure Belli et Pacis* (edited by Whewell).

(*b*) PRIVATE : Westlake's *Private International Law* ; Dicey's *The Law of Domicile* ; Foote's *Private International Jurisprudence* ; The Reported Cases.

Course II

In this course it is not thought necessary to give more detailed information than that contained in the Ordinance.

Degree of Master of Laws

Ordinance. 1. The degree of Master of Laws may be conferred on payment of the proper fee upon registered Bachelors of Laws when of not less than one year's standing from the date of their graduation as Bachelors, subject to the conditions contained in the following paragraphs.

2. Bachelors of Laws who have obtained their degree by attendance at the classes of Course I and examination in the subjects of that Course shall be required to pass an examination in the subjects of Course II. Certificates of attendance on Course II shall not be required.

3. Bachelors of Laws who have obtained the degree by attendance at the classes of Course II and examination in the subjects of that Course, shall be required to pass an examination in the subjects of Course I. Certificates of attendance in Course I shall not be required.

Regulation. The names of candidates who have passed the examination for the degree of Master of Laws shall be arranged in alphabetical order without distinction of classes.

N.B.—The Court has ordained that this Ordinance shall not apply to persons who have graduated as Bachelors of Law prior to the institution of the LL.M. degree and the consequent change in the Ordinance for the LL.D. degree. Such Bachelors may proceed to the LL.D. degree without having previously graduated as Masters of Law.

Degree of Doctor of Laws

Ordinance. 1. The degree of Doctor of Laws shall be conferred by the University upon registered Masters of Laws of the University who shall be deemed by the Senate, after considering a report from one or more of the Boards of Faculties, to have distinguished themselves by special research or learning.

Provided that the Senate may, in such cases as it shall think fit, after considering a report from one or more of the Boards of Faculties, also require candidates to pass such an examination as it may from time to time determine.

2. A Master of Laws of the University may make application for the degree of Doctor of Laws in the sixth or any subsequent year from the date of his admission to the Bachelor's degree.

3. Such application shall be made in writing to the Registrar, and shall contain a full statement of the grounds on which the claim for the degree is based, together with one or more copies of any thesis, whether in print or in manuscript, which the applicant may desire to submit in support of the application.

4. If the application be approved by the Senate, the degree may be conferred at the expiration of not less than six years from the date of admission to the Bachelor's degree.

N.B.—In 1913 the latest date of entry and of payment of fees will be SATURDAY, MARCH 1st. The LL.M. examination and the LL.D. examination, if required, will begin about Thursday, June 12th.

THE COUNCIL OF LEGAL EDUCATION

Undergraduates who have completed two years of residence at the University are excused the deposit usually required by the Inns of Court. Undergraduates may keep their terms at any of the Inns of Court by dining in Hall any *three* days (in lieu of the six days ordinarily required) in each term.

The Matriculation examination of the Universities of Manchester, Liverpool, Leeds and Sheffield is accepted in lieu of the Preliminary examination of the Inns of Court.

Graduates in Law of the University may be excused the examination in Roman Law of the Council of Legal Education.

In addition to Roman Law, the following are the subjects in which a satisfactory examination must be passed before the certificate of fitness for Call to the Bar required by the four Inns of Court can be obtained:

1. Constitutional Law and Legal History.
2. Evidence, Procedure, and Criminal Law.
3. Law of Real and Personal Property.
4. Law of Contracts and Torts.
5. Principles of Equity.

Students have the option of passing the examination in Roman Law and in Constitutional Law, or in either of those subjects, before they take the examination in the other subjects mentioned above.

THE LAW SOCIETY

The certificate of the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds and Sheffield is accepted by the Law Society in lieu of the Preliminary examination, provided Latin be one of the subjects taken.

Students who take the LL.B. degree before entering into articles are exempted from two years of service.

Graduates in Law of the University are excused the Intermediate examination of the Law Society.

The subjects prescribed by the Law Society for its Intermediate examination are Stephen's *Commentaries on the Laws of England*, (latest edition); *Book-keeping, a Lawyer's Manual of Book-keeping*, by H. Hughes Onslow and *A Guide to Trust Accounts*, by Pretor W. Chandler, both published by Butterworth & Co., 11 and 12, Bell Yard, Temple Bar, E.C.

The subjects prescribed by the Law Society for its Final examination are:

1. The Principles of the Law of Real and Personal Property and the Practice of Conveyancing.
2. The Principles of Law and Procedure in matters usually determined or administered in the Chancery Division of the High Court of Justice.
3. The Principles of Law and Procedure in matters usually determined or administered in the King's Bench Division of the High Court of Justice, and the Law and Practice of Bankruptcy.
4. The Principles of Law and Procedure in matters usually determined or administered in the Probate, Divorce, and Admiralty Division of the High Court of Justice; Ecclesiastical and Criminal Law and Practice; and Proceedings before Justices of the Peace.

DEPARTMENT OF LAW

Supported by the Yorkshire Board of Legal Studies

Professor PHILLIPS

Dr. CHAPMAN Mr. OWEN Mr. LOCKWOOD

The Law Department of the University of Leeds was founded by the Yorkshire Board of Legal Studies, assisted by the Law Society, in 1899, and is intended to afford systematic instruction throughout the academic year to students preparing for

1. The examinations for the degrees in Law of the University of Leeds,
2. The examinations of the Council of Legal Education, preparatory to call to the Bar, and
3. The examinations of the Law Society, qualifying for admission to practice as a Solicitor.

Most of the classes will also be found useful to candidates for the Law degree of the University of London.

SYLLABUS OF LECTURE COURSES

In connection with the lecture courses announced in the following pages, tutorial classes are held for which no additional fees are charged. Special tutorial classes are also provided for students preparing for the Intermediate or Final examinations of the Law Society, particulars of which are given on page 248.

In cases where the hours of the lectures and classes are not stated, arrangements will be made in accordance with the requirements of individual students and the convenience of the majority.

Professor Phillips would be glad to confer with Law students on all questions concerning their examinations, and to render them such assistance as might be in his power.

Composition Fees

Students pursuing the requisite course of study for a University degree in Laws will be charged the following composition fees:

(*a*) £9 9s. for the Intermediate course, for the session.

(*b*) £15 15s. for the Final course, to be paid at the beginning of the first year of the Final course.

Students pursuing the requisite course of study for the Final examinations of the Law Society will be charged a composition fee of £15 15s., to be paid at the beginning of the first year of the Final course.

On payment of the composition fee of £15 15s. students may enter without further payment upon both the Final LL.B. course and the Final course for the Law Society's examinations.

Students have the option of paying the separate fees of the classes selected. Candidates for the examinations of the University of Leeds must, however, comply with the University regulations as to the number of hours of weekly attendance to be given to the prescribed courses.

DEGREE OF BACHELOR OF LAWS

The courses are arranged so as to give preparation for the Intermediate examination in one session, and for the Final examination in two sessions.

Intermediate Course

1. Roman Law

PROFESSOR PHILLIPS

Mondays, at 2 p.m., throughout the session.
Fee for the course, £2 2s.

2. Elements of English Law

DR. CHAPMAN

Mondays and Thursdays, at 4 p.m., throughout the session.
Fee for the course, £3 3s.

3. The Law and Custom of the English Constitution

PROFESSOR PHILLIPS

Mondays, at 3 p.m., throughout the session.
Fee for the course, £2 2s.

4. Other Subjects

For particulars of classes in Greek, Latin, French, German, English Literature, Ancient History, Modern History, Logic, Mathematics, Physics, Chemistry, Zoology, Botany, Geology, Economics, and Economic Geography, see Courses in Arts and Science and Commerce.

Final Course

Course I

1. Roman Law

Professor PHILLIPS

Mondays and Fridays, at 10.30 a.m., throughout the session.

Fee for the course, £3 3s.

2. Jurisprudence

Professor PHILLIPS

Mondays and Fridays, at 11.30 a.m., throughout the session.

Fee for the course, £3 3s.

3. Public International Law

Professor PHILLIPS

Tuesdays and Fridays, at 2 p.m., throughout the session.

Fee for the course, £3 3s.

Course II

1. Real and Personal Property

Dr. CHAPMAN

A course of lectures of one hour a week throughout the session will be given at times to be arranged.

Fee for the course, £2 2s.

2. Equity (including Company Law)

Dr. CHAPMAN

A course of lectures on the Principles of Equity, of one hour a week throughout the session, will be given at times to be arranged.

Fee for the course, £2 2s.

3. (*a*) Common Law

Professor PHILLIPS

During the session 1912-13, a course of lectures on the Law of Torts, of one hour a week throughout the session, will be given at times to be arranged, to be followed in the next session by a course on the Law of Contract.

Fee for each course, £2 2s.

3. (*b*) Criminal Law

Professor PHILLIPS

A course of lectures on Criminal Law and Practice, of one hour a week during the session, will be given at times to be arranged.

Fee for the course, £2 2s.

3. (*c*) Bankruptcy

Professor PHILLIPS

A course of lectures on the Law and Practice of Bankruptcy, of one hour a week during the first and second terms, will be given at times to be arranged.

Fee for the course, £1 11s. 6d.

4. Evidence and Procedure

Dr. CHAPMAN

A course of lectures on Legal Evidence and Procedure, of one hour a week throughout the session, will be given at times to be arranged.

Fee for the course, £2 2s.

5. Jurisprudence

Professor PHILLIPS

A course of lectures on Jurisprudence of one hour a week throughout the session, will be given at times to be arranged.

Fee for the course, £2 2s.

EXAMINATIONS OF THE COUNCIL OF LEGAL EDUCATION

Classes 1 and 3 in the Intermediate course for the degree will prepare also for the examinations of the Council of Legal Education.

EXAMINATIONS OF THE LAW SOCIETY

Intermediate Examination

The Elements of English Law

DR. CHAPMAN

Mondays and Thursdays, at 4 p.m. throughout the session.

Subject: Stephen's *Commentaries on the Laws of England.*

This class will be mainly tutorial.

Fee for the course, £3 3s.

Classes on Criminal Law, as contained in Stephen's Commentaries, will be held in August and September at times to be arranged.

Fee for the course, £1 11s. 6d.

Bookkeeping

MR. SHAW

A course of classes in Book-keeping, of one hour a week throughout the session will be held at times to be arranged. The lectures will be based on the works prescribed by the Incorporated Law Society for their Intermediate examination.

Fee for the course, £1 11s. 6d.

Final Examination

Real and Personal Property

DR. CHAPMAN

A course of classes of one hour a week throughout the session will be held at times to be arranged.

Fee for the course, £2 2s.

Conveyancing

DR. CHAPMAN

A class for tuition in the practice of Conveyancing will be held once a week throughout the session. The time of meeting will be arranged.

Fee for the class, £2 2s.

Common Law

Professor PHILLIPS

During the session 1912-13, a course of classes on the Law of Torts, of one hour a week throughout the session, will be held at times to be arranged, to be followed in the next session by a course on the Law of Contract.

Fee for each course, £2 2s.

Equity

DR. CHAPMAN

A course of classes in the Principles of Equity, of one hour a week throughout the session, will be held at times to be arranged.

Fee for the course, £2 2s.

Bankruptcy

Professor PHILLIPS

Classes will meet once a week during the first and second terms at times to be arranged.

Fee for the course, £1 11s. 6d.

Criminal Law

Professor PHILLIPS

Classes will meet once a week during the session at times to be arranged.

Fee for the course, £2 2s.

Company Law

Professor PHILLIPS

A course of lectures on the Law and Practice of Joint Stock and other Companies will be given during the first and second terms. The class will meet once a week, at times to be arranged.

Fee for the course, £1 11s. 6d.

Equitable Procedure

DR. CHAPMAN

A class for tuition in the practice of the Chancery Division of the High Court of Justice will be held once a week during the third term, at an hour to be arranged.

Fee for the course, £1 1s.

Legal Evidence and Procedure

DR. CHAPMAN

A course of lectures on the Law of Evidence and Procedure in the King's Bench Division of the High Court of Justice will be given throughout the session. The class will meet once a week, at an hour to be arranged.

Fee for the course, £2 2s.

Probate, Divorce, and Admiralty Law

DR. CHAPMAN

A class for tuition in the principles of Law and Procedure in Probate, Divorce, Admiralty, and Ecclesiastical Cases will be held once a week throughout the session, at an hour to be arranged.

Fee for the course, £2 2s.

Law of Partnership

PROFESSOR PHILLIPS

Classes will meet once a week during the third term.

Fee for the course, £1 1s.

Ecclesiastical Law

DR. CHAPMAN

Arrangements will be made, if desired, for a class for tuition in the principles of Ecclesiastical Law.

Negotiable Instruments

PROFESSOR PHILLIPS

Classes will meet once a week during the third term.

Fee for the course, £1 1s.

Mohammedan and Romano-Dutch Law

PROFESSOR PHILLIPS

Arrangements will be made, if desired, for a class for tuition in the principles of Mohammedan and Romano-Dutch Law.

Tutorial Classes

In the case of students who are about to present themselves for the Intermediate or Final examination of the Law Society, there will be held during each term Tutorial Classes, the work of which will be revisionary. These classes will be open only to such students as have attended, or are attending, ordinary classes in the Law Department of the University, and have obtained the sanction of the Head of the Department. The Tutorial Classes of each term will be complete in themselves.

Fee for the classes, £2 2s. per term.

N.B.—This fee is not included in any composition fees.

Long Vacation Courses

Courses will be held during the months of August and September in Elementary Criminal Law, Probate, Ecclesiastical Law, and the subjects of the Intermediate and Final Tutorial Classes. The Intermediate and Final Tutorial Classes will each be held three hours a week, the course in Elementary Criminal Law two hours a week, and the courses in Probate and Ecclesiastical Law each one hour a week.

	£	s.	d.
*Fee for the Intermediate Tutorial Class ...	2	2	0
*Fee for the Final Tutorial Class	2	2	0
Fee for the Course in Elementary Criminal Law	1	11	6
Fee for the Course in Probate Law ...	1	1	0
Fee for the Course in Ecclesiastical Law ...	1	1	0

*N.B.—These fees are not included in any Composition fee.

Students reading for the Examinations of the Law Society and other Professional examinations will be admitted to the Department in any term or at the beginning of the above-mentioned courses, excepting that admission to the Tutorial Classes will be restricted to such students as have already attended, or are attending, ordinary classes.

SPECIAL CLASSES

S1. Commercial Law

PROFESSOR PHILLIPS

Wednesdays and Fridays, at 3 p.m. throughout the session.

First term: The general principles of the law of contract; the conception of contract in English Law; doctrine of consideration; statute of frauds; sale of goods Act—mistake—misrepresentation—fraud—illegality; assignment of contract, discharge of contract.

Second term: Two independent short courses each of one hour a week. (*a*) Law of negotiable instruments; (*b*) Law of Bankruptcy.

Third term: Two independent courses as in the second term:—(*a*) Industrial Law or Law as to Employers and Employed; (*b*) Company Law.

Fee for the session, £3 3s.

Law of Landlord and Tenant

A course of lectures of one hour a week during one term will be given by Dr. Chapman at times to be arranged, on the Law of Landlord and Tenant.

This course is intended for students in the Agricultural department who propose to present themselves for the examinations of the Surveyors' Institution in Sub-Division I, "chiefly land agency."

Special fee for the course, 10s. 6d.

Military Law

A course of lectures on Military Law, of one hour a week will be held during the second term, and, if desired, during the other terms, at a special fee of 10/6 per term.

This course is primarily intended for members of the Officers' Training Corps, but it will also be open to solicitors, barristers, and other members of the outside public who may care to attend.

Mining Legislation and Mining Economics.

Arrangements are being made for courses of lectures on Mining Legislation and Mining Economics, details of which will be found under the department of Mining.

LAW CLASSES AT HULL

MR. OWEN MR. LOCKWOOD

During the first and second terms two lectures a week are given on Stephen's *Commentaries* preparatory for the Intermediate examination of the Law Society, and two lectures a week on certain subjects preparatory for the Final examination of the Law Society.

Fee for each course, £1 1s.

EXTENSION LECTURES IN LAW

Extension lectures in Law subjects may be arranged by Local Committees. For particulars see the special Prospectus of Extension lectures.

RAILWAY FARES

The Yorkshire Board of Legal Studies will pay half the 3rd Class Railway Fares of Articled Clerks coming from a distance to Leeds, to attend the Law classes at the University during session 1912-13.

Applications for repayment of the amount expended should be sent in at the close of the session, addressed to the Treasurer, Herbert Denison, Esq., 10, East Parade, Leeds.

N.B.—Attention is directed to the fact that the University supplies courses on General Bookkeeping, Solicitors' Bookkeeping, and Trust Accounts, and that the books prescribed by the Law Society are used in this connection.

DEGREES IN SCIENCE

Ordinance.

1. The degrees in Science shall be :
Bachelor of Science (B.Sc.)
Master of Science (M.Sc.)
Doctor of Science (D.Sc.).

DEGREE OF BACHELOR OF SCIENCE

2. The degree of Bachelor of Science shall be conferred either as an Ordinary degree or as a degree with Honours.

3. All candidates for the degree of Bachelor of Science shall be required to have passed the Matriculation examination, and thereafter to have pursued approved courses of study for not less than three academic years.

Ordinary Degree of Bachelor of Science

4. The complete course of study for the Ordinary degree of Bachelor of Science shall be divided into two parts, called respectively the Intermediate course and the Final course.

5. Every candidate shall be required to pass two examinations, the Intermediate and the Final.

6. The Intermediate and Final examinations shall ordinarily be held in June of each year. There shall also be a supplementary Intermediate examination in September, at which those candidates only may present themselves who have obtained the permission of the Senate.

7. Candidates who have failed at an Intermediate examination in June, and have obtained permission to present themselves at the following supplementary examination, may be excused such part of the supplementary examination as the combined examination committee, on report from the examination committee concerned, may determine.

8. All candidates shall be required, before presenting themselves for the Intermediate or Final examination, to furnish to the Registrar certificates testifying that they have regularly attended the prescribed courses of study, and performed the class exercises to the satisfaction of the Professor or Lecturer, in each of the subjects which they offer at the examination. Some modification of the amount

of attendance required may, in exceptional cases, be made by the Vice-Chancellor, on the recommendation of the head of the department concerned.

9. The proficiency of candidates in laboratory work may be determined by inspection of their laboratory note books and the consideration of terminal or sessional reports from their laboratory teachers. Candidates may also be called upon to undergo a special practical examination at the Intermediate and Final stages of the degree course.

It shall always be in the power of the External Examiner to impose a practical or *vivâ voce* examination on such occasions as he may think desirable.

Intermediate Course and Examination

10. Every candidate shall be required, after passing the Matriculation examination, to attend during not less than one academic year approved courses of study in three subjects, viz.:

Physics
Two of the following:
Mathematics
Chemistry
Zoology
Botany
Geology,

and to pass in each of the subjects selected.

Candidates who propose to take an Applied Science (see section 15) in the Final course must pass in the subjects of the Intermediate course specified in section 20.

11. Every candidate is further required, at some time during his course, to attend an approved course of study and pass in an additional subject at the Intermediate standard, selected from the following: Greek, Latin, French, German, English Literature, Ancient or Modern History, Logic, Economics, Economic Geography, Mathematics, Chemistry, Zoology, Botany, Geology. In the case of candidates taking an Applied Science as a principal subject in the Final course (section 20 below), this list is increased by the addition of Applied Mechanics and General Engineering.

12. A descriptive essay relative to the scientific or technical work of the candidates will be set as part of the Intermediate examination, and will be examined by the Examiners in English in co-operation with the Examiners in the scientific department concerned, and in the event of a student failing in this portion of the Intermediate examination, he shall be permitted to take it again at any subsequent Intermediate examination.

N.B.—In 1913 the Intermediate and Final examinations in June will begin on Thursday, June 12th. The latest date of entry and of payment of fees will be SATURDAY, MARCH 1st.

Detailed subjects of study and of examination

The scope of the work required may be understood from the following references to the courses of study preparing for this examination (see pages 290, etc.). The amount of laboratory work mentioned below is that ordinarily required. It may be varied on special grounds with the sanction of the Senate. Regulations.

MATHEMATICS: Intermediate Course.

PHYSICS:
CHEMISTRY:
ZOOLOGY:
BOTANY:
GEOLOGY:
} Intermediate Course. Laboratory work, three hours a week.

APPLIED MECHANICS: The work covered by Part I of Engineering Course I, together with graphical constructions, strength of materials, transmission of power and mechanics of machines as given in Engineering Course VI.

GENERAL ENGINEERING: Course II *A*, with Engineering Drawing.

GREEK, LATIN, FRENCH, GERMAN, ENGLISH LITERATURE, ANCIENT OR MODERN HISTORY, LOGIC, ECONOMICS, ECONOMIC GEOGRAPHY: The same as for Intermediate Arts.

Candidates who have passed the Intermediate examination for the degree of Bachelor of Science in Chemistry, Physics, Zoology and Botany will, on payment of the required additional fee, be regarded as having passed the First examination for the degrees of Bachelor of Medicine and Bachelor of Surgery.

Candidates who have not passed in all the above four subjects will be required to pass at the Intermediate examination or at the First examination in such subjects as they have omitted before being regarded as having passed the First examination for the degrees of Bachelor of Medicine and Bachelor of Surgery.

The Zoology and Botany portions of the subject Biology of the First examination shall for this purpose be considered separate subjects.

Final Course and Examination

Regulation. No candidate shall be permitted to enter for the Final examination, or any part thereof, until he has passed the three subjects of the Intermediate examination prescribed in Clause 10 of the Ordinance. In special cases, this prohibition may be waived by the Senate, acting on the recommendation of the head of the department concerned.

Ordinance. 13. Every candidate will be required to attend approved courses of study either in two principal subjects, or in one principal subject and two subsidiary subjects, provided that the same subject shall not be taken both as a principal and a subsidiary subject.

14. The course of study in each principal subject shall extend over at least two years beyond the Intermediate standard, and the course of study in a subsidiary subject shall extend over at least one year beyond the Intermediate standard.

Principal Subjects

15. The principal subjects shall be selected from the following lists:

Pure Sciences:

Mathematics
Physics
Chemistry
Zoology
Botany
Physiology
Geology.

Applied Sciences:

Mechanical Engineering
Civil Engineering
Electrical Engineering
Mining Engineering
Gas Engineering
Fuel and Metallurgy
Agriculture
Applied Chemistry (Colour Chemistry and Dyeing)
Applied Chemistry (Chemistry of Leather Manufacture).

Every candidate taking Physics as a principal subject is required to have passed in Mechanics at the Matriculation examination, or to satisfy the Professor of Physics that he possesses an adequate knowledge of the subject.

In the event of Physiology being chosen as a principal subject, the second principal subject or the two subsidiary subjects shall be chosen from among the following: Physics, Chemistry, Zoology, Botany. In any case, six months' instruction in Human Anatomy will be required.

Every candidate taking an Applied Science as a principal subject is required to pursue one of the courses specified in section 20.

Subsidiary Subjects

16. The subsidiary subjects shall be selected from the following list:

Mathematics P (Pure)
Mathematics PA (Pure and Applied)
Physics
Chemistry
Zoology
Botany
Physiology
Geology
Human Anatomy
Bacteriology
Education (including the teaching of Elementary Science).

Mathematics P and PA cannot be taken together as subsidiary subjects.

17. The following subjects shall rank as subsidiary subjects in connection with courses where Mechanical or Civil or Electrical or Mining Engineering is taken as a principal subject:

Mechanical Engineering
Civil Engineering
Electrical Engineering
Mining Engineering.

18. The course of study in the subsidiary subjects may be taken either in the first or second year of the Final course.

19. Candidates who have attended, during the first year of their Final course, the prescribed course of study in a subsidiary subject, may present themselves in June of that year for examination in such subsidiary subject. When Education is taken as a subsidiary subject, part of the examination may be taken at the end of each of the two years of the Final course. Candidates who fail to satisfy the examiners in such parts of the Final examination as they have taken at the end of the first year of their Final course shall be required to repeat this part of the examination at a subsequent June examination.

Courses for candidates taking an Applied Science

20. Candidates selecting an Applied Science as a principal subject are required to attend courses of study and to present themselves for examination in definite subjects, as specified below:

Mechanical Engineering:

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate standard, Applied Mechanics.

Final—Principal subject, Mechanical Engineering; subsidiary subjects, Mathematics, and either Physics or Civil or Electrical or Mining Engineering, but in any case the candidate shall produce a certificate of having satisfactorily attended a prescribed course in Physics.

Civil Engineering:

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate standard, Applied Mechanics.

Final—Principal subject, Civil Engineering; subsidiary subjects, Mathematics, and either Geology or Mechanical or Electrical or Mining Engineering, but in any case the candidate shall produce a certificate of having satisfactorily attended a prescribed course in Geology.

Electrical Engineering:

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate standard, Applied Mechanics.

Final—Principal subject, Electrical Engineering; subsidiary subjects, Mathematics, and either Physics or Mechanical or Civil or Mining Engineering, but in any case the candidate shall produce a certificate of having satisfactorily attended a prescribed course in Physics.

Mining Engineering:

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate standard, Applied Mechanics.

Final—Principal subject, Mining Engineering; subsidiary subjects, two of the following: Mathematics, Geology, Mechanical, or Electrical Engineering, but candidates shall produce certificates of having satisfactorily attended prescribed courses of study in each of these four subjects.

Gas Engineering:

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate Standard; Applied Mechanics.

Final—Principal subject, Gas Engineering; subsidiary subjects, Chemistry and Engineering.

Fuel and Metallurgy:

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate standard, Applied Mechanics.

Final—Principal subject, Fuel and Metallurgy; subsidiary subjects, Chemistry and Mechanical Engineering.

Agriculture:

Intermediate—Physics, and two of the following: Chemistry, Zoology, Botany, Geology; together with an additional subject at Intermediate standard (see section 11).

Final—Agriculture, as principal subject, together with one of the pure sciences specified under section 15 above as the second principal subject, or two of the pure sciences specified under section 16 as subsidiary subjects.

Applied Chemistry (Colour Chemistry and Dyeing):

Intermediate—Mathematics, Physics, and Chemistry; additional subject at Intermediate standard, General Engineering.

Final—Two principal subjects, viz.: Colour Chemistry and Dyeing, and Chemistry.

Candidates presenting Applied Chemistry (Colour Chemistry and Dyeing) may not present this subject, except with the special permission of the Senate, until the end of the fourth year of study. Such candidates may take the examination in Chemistry at the end of the second year.

Applied Chemistry (Chemistry of Leather Manufacture):

Intermediate—Physics, and two of the following: Mathematics, Chemistry, Zoology, Botany, and an additional subject at Intermediate standard (see section 11).

Final—Two principal subjects, viz.: Chemistry of Leather Manufacture, and Chemistry.

Detailed subjects of study and of examination

Regulations.

In the Final examination a paper will be set containing passages of French and German for translation into English, relating to the principal subject or subjects of a candidate's degree course. All candidates will be required to take this paper, and credit will be given for correct renderings of such passages. In the case of candidates who have passed neither in French nor in German at the Matriculation examination, and who have passed neither in French nor in German as an additional subject at the Intermediate standard, it shall be obligatory to satisfy the Examiners in the translation of one of the aforesaid passages from either French or German. In the case of students pursuing a Degree Course for Colour Chemistry, this paper must be presented at the examination held at the end of the third year of study; students, however, who fail in this part of the examination, may present the subject again in the further examination held at the end of the fourth year.

The scope of the work required may be understood from the following references to the courses of study preparing for this examination (see pages 290, etc.) The amount of laboratory work mentioned below is that ordinarily required. It may be varied on special grounds, with the sanction of the Senate.

I. Principal Subjects, studied for Two Years

MATHEMATICS: Courses F1, F2, and F3.

PHYSICS: Courses F1 and F2. Laboratory work, six hours a week for two sessions.

CHEMISTRY: *Three* of the Courses F1, F2, F3, H1 and H3. Laboratory work, twelve hours a week for two sessions.

ZOOLOGY: Course F1 (*A* and *B*). Laboratory work, nine hours a week for two sessions.

BOTANY: Course F1 (*A* and *B*). Laboratory work, six hours a week for two sessions.

PHYSIOLOGY: Courses I, II, and IV.

GEOLOGY: Courses F1 and F2, and *one* of courses F3, F4, and F5. Laboratory work, six hours a week for two sessions, together with an approved course of Field Geology.

MECHANICAL ENGINEERING: Courses I, VI, VII, VIII, VIII a, VIII b, and IX.

CIVIL ENGINEERING: Courses I, III, IV, VI (the parts relating to graphical constructions, strength of materials, air, transmission of power, and hydraulics), VII (the parts relating to hydraulics and compressed air), VIII, VIII a, VIII b, and IX.

ELECTRICAL ENGINEERING: Courses I, II, III, and IV. Laboratory work, nine hours a week for two sessions.

MINING ENGINEERING: Courses I and II. Practical work, fifteen hours a week for one session.

GAS ENGINEERING: Fuel and Metallurgy courses I, II, and III, together with the special course in By-Product Coking and on the Manufacture of Coal Gas. Laboratory work, six hours a week in the second year, and twenty-four hours a week in the third year.

FUEL AND METALLURGY: Courses I, II, IV (*A* and *C* or *B* and *C*) together with the special course on By-Product Coking. Laboratory work, six hours a week in the second year, and twenty-four hours a week during the third year.

AGRICULTURE: General Agricultural courses, and special courses in *two* of the following:—Agricultural Chemistry, practical work, six hours a week for four terms; Agricultural Botany, practical work, thirty-six hours; Agricultural Zoology, practical work, thirty-six hours; Agricultural Geology, practical work, thirty-six hours; Veterinary Science; Surveying, practical work, thirty-six hours. Practical work equivalent to 130 days of six hours each at the Manor Farm, Garforth.

APPLIED CHEMISTRY (COLOUR CHEMISTRY AND DYEING): Courses I, III, IV, V, VI, and VII. Laboratory work, equal to twelve hours a week for two sessions.

APPLIED CHEMISTRY (CHEMISTRY OF LEATHER MANUFACTURE): Courses I, II, III, IV, V, and VI. Laboratory work, twelve hours a week for two sessions.

II. Subsidiary Subjects, studied for One Year

MATHEMATICS P (PURE): Course F2.

MATHEMATICS PA (PURE AND APPLIED): Courses F1 and F2.

PHYSICS: Course F1. Laboratory work, six hours a week for one session.

CHEMISTRY: Course F1 or F2 or F3. Laboratory work, twelve hours a week for one session.

ZOOLOGY: Course F1, either *A* or *B*. Laboratory work, six hours a week for one session.

BOTANY: Course F1, either *A* or *B*. Laboratory work, six hours a week for one session.

PHYSIOLOGY: Courses I and IV.

GEOLOGY: Course F1. Laboratory work, six hours a week for one session, together with an approved course of Field Geology.

HUMAN ANATOMY: Courses I (Part I) and II.

BACTERIOLOGY: Course I. Laboratory work, forty-five hours during one session.

EDUCATION: Parts I and II. Instruction in the method of teaching elementary science will be regarded as equivalent to laboratory attendance (three years' course).

MECHANICAL ENGINEERING: Courses VI, VIII, and IX.

CIVIL ENGINEERING: Portions of Courses III, IV, VIII, and VIII a.

ELECTRICAL ENGINEERING: Course Ia. Practical work, three hours a week for two terms.

MINING ENGINEERING: Course II. Practical work (either Mine Surveying, or Ore Dressing, or Assaying), six hours a week for one session.

Degree of Bachelor of Science with Honours

1. The degree of Bachelor of Science with Honours will be awarded in the following subjects: Ordinance.

Mathematics
Physics
Chemistry
Zoology
Botany
Physiology
Geology
Civil Engineering
Mechanical Engineering
Electrical Engineering
Mining Engineering
Gas Engineering.
Fuel and Metallurgy.
Applied Chemistry (Chemistry of Leather Manufacture)
Applied Chemistry (Colour Chemistry and Dyeing)
Agriculture.

2. Candidates will be required to present certificates of attendance upon approved courses of study extending over three or four years, as defined under the regulations for each

Honours School. Such certificates of attendance shall only be granted when the candidate has regularly attended to the work of the classes and has acquitted himself satisfactorily at the class examinations.

3. Candidates for admission to an Honours examination will be required to have passed the Intermediate and the Final examinations as prescribed for the Ordinary Degree of B.Sc., subject to the qualifications contained in the Clauses 5 and 6 *infra*.

4. Such candidates as, prior to entrance to the University, declare their intention of proceeding to the degree of B.Sc. with Honours in one of the Honours Schools, may be admitted to the Intermediate examination prescribed in the Regulations for the Honours School in question, without previous attendance at the University. In this case, they will be required to pass simultaneously in all of the three subjects prescribed, and will also be required then or during their course of study to pass the examination in a fourth subject at the Intermediate stage as required by Ordinance.

5. Candidates who have not passed the Intermediate examination prior to entrance at the University shall be required to pursue courses of instruction in the subjects of the Intermediate examination (including the fourth, or additional subject) as prescribed in the regulations of the several Honours Schools, but (*a*) they shall not be required to pass simultaneously in all the subjects prescribed at the Intermediate examination, and (*b*) they shall be excused from presenting themselves at the Intermediate examination in any subject which they will subsequently offer at a higher standard.

6. All candidates shall be required to pursue courses of instruction in the subjects of the Final examination as prescribed in the regulations of the several Honours Schools, but they shall be excused from presenting themselves for examination in any subject which they will subsequently offer at a higher standard.

7. A special Honours examination, hereinafter called the Honours examination, shall be held in the subjects of the Honours stage.

8. Candidates who shall present evidence satisfactory to the Senate that they are qualified to enter upon a course of research may receive permission to pursue such a course, and to offer a thesis of their work in place of part or the whole of the Honours examination; but no candidate shall be excused the whole of the Honours examination unless he has satisfied the examiners in the subject of his Honours School as a principal subject for the Ordinary degree, in addition to the one principal subject or two subsidiary subjects required for such degree.

Each application for the recognition of research work must be made to the Senate not later than the last day of the October preceding the Honours examination, together with a statement of the intended subject of research, and a summary of the course of work actually pursued must be sent in to the examiners not later than the first day of the May preceding the Honours examination.

Candidates whose thesis does not satisfy the examiners shall not receive the Honours degree, but may be recommended for the Ordinary degree.

9. Names of candidates who have passed the examination for the degree of Bachelor with Honours will be published in such form as to distinguish the Honours School in which severally they may have passed; the names of those who have passed in Honours being drawn up in three classes, and each class being arranged in alphabetical order.

10. Candidates who have not acquitted themselves so as to deserve Honours, but have reached the standard of the Ordinary degree, may be recommended for that degree.

11. Candidates who have passed the examination for the Ordinary degree of Bachelor of Science may (during the succeeding year or the two years immediately succeeding) proceed with the course of study in an Honours School.

12. Every candidate for the degree of Bachelor of Science with Honours shall be required to present himself for examination at the end of the third or fourth academic year from the time when he has entered upon one of the courses of instruction approved by the University for such degree, unless he shall present a medical certificate of illness

satisfactory to the Senate. This examination shall ordinarily be held in June of each year.

13. Students who have passed the Final examination in any of the Honours Schools shall be admitted to the Final examination in any other Honours School after the expiration of one or two years, on presenting certificates of having attended, during the period in question, courses approved by the University, provided that in the said other Honours School candidates shall not present themselves for the examination more than two academic years after the examination in Honours already passed by them, and also that no candidate be admitted to examination in any Honours School after a longer period than five years has elapsed since the date of his first entrance upon a prescribed course of study for an Honours School.

14. Candidates who have passed the Second M.B. examination may, with the sanction of the Senate, and on furnishing certificates of having during the academical year following such Second M.B. examination attended the third year's, or during the two academical years following such Second M.B. examination of having attended the second and third year's course approved by the University for one of its Honours Schools in Science, present themselves for examination for a B.Sc. degree with Honours in such school.

N.B.—In 1913 the Honours examination will begin in the second or third week in June. The latest date of entry and of payment of fees for candidates presenting themselves for examination, will be SATURDAY, MARCH 1st. Candidates who have received permission to offer a thesis in place of part or the whole of the examination must make their entry and pay the prescribed fee not later than THURSDAY, MAY 1st. The thesis must be sent in to the examiners not later than SATURDAY, MAY 31st.

Prescribed Courses of Study

Regulations. The following regulations apply to candidates who have not passed the Intermediate examination before entering the University. Candidates who have already satisfied the requirements of that examination will be exempted from attendance at the Intermediate classes in the subjects in which they have passed. It should be noted that preparation for the additional Intermediate subject is not mentioned

in the following schemes, as it may be taken at such time in the undergraduate course as is most convenient to the candidate.

Laboratory work will be required in each subject, except Mathematics. The amount required in each Honours subject will be prescribed by the Professor, with the sanction of the Board of the Faculties of Science and Technology. In the remaining subjects offered by candidates laboratory work will also be required, the amount being that prescribed for such subjects at the Intermediate and Final stage of the Ordinary degree.

In the following regulations the words *Intermediate course* or *examination* and *Final course* or *examination* indicate respectively the Intermediate and the Final courses or examinations for the Ordinary degree of Bachelor of Science.

In the Final examination a paper will be set containing passages of French and German for translation into English, relating to the subject in which the candidate is presenting himself for Honours. All candidates will be required to take this paper, and credit will be given for correct renderings of such passages. In the case of candidates who have passed neither in French nor in German at the Matriculation examination, and who have passed neither in French nor in German as an additional subject at the Intermediate standard, it shall be obligatory to satisfy the Examiners in the translation of one of the aforesaid passages from either French or German.

The Courses set forth in the following schedules are those that will ordinarily be taken by Honours students, but they may be modified by the Vice-Chancellor in the case of any individual student on the recommendation of the head of the department concerned.

Mathematics[1]

EXAMINATIONS PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

(*a*) *Intermediate Examination* (together with additional subject and essay):

Mathematics, Physics, and *one* of the following, viz.: Chemistry, Zoology, Botany, Geology.

[1]The standard for the Honours degree in this subject may be taken as equivalent to two years' study beyond that required for the Ordinary degree.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

(*b*) *Final Examination*:

Physics as a second principal subject.

(*c*) *Honours Examination.*

Ten papers will be set on the following subjects:

PURE MATHEMATICS:

Pure Geometry, plane and solid
Algebra
Theory of Equations and Determinants
Plane Trigonometry
Spherical Trigonometry with simple applications to Astronomy
Analytical Geometry of two and of three dimensions
Elements of Projective Geometry
Differential Calculus with applications to plane curves
Integral Calculus
Ordinary Differential Equations
Partial Differential Equations of the first order
Finite Differences.

APPLIED MATHEMATICS:

Dynamics of a particle
Statics
Attractions
Dynamics of rigid bodies
Hydrostatics
Elementary Hydrodynamics
Elementary Theory of Sound.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

For full particulars of these lecture courses see Courses in Science set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

THREE YEARS' COURSE.

First year: Mathematics F2 and F3, Physics Int., and *one* of the following, viz.: Chemistry Int., Zoology Int., Botany Int., Geology Int.

Second year: Mathematics H1 and H2, Physics F1 and F2.

Third year: Mathematics H1 and H2.

FOUR YEARS' COURSE.

First year: Mathematics Int. and F1, Physics Int., and *one* of the following, viz.: Chemistry Int., Zoology Int., Botany Int, Geology Int.

Second year: Mathematics F2 and F3, Physics F1 and F2.

Third and Fourth years: Mathematics H1 and H2.

Physics

EXAMINATIONS PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

(*a*) *Intermediate Examination* (together with additional subject and essay):

Physics, Mathematics, and Chemistry.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

(*b*) *Final Examination*:

Mathematics as a second principal subject.

(*c*) *Honours Examination.*

Experimental and Theoretical Physics, requiring a knowledge of the Calculus, three papers.

One of the following:

Mathematical Physics, more advanced portions, one paper.
Physical Chemistry, one paper.
Technical Electricity, one paper.

Practical examination in the Physical laboratory extending over two days.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

For full particulars of these lecture courses see Courses in Science set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

THREE YEARS' COURSE.

First year: Physics Int. and F1, Mathematics F1 and F2, Chemistry F1.

Second year: Physics F2 and H, Mathematics F2 and F3.

Third year: Physics H.

FOUR YEARS' COURSE.

First year: Physics Int., Mathematics Int. and F1, Chemistry Int.

Second year: Physics F1 and F2, Mathematics F2 and F3.

Third and Fourth Years: Physics H.

Chemistry

EXAMINATIONS PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

(*a*) *Intermediate Examination* (together with additional subject and essay):

Physics, Mathematics, and Chemistry.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

(*b*) *Final Examination*:

Physics as a second principal subject,

or

Mathematics and Physics as subsidiary subjects.

(*c*) *Honours Examination.*

Inorganic Chemistry, one paper
Organic Chemistry, one paper
Physical Chemistry, one paper
History of Chemistry and of Chemical Philosophy, one paper
One of the following optional subjects:
Electro-chemistry, one paper
Chemistry of Food and Drugs, one paper.
Colour Chemistry and Dyeing, one paper
Chemistry of Leather Manufacture, one paper
Fuel and Metallurgy, one paper
Physiological Chemistry, one paper.
Agricultural Chemistry, one paper
A branch of Physics, one paper
Mineralogy and Crystallography, one paper
Mechanical Engineering, one paper.
Practical examination in the laboratory, extending over three days.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

For full particulars of these lecture courses see Courses in Science set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

THREE YEARS' COURSE.

First year: Physics Int., Mathematics Int., Chemistry F1 *or* F2.

Second and Third years: Chemistry F1 *or* F2, F3, and H1, H2, H3, H4, and the classes required for the optional subject, together with *either*

(1) Mathematics F2 and Physics F1, *or*

(2) Physics F1 and F2.

FOUR YEARS' COURSE.

First year: Physics Int., Mathematics Int, Chemistry Int.

Second and Third Years: Chemistry F1, F2, F3, together with *either*

(1) Mathematics F2 and Physics F1, *or*

(2) Physics F1 and F2.

Fourth year: Chemistry H1, H2, H3, H4, and the classes required for the optional subject.

Zoology.

EXAMINATIONS PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

(*a*) *Intermediate Examination* (together with additional subject and essay):

Zoology, Physics, and *one* of the following, viz.: Mathematics, Chemistry, Botany, Geology.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

(*b*) *Final Examination*:

A second principal subject,

or

Two subsidiary subjects.

(*c*) *Honours Examination*:

One or more of the subjects named below may be selected, or the candidate may propose other subjects for the approval of the Senate. The subjects must be sent in not later than the last day of the October preceding the examination. A summary of the course of study actually gone through must be sent in to the examiners during the following April.

The Honours examination may be taken in the same year as the Ordinary B.Sc., or a year later. It will extend over four days, one (or more) of which will be occupied with practical work. There will be a *viva voce* examination.

A thesis, founded upon original research, may be sent in either alone, or together with one or more special subjects for examination.

Subjects, one or more of which may be selected for an Honours course in Zoology:

(*a*) The comparative anatomy, or general zoology, of some large and important group of animals.

(*b*) Comparative embryology.

(*c*) Palæontology, with special reference to some large and important group of animals.

(*d*) Variation and Heredity.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

For full particulars of these lecture courses see Courses in Science set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

*FOUR YEARS' COURSE.

First year: Zoology Int., Physics Int., and *one* of the following, viz.: Mathematics Int., Chemistry Int., Botany Int., Geology Int.

Second and third years: Zoology F1 (A *and* B), together with courses in a second principal subject, *or* two subsidiary subjects.

Fourth year: Honours work in Zoology.

Botany

EXAMINATIONS PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

(*a*) *Intermediate Examination* (together with additional subject and essay):

Botany, Physics, and *one* of the following, viz.: Mathematics, Chemistry, Zoology, Geology.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

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*This Course may, in special circumstances, be shortened to three years, on the sanction of the Head of the department.

(*b*) *Final Examination*:

A second principal subject,

or

Two subsidiary subjects.

(*c*) *Honours Examination.*

One or more of the subjects named below may be selected, or the candidate may propose other subjects for the approval of the Senate. The subjects must be sent in not later than the last day of the October preceding the examination. A summary of the course of study actually gone through must be sent in to the examiners during the following April.

The Honours examination may be taken in the same year as the Ordinary B.Sc., or a year later. It will extend over four days, one (or more) of which will be occupied with practical work. There will be a *viva voce* examination.

A thesis, founded upon original research, may be sent in either alone, or together with one or more special subjects for examination.

Subjects, one or more of which may be selected for an Honours course in Botany:

(*a*) Special study of a selected group of plants
(*b*) Ecology of a selected group
(*c*) Cytology
(*d*) Fossil Botany.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

For full particulars of these lecture courses see Courses in Science set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

*FOUR YEARS' COURSE.

First year: Botany Int., Physics Int., and *one* of the following, viz: Mathematics Int., Chemistry Int., Zoology Int., Geology Int.

Second and Third years: Botany F1 (A *and* B) together with courses in a second principal subject *or* two subsidiary subjects.

Fourth year: Honours work in Botany.

*This Course may, in special circumstances, be shortened to three years, on the sanction of the Head of the department.

Physiology

EXAMINATION PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

(*a*) *Intermediate Examination* (together with additional subject and essay):

Physics, and *two* of the following, viz: Mathematics, Chemistry, Zoology, Botany, Geology.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

(*b*) *Final Examination*:

If a three years course is taken,

Two subsidiary subjects, selected from Physics, Chemistry, Zoology, Bacteriology, but *one* of the selected subjects must be *either* Physics *or* Chemistry.

If a four years' course is taken,

One principal subject, selected from Physics, Chemistry, Zoology.

(*c*) *Honours Examination*:

Physiology, three papers

Practical examination in the laboratory, extending over two days.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

For full particulars of these lecture courses see Courses in Science set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

THREE YEARS' COURSE.

First year: Physics Int., and *two* of the following, viz.: Mathematics Int., Chemistry Int., Zoology Int., Botany Int., Geology Int.

Second year: Physiology I and II, together with *two* of the following, viz.:

(1) Physics F1

(2) Chemistry F1 *or* F2 *or* F3 *or* H3

(3) Zoology F1 (A *or* B)
(4) Bacteriology I
one of which shall be *either* Physics *or* Chemistry.

Third year: Honours work in Physiology.

FOUR YEARS' COURSE.

First year: Physics Int., and *two* of the following, viz.: Mathematics Int., Chemistry Int., Zoology Int., Botany Int., Geology Int.

Second and Third Years: Physiology I and II, together with *one* of the following, viz.:
(1) Physics F1 and F2
(2) Chemistry F1, F2, F3, and H3
(3) Zoology F1 (A and B).

Fourth Year: Honours work in Physiology.

As part of both the three years' and the four years' courses candidates will be required to have attended satisfactorily an approved course of instruction in Human Anatomy or in Comparative Anatomy.

Geology

In this school there are alternative schemes of study, Scheme A—Physical, and Scheme B—Biological.

SCHEME A (PHYSICAL)

EXAMINATIONS PRESCRIBED FOR STUDENTS TAKING SCHEME A.

(*a*) *Intermediate Examination* (together with additional subject and essay):
Geology, Physics, and *one* of the following, viz.: Mathematics, Chemistry, Zoology, Botany.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

(*b*) *Final Examination*:
If a three years' course is taken,
Chemistry as a second principal subject,
or
Physics and Chemistry as subsidiary subjects.
If a four years' course is taken,
Physics and Chemistry as subsidiary subjects.

(*c*) *Honours Examination.*

Geology, two papers
Petrology, one paper
Elementary Mineralogy, one paper
A special paper on the subject of research selected by the candidate
Practical examination in the laboratory, extending over two days.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING SCHEME A.

For full particulars of these lecture courses see Courses in Science set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

THREE YEARS' COURSE.

First year: Geology Int., Physics Int., and *one* of the following, viz.: Mathematics Int., Chemistry Int., Zoology Int., Botany Int.

Second and Third Years: Geology F1, F2, F5, and H1, with research, together with *either*

(1) (*a*) Chemistry F1 *or* F2, or (*b*) Chemistry F3, or (*c*) Chemistry H3, and Physics F1,

or

(2) Chemistry F1, F2, F3 and H3.

FOUR YEARS' COURSE.

First year: Geology Int., Physics Int., and *one* of the following, viz.: Mathematics Int., Chemistry Int., Zoology Int., Botany Int.

Second and Third years: Geology F1 and F4, Physics F1, Chemistry F1 or F2 or F3 or H3.

Fourth year: Geology F5 and H1, with research.

SCHEME B (BIOLOGICAL)

EXAMINATIONS PRESCRIBED FOR STUDENTS TAKING SCHEME B.

(*a*) *Intermediate Examination* (together with additional subject and essay):

Geology, Physics, and *one* of the following, viz.: Mathematics, Chemistry, Zoology, Botany.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

(*b*) *Final Examination*:

If a three years' course is taken,
Two subsidiary subjects, selected from Chemistry, Zoology, Botany.

If a four years' course is taken,
Zoology or Botany as a second principal subject,
or
Two subsidiary subjects, selected from Chemistry, Zoology, Botany.

(*c*) *Honours Examination*:

Geology, one paper
Palæontology, one paper
Palæobotany, one paper
Special paper on the subject of research selected by the candidate
Practical examination in the laboratory, extending over two days.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING SCHEME B.

For full particulars of these lecture courses see Courses in Science set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

THREE YEARS' COURSE.

First year: Geology Int., Physics Int., and *one* of the following, viz.: Mathematics Int., Chemistry Int., Zoology Int., Botany Int.

Second year: Geology F1 and F2, together with *two* of the following, viz.:
(*a*) Chemistry F1 or F2 or F3 or H3
(*b*) Zoology F1 (A or B)
(*c*) Botany F1 (A or B).

Third year: Geology F5, with research.

FOUR YEARS' COURSE.

First year: Geology Int., Physics Int., and *one* of the following, viz.: Mathematics Int., Chemistry Int., Zoology Int., Botany Int.

Second and Third years: Geology F1 and F2, together with *either*

(1) (*a*) Zoology F1 (A and B), or (*b*) Botany F1 (A and B),

or

(2) *Two* of the following, viz.:

(*a*) Chemistry F1 or F2 or F3 or H3

(*b*) Zoology F1 (A or B)

(*c*) Botany F1 (A or B).

Fourth year: Geology F5, with research.

Mechanical Engineering

EXAMINATIONS PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

(*a*) *Intermediate Examination* (together with additional subject and essay):

Mathematics, Physics, Chemistry, Applied Mechanics.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

(*b*) *Final Examination*:

Mathematics as a second principal subject.

(*c*) *Honours Examination.*

Graphics and Descriptive Geometry, one paper
Strength and Elasticity of Materials, one paper
General Hydraulics, one paper
Thermodynamics and Theory of Heat Engines, one paper
Dynamics of Steam Engines and Machinery, one paper
Mechanics and Kinematics, one paper
[1] Pure Mathematics, two papers.
[1] Applied Mathematics, two papers.
Laboratory examination, two days.
A candidate's work done in the drawing office and the laboratory and the class examination results in Engineering during his three years' course will be taken into consideration.

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[1] *i.e.*, Mathematics taken as the second principal subject.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

For full particulars of these lecture courses see Courses in Science and Technology set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

THREE YEARS' COURSE.

First year: Engineering I, Mathematics Int. and F1, Physics Int., Chemistry Int.

Second year: Engineering VI, Mathematics F2 and F3, and Electrical Engineering Ia.

Third year: Engineering IV (Part I) and VII, Physics F1 (second term only).

Civil Engineering

EXAMINATIONS PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

(*a*) *Intermediate Examination* (together with additional subject and essay):

Mathematics, Physics, Chemistry, Applied Mechanics.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

(*b*) *Final Examination*:

Mathematics as a second principal subject.

(*c*) *Honours Examination.*

Graphics and Descriptive Geometry, one paper
Strength and Elasticity of Materials, one paper
General Hydraulics, one paper
Theory of Complex Structures, one paper
Surveying and Descriptive Engineering, one paper
Water Engineering, Tidal and Railway Construction, one paper
[1]Pure Mathematics, two papers
[1]Applied Mathematics, two papers.
Laboratory examination, two days.
A candidate's work done in the drawing office and the laboratory, and the class examination results in Engineering during his three years' course will be taken into consideration.

[1] *i.e.*, Mathematics taken as the second principal subject.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

For full particulars of these lecture courses see Courses in Science and Technology set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

THREE YEARS' COURSE.

First year: Engineering I, Mathematics Int. and F1, Physics Int., Chemistry Int.

Second year: Engineering III and VI, Mathematics F2 and F3, and Geology F1.

Third year: Engineering IV and VII, and Physics F1 (second term only).

Electrical Engineering

EXAMINATIONS PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

(*a*) *Intermediate Examination* (together with additional subject and essay):

Mathematics, Physics, Chemistry, Applied Mechanics.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

(*b*) *Final Examination*:

Mathematics as a second principal subject.

(*c*) *Honours Examination.*

Generation of Electrical Energy, one paper
Transformation of Electrical Energy, one paper
Distribution of Electrical Energy, one paper
Design of Electrical Appliances, one paper
Mechanical Engineering, one paper
Heat Engines, one paper
[1]Pure Mathematics, two papers
[1]Applied Mathematics, two papers.
Practical examination in Electrical Engineering, two days.

1 *i.e.*, Mathematics taken as the second principal subject.

A candidate's work done in the Electrical and Mechanical Engineering Drawing Office and Laboratory and the class examination results in Electrical and Mechanical Engineering during his three years' course will be taken into consideration.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

For full particulars of these lecture courses see Courses in Science and Technology set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

THREE YEARS' COURSE.

First year: Mathematics Int. and F1, Physics Int., Chemistry Int., Engineering I.

Second year: Mathematics F2 and F3, Engineering VI and Electrical Engineering I.

Third year: [1] Mathematics II, Physics F1 (second term only), and Electrical Engineering II, III, and IV.

Mining Engineering

15. Honours in Mining Engineering will be awarded to candidates who, having obtained the Ordinary degree, with Mining Engineering as a principal subject, and being recommended as suitable to proceed with an Honours course, shall have spent one year in research or in the preparation of a thesis, attendance at the University during this fourth year not being compulsory. All candidates for Honours shall pass the same Mathematical examinations as if they had taken Mathematics as a principal subject, but no attendance on Mathematical courses other than that prescribed for Mining Engineering students proceeding to the Ordinary degree shall be required. Ordinance

Gas Engineering: Fuel and Metallurgy

16. Honours in Gas Engineering or Fuel and Metallurgy will be awarded to candidates who, having obtained the Ordinary Degree, with either Gas Engineering or Fuel and Ordinance

1 Non-degree students take this if they were unable to take Mathematics F2 in the second year.

Metallurgy as a principal subject, and being recommended as suitable to proceed with an Honours Course, shall have spent one year in research, or in the preparation of a thesis on some industrial process, to the satisfaction of the examiners, attendance at the University during this fourth year not being compulsory.

Honours in Gas Engineering or Fuel and Metallurgy may also be conferred upon candidates, who, having graduated in Science at this or an approved University, with Chemistry or Engineering as a principal subject, shall have subsequently (1) completed the course and passed the examination required for the diploma in Gas Engineering or Fuel and Metallurgy; and (2) spent an additional year in research in the Department to the satisfaction of the examiners.

Applied Chemistry:
Colour Chemistry and Dyeing

Regulations. Honours in this subject will be awarded to candidates who, having completed the four years' course of study for the Ordinary degree, with Colour Chemistry and Dyeing as a principal subject, shall have shown competence in the special work for Honours prescribed at the Final examination.

Applied Chemistry:
Chemistry of Leather Manufacture

EXAMINATIONS PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

(*a*) *Intermediate Examination* (together with additional subject and essay):

Physics, Chemistry, and *one* of the following, viz.: Mathematics, Zoology, Botany.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

(*b*) *Final Examination*:

Chemistry as a second principal subject.

(*c*) *Honours Examination.*

Physics and Chemistry of Leather Manufacture, one paper.
Methods of Leather Manufacture, one paper.
Principles of Leather Manufacture, one paper.
Analytical Chemistry of Leather Manufacturer, one paper.
Practical examination, three days.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

For full particulars of these lecture courses see Courses in Science and Technology set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

FOUR YEARS' COURSE.

First year: Physics Int., Chemistry Int., and *one* of the following, viz : Mathematics Int., Zoology Int., Botany Int.

Second and Third years: Physics F1, Engineering II (A), Chemistry F1, F2, F3, and H3, and Chemistry of Leather Manufacture I, II, III, IV, V, and VI.

Fourth year: Honours courses *or* research in Chemistry of Leather Manufacture.

Agriculture

EXAMINATIONS PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

(*a*) *Intermediate Examination* (together with additional subject and essay):

Physics, and *two* of the following, viz: Chemistry, Zoology, Botany, Geology.

This examination is subject to the provisions contained in clauses 4 and 5 of the Honours B.Sc. Ordinance.

(*b*) *Final Examination*:

One of the pure sciences specified under section 15 of the Ordinary B.Sc. Ordinance as second principal subject,

or

Two of the pure sciences specified under section 16 of the Ordinary B.Sc. Ordinance as subsidiary subjects.

(*c*) *Honours Examination.*

The examination will extend over two days, part of the time being occupied by a *viva voce* examination at the Manor Farm, Garforth.

LECTURE COURSES PRESCRIBED FOR STUDENTS TAKING THIS HONOURS SCHOOL.

For full particulars of these lecture courses see Courses in Science and Technology set forth in subsequent pages. An additional subject and an essay must also be taken at Intermediate standard.

FOUR YEARS' COURSE.

First year: Physics Int., and *two* of the following, viz: Chemistry Int., Zoology Int., Botany Int., Geology Int.

Second and Third years: the courses prescribed for candidates for the Final examination for the Ordinary degree who offer Agriculture as a principal subject, together with research work.

Fourth year: Honours work, with research. Candidates are required to present themselves at the end of the third year for the Final examination for the Ordinary degree.

The same rule shall apply to an Honours student as to a student reading for an Ordinary degree, viz., six months of practical work equivalent to 130 days of six hours each shall be spent at the Manor Farm, Garforth, after the Intermediate examination and before the completion of the third year. At the examination at the end of the third year the candidate for the Ordinary degree will be required to submit a report on an experiment he has himself conducted. The candidate for Honours will be required to submit an interim report on his special research.

DEGREE OF MASTER OF SCIENCE

I

Ordinance.

1. The degree of Master of Science is conferred, on payment of the proper fee, upon registered Bachelors of Science, when of one year's standing from the date of their graduation as Bachelors, subject to the conditions contained in the following paragraphs.

2. Bachelors of Science who have graduated with Honours are not required to present themselves for any further examination for the degree of Master of Science.

3. Bachelors of Science who have obtained the Ordinary degree are required to satisfy the examiners in a further examination in *one* of the following subjects: Mathematics, Physics, Chemistry, Zoology, Botany, Physiology, Geology, Mechanical, Civil, Electrical, or Mining Engineering, Applied Chemistry (Colour Chemistry and Dyeing), Applied Chemistry (Chemistry of Leather Manufacture), Fuel and Metallurgy, Gas Engineering, and Agriculture. Certificates of attendance are not required.

4. The names of candidates who have passed the further examination for the degree of Master of Science are arranged in alphabetical order without distinction of classes.

5. Candidates who have prosecuted research, and who give satisfactory evidence thereof by the presentation of a thesis, may be excused part or the whole of the examination.

Regulations.

Each application for permission to present a thesis must be made to the Senate not later than the last day of the October preceding the M.Sc. examination, together with a statement of the intended subject of research; and the thesis must be sent in to the examiners not later than the last day of the May preceding the M.Sc. examination.

[N.B.—The phrase "in a further examination" in clause 3 of the Ordinance is interpreted by the Senate to mean that candidates shall only be allowed to present themselves in subjects already presented by them for the Final examination for the B.Sc. degree (Ordinary or Honours) or some subject cognate thereto. For example, a candidate who has presented himself in Pure Chemistry may present himself for

the M.Sc. degree in any subject of Applied Chemistry, and *vice versa*, but in the departments of Applied Science special papers may be set or other tests applied to graduates who have not passed the Final examination for the B.Sc. degree in such Applied Sciences.]

II

Ordinance. Graduates or persons who have passed the Final examination for a degree of other approved Universities shall, if they present evidence satisfactory to the Senate that they are qualified to pursue a course of advanced study or research, be permitted to enter the University and to become candidates for the degree of M.Sc., without taking the B.Sc. degree, after not less than two years of such advanced study or research. Such candidates shall be required to give evidence to the Senate at the end of the first year of their period of study that their work has been satisfactory, and at the end of their second year they shall be required to present a dissertation, and to satisfy such further test, if any, as the Senate shall deem expedient.

N.B.—In 1913 notice must be given and the fee must be paid not later than SATURDAY, MARCH 1st, by Bachelors of Science who have obtained the Ordinary degree and who intend to proceed to the Degree of M.Sc. The examination, if required, will begin in the second or third week in June. Notice must be given and the fee must be paid a week before Degree Day, July 5th, by Bachelors of Science who have graduated with Honours and who intend to proceed to the Degree of M.Sc

Examination

Regulations. MATHEMATICS:

Analytical Geometry, Plane and Solid, one paper
Differential and Integral Calculus, one paper
Dynamics and Statics of a Particle, one paper
Hydrostatics and Rigid Dynamics, one paper.

N.B.—The standard is represented by the papers numbered III, IV, V, and VI set at the examination for the Honours School of Mathematics.

PHYSICS:

Experimental Physics, including Chemical Physics, two papers
Experimental and Theoretical Physics requiring a knowledge of the Differential Calculus and of the elements of the Integral Calculus, one paper
Practical examination, one day.

CHEMISTRY:
Inorganic Chemistry, one paper
Organic Chemistry, one paper
One of the following optional subjects:
Physical Chemistry, one paper
History of Chemistry and of Chemical Philosophy, one paper
Electro-Chemistry, one paper
Chemistry of Food and Drugs, one paper
Colour Chemistry and Dyeing, one paper
Chemistry of Leather Manufacture, one paper
Fuel and Metallurgy, one paper
Physiological Chemistry, one paper
Agricultural Chemistry, one paper
A branch of Physics, one paper
Mineralogy and Crystallography, one paper
Mechanical Engineering, one paper
Practical examination, one day.

ZOOLOGY:
Zoology and Comparative Anatomy (including the more important extinct forms) and Embryology, three papers
Practical examination, one day.

BOTANY:
Botany, three papers
Practical examination, one day.

PHYSIOLOGY:
Animal Physiology, three papers
Practical examination, one day.

GEOLOGY:
Either Geology and the elements of Mineralogy, three papers, *or* Geology and Zoology, three papers
Practical examination, one day.

MECHANICAL ENGINEERING:
Dynamics of Machinery, one paper
Stress, Strain and Elasticity, one paper
Heat Engines and Thermodynamics, one paper
Hydraulics, one paper.

CIVIL ENGINEERING:
Surveying and Descriptive Engineering, one paper
Stress, Strain and Elasticity, one paper
Complex Structures, one paper
Hydraulics, one paper.

ELECTRICAL ENGINEERING:
Mechanical Engineering, one paper.
Electrical Engineering, two papers (embracing Generation Transformation, Distribution and Design).
Practical examination, one day.

MINING ENGINEERING :

Mining (including Ore Dressing and Mine Surveying) three papers.
Practical examination, one day.

APPLIED CHEMISTRY (Chemistry of Leather Manufacture) :

Physics and Chemistry of Leather Manufacture, one paper.
Methods of Leather Manufacture, one paper.
Laboratory Methods, one paper.
Practical examination, three days.

APPLIED CHEMISTRY (Colour Chemistry and Dyeing) :

Chemistry of the Artificial and Natural Dyestuffs, one paper.
Practical examination, five days.

Or alternatively—

Presentation of thesis embodying original work in the subject of Colour Chemistry.

Viva voce examination upon thesis presented or upon matters cognate thereto.

Candidates who have not obtained their B.Sc. degree in Colour Chemistry as a principal subject are required to present themselves for the above theoretical and practical examination or such part thereof as the examiners may deem necessary.

AGRICULTURE :

Two papers, embracing Soils and Manures, Rotations and Permanent Grass, Live Stock and Feeding, Implements, and Agricultural Economics.
Practical Examination at the Manor Farm, Garforth.

GAS ENGINEERING :

Carbonisation Methods for Coal (Gas Manufacture and By-Product Coking Practice), one paper.
Gas Distribution, Lighting, and Heating, one paper.
Chemistry of Gases, one paper.
Practical examination, four days.

Candidates who have taken the ordinary B.Sc. without Engineering as a principal or subsidiary subject must also take a *fourth* paper in General Engineering.

FUEL AND METALLURGY :

Technology of Fuel, one paper.
The Metallurgy of some selected Metal or group of Metals, one paper.
Alloys, one paper.
Practical examination, four days.

Candidates who have taken the ordinary B.Sc. without Engineering as either a principal or a subsidiary subject must also take a fourth paper in General Engineering.

DEGREE OF DOCTOR OF SCIENCE

1. The degree of Doctor of Science is conferred by the University upon registered Masters of Science of the University who shall be deemed by the Senate, after considering a report from one or more of the Boards of Faculties, to have distinguished themselves by special research or learning. Ordinance

Provided that the Senate may, in such cases as it shall think fit, after considering a report from one or more of the Boards of the Faculties, also require candidates to pass such an examination as it may from time to time determine.

2. A Master of Science of the University may make application for the degree of Doctor of Science in the sixth, or any subsequent year from the date of his admission to the Bachelor's degree.

3. Such application shall be made in writing to the Registrar and shall contain a full statement of the grounds on which the claim for the degree is based, together with one or more copies of any memoir, whether in type or in manuscript, which the applicant may desire to submit in support of the application.

4. If the application be approved by the Senate, the degree may be conferred at the expiration of not less than six years from the date of admission to the Bachelor's degree.

N.B.—In 1913 notice must be given and the fee must be paid not later than SATURDAY, MARCH 1st. The examination, if required, will begin about Monday, June 16th.

DIPLOMAS IN APPLIED SCIENCE AND TECHNOLOGY

Diplomas are granted by the University in the following subjects

Civil Engineering
Mechanical Engineering
Electrical Engineering
Coal Mining
Fuel and Metallurgy
Gas Engineering
Dyeing
Leather Manufacture
Textile Industries: (1) Textile Design and Cloth Finishing; (2) Woollen and Worsted Spinning; (3) Cloth Manufacture.
Textile Chemistry.

For general regulations affecting the award of Diplomas, see page 193.

A descriptive essay relative to the technical work of the candidates will be set as part of the Diploma examination, and will be examined by the Examiners in English in co-operation with the Examiners in the technical department concerned. Foreign students may be excused from presenting themselves for this essay on producing evidence of having received a satisfactory general education. All other students will be required to satisfy the Examiners in this essay.

In the Diploma examination there will be included, for translation into English, passages of French and German relating to the principal subject of a candidate's Diploma course, and credit will be given for correct rendering of such passages.

The Clerk to the Senate will supply each candidate with a Diploma Course Record which he will be required to keep and to produce, prior to the Final examination, to the Professors and Lecturers concerned, and on other occasions when called for.

Each candidate will also be required to obtain on his Diploma Course Record each session the signatures of the respective Professors or Lecturers to certify that his work has been satisfactorily done, and that he has reached a satisfactory standard in the required examinations in each subject forming part of the course.

For other regulations affecting each several Diploma, see particulars of courses of study under the heading of the department concerned.

CITY AND GUILDS TECHNOLOGICAL EXAMINATIONS

The examinations of the City and Guilds of London Technical Institute are held in the University in April, May, or June every year. Students of the University and others are admitted to the examinations. Each candidate is

required, when entering his name for the examination with the Local Secretary, to pay to the City and Guilds Institute a fee of 1s. for each subject in which he desires to be examined. In some few subjects a higher fee is charged. Money prizes, medals, and certificates are awarded by the Institute. Among the subjects of examination, the following may be mentioned as specially suitable to the technical students of the University:—Coal Tar Products, Gas Manufacture, Iron and Steel Manufacture, Leather Tanning, Dyeing (Silk, Wool, and Cotton), Bleaching and Printing, Textile Fabrics (Spinning and Weaving), Electrical Engineering, Mechanical Engineering, Mine Surveying. To obtain a full certificate in any of the above-mentioned technological subjects candidates will be required to pass the Institute's examination in the Honours grade and also, in general, an examination in one or more of the Science and Art subjects included in the *Regulations* of the Board of Education, the subjects to be chosen from those most closely allied to the subject taken by the candidate. The Institute will accept in lieu of the examination by the Board of Education a certificate from the University stating that the candidate has attended approved courses of instruction at the University in the science subjects allied to the technological subject in which the full certificate is claimed, and has passed a satisfactory examination in such science subject. Candidates will also be qualified for the full technological certificate who pass the Preliminary examination as well as the Ordinary and Honours examinations (written and practical) in any technological subject for which such a full course is provided by the Institute. For further particulars see the programme of the Institute (price, post free, 1s.)

Entries for the next examination will be received by the Local Secretary, Mr. G. R. Brench, The University, Leeds, not later than Saturday, March 1st, 1913.

Courses in Science

MATHEMATICS

Professor ROGERS

Mr. WATSON

LECTURE COURSES

I. First Year Course for Engineers

See page 342.

II. Second Year Course for Engineers

Mondays, Wednesdays, and Fridays, at 9.30 a.m.

Subjects: Graphical methods, differential and integral calculus.

Book recommended

Saxelby, *A Course in Practical Mathematics* (Longmans and Co. 6s. 6d.)

Int. Intermediate Course in Pure Mathematics

Mondays and Fridays, at 2 p.m.

Students reading for the Intermediate B.A. and B.Sc. examinations attend this course throughout the session.

Books recommended

Hobson and Jessop, *Elementary Trigonometry* (Cambridge)

Knott, *Four-figure Mathematical Tables* (Chambers, 4d.)

Gibson, *Introduction to the Calculus* (Macmillan, 3s. 6d.)

F1. Final Course in Applied Mathematics (Elementary)

Tuesdays and Thursdays at 11.30 a.m.

Subjects: Elementary statics, dynamics, and hydrostatics

Book recommended

Jessop and Havelock, *Elements of Applied Mathematics* (Bell, 4s. 6d.)

F2. Final Course in Pure Mathematics

Mondays, Wednesdays, and Fridays, at 11.30 a.m.

Subjects: co-ordinate geometry, differential and integral calculus.

Students taking Mathematics (i) as principal subject (p. 259), (ii) as the subsidiary subject, entitled Mathematics P (p. 260), attend for all three hours; students reading for (i) Arts Courses (p. 170), (ii) science subsidiary course, entitled Mathematics PA (p. 260), attend on Mondays and Fridays only.

Books recommended

Lamb, *Infinitesimal Calculus* (Cambridge)
Smith, *Conic Sections* (Macmillan)

F3. Final Course in Applied Mathematics

Mondays, Wednesdays, and Fridays, at 9.30 a.m.

Subjects: Statics, dynamics, and hydrostatics Text Books will be recommended by the Professor at the beginning of the course.

H1. Honours Course in Pure Mathematics

A course of lectures of three hours a week in Pure Mathematics will be delivered to students reading for Honours in Mathematics. Hours of meeting will be arranged at the beginning of the session.

H2. Honours Course in Applied Mathematics

A course of lectures of three hours a week in Applied Mathematics will be delivered to students reading for Honours in Mathematics. Hours of meeting will be arranged at the beginning of the session.

PHYSICS

Chair endowed in 1884 by public subscription in memory of the late Lord Frederick Cavendish, first President of the Yorkshire College

Professor BRAGG

Mr. ALLEN Mr. SHORTER

Mr. EDMONDS Mr. PORTER

LECTURE COURSES

Int. Intermediate Course

Lectures and Experimental Demonstrations: Mondays and Fridays at 3 p.m. Tutorial class, one hour, as arranged.

Subjects: The elements of electricity, magnetism, sound, light, heat, and the properties of matter.

Text books will be recommended by the lecturer at the beginning of the course.

It is very desirable that students taking this course should have passed either in Mechanics or in Physics including Elementary Mechanics, at the Matriculation examination.

Students whose knowledge of Mechanics has not reached this standard will be assisted by special instruction during laboratory hours in the first term, but they will necessarily have less time to devote to the usual work of the class.

Int. a. Special Course for Medical Students

Lectures and Experimental Demonstrations: Mondays, Thursdays and Fridays at 11.30 a.m. throughout the session.

Subjects: The elements of electricity, magnetism, sound, light, heat, and the properties of matter.

Text books will be recommended by the lecturer at the beginning of the course.

F1. Final Course (Subsidiary)

Lectures: Mondays and Fridays, at 10.30 a.m., throughout the session.

This course is designed to meet the requirements of students taking Physics as a subsidiary subject in the Final B.Sc. examination. It also forms the first half of the course for students taking Physics as a principal subject in that examination.

Text books will be recommended by the lecturer at the beginning of the course.

F2. Final Course (Principal)

Lectures: Wednesdays, at 10.30 a.m., throughout the session, and at some other hour to be arranged when the class meets.

This course, in addition to F1 above, is designed to meet the requirements of students taking Physics as a principal subject in the B.Sc. examination. Students taking this course are required to have previously gained at least a second class in each terminal examination in the Intermediate course, or in default are required to take the Intermediate course again concurrently with this course, unless specially exempted by the Senate.

N.B.—A practical acquaintance with the principles of the Differential and Integral Calculus is absolutely essential to students taking this class.

H. Honours Course

Three lectures a week throughout the session, at hours to be arranged to suit the convenience of students attending the class. The complete course extends over two sessions.

PHYSICAL LABORATORY

The Physical laboratory will be open daily from 9.30 a.m. to 1 p.m., and from 2 to 5 p.m. (Saturdays from 9.30 a.m. to 12 30 p.m.).

Students preparing for the Intermediate B.Sc. examination are required to devote at least three hours per week throughout the session to practical work. Medical students are required to devote three hours per week during the first two terms.

Students preparing for the Final B.Sc. examination and taking Physics as a principal subject are required to devote one day per week for two sessions to practical work.

Students taking Physics as a subsidiary subject are required to devote one day per week for one session to practical work.

The following table shows the hours at which the laboratory is open to the various classes:

	9.30—12.30.	2—5.
M.	Honours.	Final.
Tu.	Final.	Intermediate.
W.	Honours.	Final.
Th.	Final.	Intermediate.
F.	Honours.	Final.
S.	Intermediate and Medical.	

CHEMISTRY[1]

Professor SMITHELLS Professor COHEN
Dr. DAWSON Mr. LOWSON
Mr. PERKINS Mr. CALAM Mr. MARSHALL
Mr. PATTERSON

LECTURE COURSES

Int. General Course of Chemistry (Intermediate)

The lectures of this course are given throughout the session, on Mondays, Wednesdays, and Fridays, at 11.30 a.m. In addition a tutorial class will be held one hour weekly throughout the session.

1 Candidates for the First examination in Medicine, or the Intermediate Science or Preliminary Scientific (M.B.), London, should refer to page 466.

The course is divided into two parts:

Part I will comprise lectures on the general properties of matter; chemical combination and decomposition; preparation, classification, and chemical behaviour of the chief elements and their compounds; chemical theory treated in an elementary manner.

Part II (third term) will form an introduction to organic chemistry.

Int. a. Special Course for Medical Students

Mondays, Wednesdays and Fridays, at 9.30 a.m., and Fridays at 4 p.m., throughout the session.

FINAL COURSES

F1. Inorganic Chemistry [1]

(Advanced Course—A)

Mondays, Wednesdays, and Fridays, at 9.30 a.m., throughout the session.

A previous general knowledge of chemistry is necessary.

F2. Inorganic Chemistry

(Advanced Course—B)

Tuesdays, Thursdays, and Saturdays, at 9.30 a.m. throughout the session.

A previous general knowledge of chemistry is necessary.

F3. Organic Chemistry

Tuesdays, Thursdays, and Saturdays, at 12 (noon) throughout the session.

This course is intended for second year students, or for those who have already some knowledge of chemistry.

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1 It will be advisable, as a rule, for students to take course F1 before course F2, but this order is not essential.

HONOURS COURSES

H1. Organic Chemistry

Professor COHEN

Mondays, Wednesdays, and Fridays, at 12 (noon), during the first and second terms.

H2. History of Chemistry

Professor COHEN

Mondays, Wednesdays, and Fridays at 9.30 a.m., during the first term.

H3. Physical Chemistry

Dr. DAWSON

Mondays, Wednesdays, and Fridays, at 9.30 a.m. during the second and third terms.

H4. Electro-Chemistry

Dr. DAWSON

Tuesdays at 9.30 a.m. throughout the session.

H5. Chemistry of Food and Drugs

Mr. LOWSON

This class will be held during the second term at hours to be arranged. This class is intended also for those students who are taking the Final examination of the Institute of Chemistry in Branch E (Food and Drugs).

Special fee, £3 3s.

S1. Science in Relation to the Household

A Teachers' class on Science in Relation to the Household will be held on Saturday mornings during the session at an hour to be arranged.

Special fee, £3 13s. 6d.

PRACTICAL CHEMISTRY

1. General Laboratory Courses

The object of the laboratory courses is to enable the student to obtain a practical acquaintance with chemical science, so as to fit him to conduct chemical analysis, to make original investigations in Chemistry, and generally to become qualified to apply the science to the arts and manufactures. It is necessary that each laboratory student should attend or should have attended the General or the Advanced courses in Chemistry and the course in Organic Chemistry (F_3).

In the Chemical laboratories instruction is given in the general modes of preparing chemical compounds, inorganic and organic, in the qualitative and quantitative analysis of minerals and commercial products, in water analysis, gas analysis, and in the various branches of physical chemistry. It is necessary, however, that students wishing to pursue any special branch of practical work shall first have thorough training in the general principles and method of chemical manipulation and analysis.

Each student will be furnished with a separate working table, a set of re-agents, water and gas, and will be required to provide himself with a regulation set of apparatus on entry,[1] and also, if necessary, a few of the more costly tests, and any expensive materials which he may need for the purposes of original investigation. Apparatus of a special or expensive character may be obtained on loan, subject to such conditions as may be prescribed by the Professor.

Students taking the course for the First examination in Medicine or the Preliminary Scientific (M.B.) of the University of London, must attend at the hours specified on page 466.

2. Practical Course in Sanitary Chemistry

This course is arranged on the lines laid down by the General Medical Council and to suit the requirements of Medical Officers of Health.

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1 For the convenience of students, a supply of apparatus is kept at the University, and may be purchased from the laboratory steward.

The course will be held during the third term of the session on Tuesdays and Thursdays, from 2 to 5 p.m.,[1] and will include practical instruction or demonstrations in the sanitary examination of water, air and food, and on the properties of gases, the laws of heat and the use of meteorological instruments.

Instruction will be given in :

Water.—Qualitative examination, quantitative examination, estimation of free and albuminoid ammonia, oxygen consumption, chlorine, nitrates and nitrites, total solids, temporary and permanent hardness, metallic impurities.

Air.—Qualitative examination of foreign gases, quantitative determination of carbon dioxide.

Food.—Qualitative or quantitative examination of milk, butter, tea, coffee, sugar, alcoholic beverages.

The Properties of Gases.—Expansion, weight, pressure, diffusion, ventilation.

The Laws of Heat.—Expansion of liquids and solids, temperature, latent and specific heat, liquefaction, evaporation, ebullition, radiant heat.

The Use of Meteorological Instruments.—Thermometers (wet and dry bulb), barometers, hygrometers, anemometers, analysis of weather reports and meteorological charts.

Special fee, £5 5s.

COURSE FOR STUDENTS NOT TAKING A DEGREE.

The following course of instruction is recommended to students of Chemistry who do not propose to take a University degree.

First Year :

Chemistry Lectures : Course Int. or Course F1.
Chemical Laboratory, 3 days per week.
Mathematics Int.
Physics Int.
French or German.

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1 These hours are subject to re-arrangement.

Second Year:

Chemistry Lectures: F1, F2 and F3.
Chemical Laboratory, 3 days per week.
Physics F1.
French or German.

Third Year:

Chemistry Lectures: H1, H3, H4, and H5.
Chemical Laboratory, 3 days per week.
Physical Laboratory, 1 day per week.
One of the following: Elementary Engineering, Metallurgy, Geology.

INSTITUTE OF CHEMISTRY

Students desirous of obtaining the Associateship of the Institute of Chemistry are required to pass an approved preliminary examination (such as the Matriculation examination) and further to attend:

1. A course of study during three years in practical and theoretical Inorganic and Organic Chemistry, the practical work to occupy at least fifteen hours per week.
2. At least fifty lectures in Physics, with at least 100 hours in the Physical laboratory.
3. A course in Mathematics up to the standard of the Intermediate examination for the degree of Bachelor of Science.
4. A course of instruction in *one* of the following optional subjects: (*a*) Advanced Mathematics, (*b*) General Chemical Engineering, (*c*) Metallurgy, (*d*) Geology and Mineralogy, (*e*) Elementary Physiology, (*f*) Bacteriology, (*g*) Agriculture, (*h*) Elementary Botany, (*i*) Elementary Biology, (*j*) Higher Physics.

The above non-degree course is recommended as a convenient arrangement of subjects. For further details the Regulations of the Institute[1] should be consulted.

1 To be obtained from the Secretary, Institute of Chemistry, 30, Bloomsbury Square, London, W.C.

ZOOLOGY

Professor GARSTANG

Mr. Miss LEBOUR

LECTURE COURSES

Int. Intermediate Course

Lectures on Mondays and Fridays at 10.30 a.m. throughout the session. Practical work on Tuesdays from 2 to 4 p.m. and on Wednesdays from 9.30 to 11.30 a.m. throughout the session.

Subjects: General principles of animal organisation, physiology and reproduction. Elementary comparative anatomy. The outlines of embryology.

Practical Work: Amœba, a Flagellate, Monocystis, Hydra, Fasciola, Earthworm, Insect, Amphioxus, Dogfish, Frog, Rabbit.

Int. a. Course for First M.B. Examination

The Zoological part of the course for the First M.B. examination in Biology coincides with the Intermediate course above, with certain modifications in the practical work which will include Taenia, Ascaris and Culex. Practical class on Tuesdays (9.30 to 11.30 a.m.) and Thursdays (9.30 to 11.30 a.m.).

F1. Final Course: General Zoology

Lectures on Mondays, Wednesdays and Fridays at 11.30 a.m. throughout the session.

Sections A and B will be taken in alternate years, each occupying one session. Either will rank as a subsidiary* course for the degree. Section A will be taken during 1912-1913.

A course of laboratory work, occupying seven hours per week, will be provided in connection with each series of lectures. Excursions for field observation, and visits to

* Students who have passed in Zoology as a Subsidiary Subject, and desire to pursue an abbreviated course in the second part of the subject (section A in 1912-13) should apply to the Professor at the opening of the session. Lectures once a week; practical work two hours a week,—probably on Tuesday afternoons.

the Yorkshire Universities' Marine Laboratory at Robin Hood's Bay will be arranged from time to time.

The two years' course will prepare for Zoology as a principal subject at the Final B.Sc. examination.

A. INVERTEBRATA (EXCEPT ECHINODERMA). The organisation, mode of life and elementary physiology of common types of the principal classes and orders. Modes of development and larval forms. Classification.

Evolution and adaptation. The general characteristics of marine, freshwater, and terrestrial faunas. The colours of animals.

The natural history of a selected group in greater detail.

B. VERTEBRATA (AND ECHINODERMA). The organisation, mode of life, elementary physiology and general development of selected types of Echinoderma, Protochorda, and the classes of Vertebrata. The orders and chief sub-orders of Mammalia.

Geographical distribution. The natural history and classification of a selected group in greater detail.

H. Honours Course

During the session 1912-13, Professors Garstang and Priestley will give a course of lectures on "Method and Progress in the Study of Life and Evolution," at an hour to be arranged at the beginning of the session. The lectures will be introductory to the Honours courses in Botany and Zoology, but may be attended with advantage by final students. The course will include (1) the historic outlines of biological progress, (2) the aims, achievements and limitations of various methods of investigation, and (3) the relation of academic studies to practicable lines of research.

SPECIAL CLASSES.

S1. Natural History (Zoology) for Agricultural Students.

Mr. TAYLOR

Lectures and laboratory work during the second term only on Mondays, 10.30 a.m. to 12.30 p.m.; Tuesdays at 11.30 a.m.; and Fridays, 9.30 to 11.30 a.m.

S2. Agricultural Zoology

Mr. TAYLOR

Lectures and laboratory work during the first and second terms, on Thursdays 10.30 a.m. to 12.30 p.m., and on Saturdays from 9.30 to 11.30 a.m.

S3. Nature Knowledge (Animal Life)

Professor GARSTANG

Mr. Miss LEBOUR

Special announcement will be made later with regard to classes for teachers in this subject.

A class will meet on Saturdays from 10 a.m. to 12 noon, beginning October 5th.

ZOOLOGICAL LABORATORY

The Zoological laboratory will be open daily from 9.30 a.m. to 5 p.m. (Saturdays, from 9.30 a.m. to 12.30 p.m.).

Each student is required to provide himself with a razor, hone, a pocket lens, a *dissecting case* (a suitable case is made by Reynolds & Branson, Ltd., Leeds, and sold at 13s. 6d.), and a *biological drawing book* (Jackson, Leeds, 1s.).

A *microscope* is also necessary, and students are recommended to provide their own, which must be submitted for approval. They are particularly urged to consult the Professor before purchasing new ones.

Every microscope should be fitted with a ruled circle in the eyepiece for drawing. Messrs. Reynolds & Branson will supply such a circle for 7s. 6d., or 6s. 6d. when included with a microscope.

Microscopes may be had on loan from the University at the rate of 2/6 each per term for elementary work, and 3/6 each per term for advanced work. These fees must be paid in advance.

BOTANY

Professor PRIESTLEY

Mr. WALKER Mr. STILES

LECTURE COURSES

Int. Intermediate Course

Lectures on Tuesdays and Thursdays at 9.30 a.m., and laboratory work on Tuesdays and Thursdays from 10.30 a.m. to 12.30 p.m. throughout the session.

Subjects: The elementary study of Chlamydomonas, Ulothrix, Vaucheria, Pleurococcus, Spirogyra, Fucus, Bacteria, Saccharomyces, Eurotium, Pythium, Pellia, Funaria, Aspidium, Selaginella, Pinus, and the flowering plant; the elements of plant anatomy and physiology. The classification and adaptation of flowering plants as exhibited by examples from a few natural orders, together with a practical acquaintance with the use of a flora.

Books.

Watts, *A School Flora* (Longmans, Green & Co., 3/6).

Each student is required to provide himself with a microscope, a pocket lens, a biological drawing book (Ingle & Son, Call Lane, Leeds, 1s.), two razors, a scalpel, a pair of forceps, and a strop.

Int. a. Course for First M.B. examination

Tuesdays (2 to 5 p.m.) and Wednesdays (10.30 a.m.-12.30 p.m.) during the second and third terms only.

This course includes the study of the life history of the flowering plant with especial reference to the relation of form and structure to function.

Experimental study of the simpler problems in plant metabolism, involving an elementary study of tissue respiration, photo-synthesis, translocation of food substances, &c.

The study of the life history of some unicellular Algæ and Fungi in especial relation to the phenomena of saprophytism and parasitism in contrast to the normal metabolism of the green plant.

Experimental methods for investigation of relations between micro-organisms such as yeast and the medium in which it grows. Study of fermentation processes with methods of pure cultures.

F1. Final Course: Botany

Lectures on Mondays, Wednesdays and Fridays at 9.30 a.m. throughout the session. Courses A and B will be taken in alternate years, each occupying one session. Either will rank as a subsidiary course for the degree.

A. Algæ, Fungi and Bryophyta: classification and life-histories of representative groups.
Pteridophyta: structure and relationships of the principal groups.
Physiology of growth and irritability.

B. Gymnosperms: morphology, anatomy and classification of principal groups; distribution in space and time.
Angiosperms: the morphology of the flower, general anatomy. The principles of geographical distribution, and ecology.
Important natural orders of flowering plants.
Physiology of metabolism. Cytology, Evolution and Heredity.

A course of laboratory work on one of the above courses will be provided each session.

The two years' course will prepare for the Botany of the Final B.Sc. examination.

H. Honours Course

During the session 1912-13, Professors Garstang and Priestley will give a course of lectures on "Method and Progress in the Study of Life and Evolution" at an hour to be arranged at the beginning of the session. The lectures will be introductory to the Honours courses in Botany and Zoology, but may be attended with advantage by final students. The course will include (1) the historic outlines of biological progress, (2) the aims, achievements and limitations of various methods of investigation, and (3) the relation of academic studies to practicable lines of research.

SPECIAL CLASSES

S1. Natural History (Botany) for Agricultural Students

Lectures and laboratory work during the first term, on Mondays, at 10.30 a.m. to 12.30 p.m.; on Wednesdays at 10.30 a.m.; and on Fridays, at 9.30 to 11.30 a.m.

Subjects: Elementary facts of structure of plants; drawing; the use of the microscope; simple experiments on the growth of plants and allied matters; the elements of Agricultural Botany.

S2. Botany for Agricultural Students

(Second year of Agricultural Course)

Tuesdays, 2 to 4 p.m.; Wednesdays, 3 to 5 p.m.; and Fridays, 9.30 to 11.30 a.m.

Subjects: Structure, nutrition and reproduction of plants; the elements of systematic Botany; fungi which cause diseases of crops.

Laboratory work to accompany the lectures, with special work on identification of grasses and other crop-plants, common weeds, and diseases of plants.

This course will prepare for the National Diploma examination.

S3. Forestry

Lectures and laboratory work, Mondays, 10.30 a.m. to 12.30 p.m., and Wednesdays, 11 a.m. to 1 p.m., and Saturdays, 9.30 a.m. to 12.30 p.m., during the third term.

Occasional excursions will be made during the term; students to pay their own railway fares or other expenses.

Subjects: (1) Forest Botany; the structure and growth of trees and timber.

(2) General Forestry; trees in relation to soil and climate; the growth of trees in the open and in forests; formation and regeneration of woods and plantations; pure and mixed woods; general management of trees.

Laboratory work includes identification of important trees and timbers, and common diseases of trees.

S4. Nature Knowledge (Plant Life)

Mr. WALKER

This class will meet on Saturdays from 9.30 a.m. to 12 noon throughout the session, beginning September 21st. The course embraces such botanical topics as can be readily adapted to school work. No formal lectures will be given. The method of treatment followed, will be, as nearly as possible, that which could be put into practice in classes of children. Numerous experiments will be performed, but without *special* apparatus, and the natural objects studied will be confined to those which can be gathered with little trouble by the teacher or the children.

Fee for course, £3 3s.

S5. Experimental Plant Physiology

Mr. WALKER

This class is in part the same as S4 and will be held on Saturdays at the University in the morning, and in the afternoon at the Manor Farm, Garforth, throughout the session. It is intended for teachers of Horticulture, and is held in connection with a two years' course in Horticulture.

Fee £1 12s. 6d.

BOTANICAL LABORATORY

The Botanical laboratory will be open daily from 9.30 a.m. to 5 p.m. (Saturdays, from 9.30 a.m. to 12.30 p.m.).

Each laboratory student, or student taking a practical class in Botany, will be required to use his own microscope and dissecting instruments. Microscopes may be had on loan from the University at the rate of 2/6 each per term for elementary work, and 3/6 each per term for advanced work. These fees must be paid in advance.

PHYSIOLOGY

Professor BIRCH Mr. LLOYD

For courses in this Department, see Courses in Medicine.

GEOLOGY

Professor KENDALL

Mr. GILLIGAN Mr. ODLING

LECTURE COURSES

Int. Intermediate Course

Lectures on Tuesdays, Thursdays, and Saturdays at 10.30 a.m. throughout the session.

Subjects: The earth's position in the universe; the movements, form, size and density of the earth; the construction and interpretation of maps; the principles of Meteorology, with special reference to the distribution of climatic provinces; weather forecasts and charts; Oceano-

graphy; Dynamical Geology, including denudation, deposition, earth movements, mountain structure, morphology of land-forms; Historical Geology, being a brief account of the nature and succession of the various formations entering into the formation of the British Isles; Geology in relation to the study of Geography.

Practical work, which will include work at the Cecil Duncombe Observatory, three hours per week throughout the session.

FINAL COURSES

F1. Final Course in Geology

Mondays and Fridays throughout the session, at 2 p.m., and at another hour and day to be arranged at the beginning of the session, for students taking Geology as a subsidiary subject, and for students taking Geology as a principal subject in the first year of their Final course.

Subjects: The scope of Geology; the crust of the earth; the common rock-forming minerals; classification of rocks according to their mode of origin; aqueous rocks; denudation, transport, and accumulation of rocks; chemical action; forms of stratification; jointing and concretionary structures; igneous rocks, volcanoes and earthquakes; the condition of the interior of the earth; metamorphic rocks and metamorphism; slaty cleavage; mountain-building; the elements of Stratigraphical Geology and Palæontology; the application of Geology to Civil Engineering.

F2. Advanced Geology

Three lectures a week throughout the session, at hours to be arranged, for students taking Geology as a principal subject in the second year of their Final course.

F3, F4, F5. Final Courses in Palæontology, Applied Geology, Petrology

These courses will prepare for the Final B.Sc. (Ordinary). Each will consist of two lectures and not less than two hours' practical work a week during the session at hours to be arranged with the students.

HONOURS COURSES

H1. Honours Course in Geology

A course of not less than 90 lectures will be given at hours to be arranged with the students.

H2. Honours Course in Mineralogy

A course of 30 lectures and demonstrations will be given for students reading for Honours Geology (Scheme A).

H3. Mineralogy for Mining Course

Lectures on Wednesdays and Fridays, at 11.30 a.m.

A course of 60 lectures with practical work will be given during the session for students taking the Mining course, and will include the following subjects, viz.:

Principles of Crystallography

Physical properties of Minerals

Descriptive and Determinative Mineralogy

Modes of occurrence and association of Minerals and Ores, with special reference to Metalliferous Mining.

SPECIAL CLASSES

S1. Agricultural Geology

A course of about 60 lectures will be given on Mondays, Wednesdays, and Fridays, during the first and second terms, at 11.30 a.m. Practical work, Tuesdays, from 2 to 4 p.m.

Subjects: Scope of the science; the composition and physical characters of the common rock-forming minerals; classification of rocks according to (*a*) their mode of origin and (*b*) chemical composition; denudation, transport and accumulation: forms of stratification; the subdivision of stratified rocks; economic products of the chief formations; the nature and origin of the drift deposits; their importance in relation to the soils of the North of England; the soils of the Warp lands and the Yorkshire Wolds; the disintegration of rocks and the formation of soils; geological maps, their interpretation and use; British rainfall, its measurement and

variation; storage of subterranean waters; water supply from springs and deep and shallow wells; application of geological knowledge to the selection of sites for roads, bridges, &c.

S2. Field Course

A course of practical instruction, with field excursions, will be given at hours to be arranged.

Special fee, £3 13s. 6d. (including an allowance of £1 1s. for travelling expenses).

S3. Geology applied to Coal Mining

Tuesdays at 4 p.m. during the second and third terms.

Outline of Physical and Dynamical Geology: Denudation, transport, and accumulation of rocks; volcanoes and earthquakes; elevation and depression of the earth's crust; condition of the interior of the earth; earth folds, and the origin of mountain chains.

Historical Geology: General outline of Historical Geology; detailed description of the carboniferous rocks, with special reference to the Yorkshire coalfield; the rocks which overlie the carboniferous; search for coal under the newer rocks; the drift deposits, how they affect the discovery and working of coal.

S4. Geology applied to Sanitary and Civil Engineering

Mondays, during the second and third terms at 5 p.m.

GEOLOGICAL LABORATORY

The Geological laboratory will be open every day.

Courses in Technology

CIVIL & MECHANICAL ENGINEERING

Professor GOODMAN

Mr. GILCHRIST Mr.

Mr. THOMSON Mr. MYERS

Mr. DUNCAN

The course of instruction in Engineering extends over three sessions, and comprises (*a*) Lectures on Engineering Principles and Work; (*b*) Instruction in Machine and Geometrical Drawing; (*c*) Experimental Work in the Engineering Laboratory; (*d*) Field Work and Practical Surveying.

The present arrangements of the department do not allow of more than 100 students being admitted to the Laboratory and Drawing Classes.

In the event of more than 100 qualifying for entrance, preference will be given to students taking a two or three years' course and who have had previous practical training in Works.

Students will not be admitted, except under very special circumstances, after the beginning of the session.

COURSES OF STUDY

The work of this Department is intended to provide a systematic training in the application of scientific principles to engineering purposes, and is not intended in any way to supersede the usual routine of engineering works and offices. An apprenticeship or pupilage in such works is an absolute necessity to every Engineering Student, and is the only means by which he can obtain a thorough knowledge of the practical details of his future work.

The scientific training at the University must be regarded as a means of acquiring the principles that underlie the art of Engineering, and the training in the Works as necessary for acquiring the art itself.

It is most important that all students, whether taking up Civil, Mechanical or Electrical Engineering, should have at least one year's practical experience in Engineering Works before taking up the University course.[1] West Riding County Council and other scholars who have not been in works should make application to have their Scholarships postponed for one year, for the purpose of getting the necessary preliminary practical experience.

Though the Engineering courses are designed primarily to suit students intending to be Civil or Mechanical, or Electrical Engineers, the subjects in the Civil Engineering course are such as should be studied by Mining Engineers, and by Architects, and the course prescribed for Mechanical Engineers, or parts of it, would be found of direct practical utility to students who are afterwards to be engaged in any occupations connected with manufactures.

All students entering any Engineering Department will be required to pass an Entrance Examination[2] or to produce certificates of having passed the Matriculation examination conducted by the Joint Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield, the Oxford or Cambridge Local examination in Mathematics (including Trigonometry), London University Matriculation, or other approved examination. Students under 17 have to take a paper on English Composition and Dictation.

ENTRANCE EXAMINATION

(*For Students intending to enter the Civil, Mechanical, Electrical, and Mining Engineering Departments*).

(Time allowed, three hours.)

Arithmetic: The ordinary rules of Arithmetic including vulgar and decimal fractions, proportion, factors, H. C. F.

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1 See a pamphlet published by the University on "The Training of Professional Engineers." The Secretary will forward a copy on application.

2 The Examination will be held on Tuesday, October 1, 1912, the English subjects at 10 a.m. and the Mathematical subjects at 2 p.m., and on Tuesday, July 1, 1913, at 2 p.m. in the Mathematical subjects only. Students should send in their names beforehand. The July Examination may be taken by students living at a distance at any place convenient to the candidate provided suitable invigilation can be secured. Students who have attended Evening classes at the University and have taken a satisfactory position in the Examination will be exempted from this Examination.

and L. C. M., practice, square root, conversion from English to Metric system, averages, percentages, interest.

Algebra: The ordinary rules of Algebra including fractions, brackets, simple equations with problems. H. C. F. and L. C. M.

Geometry: The first book of Euclid or its equivalent, including riders.

Trigonometry: Simple problems involving the trigonometrical ratios.

Every student is required to pass in each subject. For a sample paper see the Engineering prospectus.

Books Recommended

LONEY'S Arithmetic for Schools.
HALL AND KNIGHT'S Elementary Algebra.
LOCK'S Trigonometry for Beginners.
HALL AND STEVENS' Euclid, Book I.

DEGREE EXAMINATIONS

Students who can devote three years to attendance at the University are strongly recommended to take the B.Sc. Degree Course in Engineering science in the Leeds University. Students intending to read for a degree must pass the Matriculation examination before taking the Engineering course. Mechanics and the higher mathematics paper should always be included in the subjects chosen.

The following courses of study are suitable for students who wish to take a B.Sc. degree :—

MATRICULATION, before leaving school. (Fee, £2).

(1) English Language and Literature, and English History.

(2) Mathematics, including an additional paper in Trigonometry.

(3) Elementary Mechanics.

(4) Chemistry.

(5) Either French or German, or some other language approved by the Board.

Ordinary Degree

INTERMEDIATE, at end of first year. (Fee, £1)

(1) Mathematics (two papers).
(2) Physics (with practical examination).
(3) Chemistry (with practical examination).
(4) An essay.

ADDITIONAL SUBJECT, usually taken at end of second year. (No fee).

Applied Mechanics.

FINAL, at end of third year. (Fee, £1).

Mechanical Engineering, principal subject.

Strength and Elasticity of Materials.
Heat Engines and Dynamics of Machinery.
Hydraulics and Compressed Air.
Graphics, one day.
Laboratory, one day.

Subsidiary subjects: At end of second or third years.

Mathematics, see Examination papers—Pure Mathematics I and II; *or* Pure Mathematics I and Subsidiary Applied Mathematics.

Physics or Surveying, or Electrical or Mining Engineering.

Translation from French or German.

Sample drawings done by the candidate, also his laboratory books must be handed in for the external examiner to inspect.

The candidate must produce a certificate of having satisfactorily attended a prescribed course in Physics.

Civil Engineering, principal subject. (Fee, £1).

Surveying.
Hydraulics and Compressed Air.
Structures and Design.
Graphics, one day.
Laboratory, one day.

Subsidiary subjects:

Mathematics, see Examination papers—Pure Mathematics I and II; *or* Pure Mathematics I and Subsidiary Applied Mathematics.

Geology or Mechanical or Electrical or Mining Engineering.

Translation from French or German.

Sample drawings done by the candidate, also his laboratory books must be handed in for the external examiner to inspect.

The candidate must produce a certificate of having satisfactorily attended a prescribed course in Geology.

On the conferment of the degree a fee of £5 is charged.

Honours Degree

INTERMEDIATE, at end of first year. (Fee, £1).

(1) Mathematics (two papers).
(2) Physics (with practical examination).
(3) Chemistry (with practical examination).
(4) An essay.

ADDITIONAL SUBJECT, usually taken at end of second year. (No fee).

Applied Mechanics.

FINAL, at end of the second or third year. (Fee, £1)

Pure Mathematics. Two papers.

Applied Mathematics. Two papers.

Mechanical Engineering, at the end of the third year. (Fee, £1).

Graphics, paper to be worked at home during the third term.

Strength and Elasticity of Materials.

General Hydraulics.

Thermodynamics and Theory of Heat Engines.

Dynamics of the Steam Engine.

Mechanics and Kinematics.

Laboratory, two days

Translation from French or German.

Sample drawings done by the candidate, also his laboratory books must be handed in for the external examiner to inspect.

Civil Engineering. (Fee, £1).

Graphics, paper to be worked at home during the third term.

Strength and Elasticity of Materials.

General Hydraulics.
Theory of Complex Structures.
Surveying.
Railways and Water Supply, &c.
Laboratory, two days.
Translation from French or German.

Sample drawings done by the candidate, also his laboratory books must be handed in for the external examiner to inspect.

On the conferment of the degree a fee of £5 is charged.

CLASS EXAMINATIONS

A three hours' Examination is held at the end of the first term, when note books are allowed to be used, and an ordinary Examination without note books at the end of the second and third terms. In the latter Examination a piece of designing and drawing work is set in addition, for which a fortnight is allowed.

If a student fails more than once in his class examinations, in any one course, he will be required to repeat that course of study before proceeding to higher work, and if he fails to pass in all of his examinations in Engineering I he will not be allowed to re-enter except on the special recommendation of the head of the department.

Diplomas

Diplomas will be awarded in Civil and Mechanical Engineering to those students who have done satisfactorily in their class work throughout their course and who have passed the final principal Engineering papers set for the Ordinary Degree. Candidates are also required to take an English essay and the translation of a passage of French or German. Foreign students who can show that they have received a good general education will be exempted from the language tests.

Notice of intention to apply for a diploma must be made to the Clerk to the Senate early in the student's career. Fee, £1.

Fees

The fee for all courses, including the registration, library and Union fee, is £31 per session of three terms, but it does not include Examination fees or Laboratory deposit (10/6).

The Institution of Civil Engineers

All Engineering students, whether following Mechanical or Civil Engineering, should aim at ultimately becoming a Member of the Institution of Civil Engineers.

The first step is to become a student of the Institution. Application should be made to the Secretary for Form B and regulations relating to the admission of students.

All Engineering Students of this University who have passed the Matriculation (including two Science subjects) and an additional paper in Trigonometry, are eligible for election as Students of the Institution. Those who have not passed the Matriculation should take the Studentship examination of the Institution during their second year, Only those students who have attended their various classes to the satisfaction of the Professors and Lecturers concerned and have done reasonably well in their class examinations will be proposed for admission to the Institution. After admission they are entitled to attend the Meetings and Excursions of the Local Branch of the Institution of Civil Engineers and to receive four volumes of Proceedings per annum. Miller Scholarships and Prizes, value from £10 to £120, are awarded by the Institution for papers read by students at either the Local Branches or at Head Quarters. Free Studentships for a period of two years are awarded to all students elected from this University, who have obtained a first class in the second year's examination, and have undertaken research work to the satisfaction of the Professor, the results of which must be forwarded to the Institution in the form of a Student's Paper.

Students who have obtained the B.Sc. Honours or Ordinary Degree in Civil or Mechanical Engineering will not be required to take the Associate Membership examination of the Institution, all others should take it during their third year.

Prior to election candidates must fulfil the requirements as regards practical training and experience in accordance with one of the schemes given below, but not necessarily in the order given.

	A		B		C		D
	(1)*	(2)*	(1)	(2)	(1)	(2)*	*
	years.	years.	years.	years.	years.	years.	years.
Articled pupilage or apprenticeship to a Civil Engineer ..	3	3	2	—	—	—	—
Service as an Assistant under Agreement	—	—	—	2	—	—	—
Practical Engineering Experience in addition to pupilage	2	1	—	—	—	—	—
Service as an Assistant under a Corporate Member	—	—	—	—	4	4	7
Non-degree course in an approved College..	—	2	—	—	—	—	—
Course for exempting degree, with degree	—	—	3	3	3	—	—
Course for exempting degree, without degree	—	—	—	—	—	3	—
TOTALS .. .	5	6	5	5	7	7	7

* In all these cases the Institution Studentship and Associate Membership Examinations must be passed.

Questions as to what constitutes pupilage, apprenticeship, service as an assistant, or satisfactory experience, or as to the interpretation of any other term used in this Synopsis, can be decided only by the Council of the Institution.

It is also a condition that of the above mentioned time at least one year shall have been spent in the Drawing Office, and at least one year in or upon Engineering Works.

Marine Engineers

The Engineering department of this University is recognised by the Marine Department of the Board of Trade as an institution in which candidates for Marine Engineering certificates can obtain a portion of their training.

Appointments Register

An appointments register is kept for the benefit of former Engineering students, particulars of which can be obtained from the Head of the department.

TIME TABLES

1. Ordinary and Honours Degrees

FIRST OR INTERMEDIATE YEAR COURSE FOR CIVIL, ELECTRICAL, AND MECHANICAL ENGINEERING.

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon. ..	Eng. La	boratory	Chem. Int.	Math. Int.	Physics Int.	Eng. I.
Tue. ..	Drawing	Drawing	Math. F1	Chemi	cal Labor	atory
Wed. ..	Eng. La	boratory	Chem. Int.	Engineer	ing Labor	atory
				First Term		
Thu. ..	Drawing	Tech. of Fuel	Math. F1	Phys	ics Labora	tory
Fri. ..	Chem. Exercise Class	Eng. I. Exercise Class	Chem. Int.	Math. Int.	Physics Int.	Eng. I.
Sat. ..	Drawing	Machine Drawing Lecture	Physics Lab.			

2. Ordinary Degrees

SECOND YEAR COURSE FOR MECHANICAL ENGINEERING, with Mining Engineering as the subsidiary subject.

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon. ..	Drawing or Mining	Eng. VI.	Math. F2	Drawing	Drawing	Drawing
Tue. ..	Engineer	ing Labor	atory	Engineer	ing Labor	atory
Wed. ..	Drawing or Mining	Eng. VI.	Math. F2	Drawing	Drawing	Drawing
Thu. ..	En	gineer	ing or	Mining	Labora	tory
Fri. ..	Drawing or Mining	Eng. VI.	Math. F2	Drawing	Drawing	Drawing
Sat. ..	Mach. Design	Ex. Class				

It may be advisable for students who have not done well in Maths. F1 in their first year to repeat a part of the course during the third term of their second year.

3. Ordinary Degrees

SECOND YEAR COURSE FOR MECHANICAL ENGINEERING, with Civil Engineering as the subsidiary subject.

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5
Mon. ..	Drawing	Eng. VI.	Math. F2	Drawing	Drawing	Drawing
Tue. ..	Engineering Laboratory			Eng. Laboratory		Eng. III.
Wed. ..	Drawing	Eng. VI.	Math. F2	Drawing	Drawing	Drawing
Thu. ..	Engineering Laboratory			Eng. Laboratory		Eng. III.
Fri. ..	Drawing	Eng. VI.	Math. F2	Drawing	Drawing	Drawing
Sat. ..	Machine Design	Ex. Class	Eng. III.			

Students are advised to take the Practical Surveying Class at Easter.

4. Ordinary Degrees

SECOND YEAR COURSE FOR CIVIL ENGINEERING

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon. ..	Drawing	Eng. VI.	Math. F2	Geol. F1	Drawing	Drawing
Tue. ..	Engineering Laboratory			Eng. Laboratory		Eng. III.
Wed. ..	Geol. Lab.	Eng. VI.	Math. F2	*Geol. F1	Geol. Lab.	Geol. Lab.
Thu. †	Drawing / Geology	Drawing / Geology	Drawing / Field	Drawing and Work		Eng. III.
Fri. ..	Drawing	Eng. VI.	Math. F2	Geol. F1	Drawing	Drawing
Sat. ..	Mach. Design	Ex. Class	Eng. III.			

* This time may be altered to suit the convenience of students. † Alternate weeks.

Students are advised to take the Practical Surveying Class at Easter, and the special course of Geology for Civil Engineers on Mondays at 5 p.m. during the second and third terms

5. Ordinary Degrees

THIRD YEAR COURSE FOR MECHANICAL ENGINEERING, with Electrical Engineering as the subsidiary subject.

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Elec. Ia.	Eng. Lab.* Phys. F1†	Eng. Lab.	Engine	ering Lab	oratory
TUE. ..	Eng. IV.	Eng. VII.	Drawing	D Elect.	r a w i n Eng. L	g (1) ab. (2, 3)
WED. ..	Elec. Ia	Engineer	ing Lab.	Engine	ering Lab	oratory
THU. ..	Eng. IV.	Eng. VII.		Drawing	Drawing	Drawing
FRI. ..	Elec. Ia.	Eng. Lab.* Phys. F1†	Eng. Lab.	Engine	ering Lab	oratory
SAT. ..	Exer. Class	Eng. VII.				

6. Ordinary Degrees

THIRD YEAR COURSE FOR CIVIL ENGINEERING

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Elec. Ia	Eng. Lab.* Phys. F1†	Eng. Lab.	(1, 3) Eng (2) Ce	ineering L ment Lab	aboratory oratory
TUE.	Eng. IV.	Eng. VII.	Drawing	D Elect.	r a w i n Eng. L	g (1) ab. (2, 3)
WED. ..	Elec. Ia	Engineer	ing Lab.	Engine	ering Lab	oratory
THU. ..	Eng. IV.	Eng. VII.		Drawing	Drawing	Drawing
FRI. ..	Elec. Ia	Eng. Lab.* Phys. F1†	Eng. Lab.	Engine	ering Lab	oratory
SAT. ..	Exer. Class	Eng. IV.				

* First and Third Terms. † Second Term.

7. Honours Degrees

SECOND YEAR COURSE FOR MECHANICAL ENGINEERING

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon. ..	Math. F3	Eng. VI.	Math. F2	Drawing	Drawing	Drawing
Tue. ..	Engine	ering Lab	oratory	Engine	ering Lab	oratory
Wed. ..	Math. F3	Eng. VI.	Math. F2	Drawing	Drawing	Drawing
Thu. ..	Engi	neering L	aboratory	Engi	neering L	aboratory
Fri. ..	Math. F3	Eng. VI.	Math. F2	Drawing	Drawing	Drawing
Sat. ..	Mach. Design	Exer. Class				

8. Honours Degrees

SECOND YEAR COURSE FOR CIVIL ENGINEERING

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon. ..	Math. F3	Eng. VI.	Math. F2	Geol. F1	Drawing	Drawing
Tue. ..	Engine	ering Lab	oratory	Engineeri	ng Laby.	Eng. III.
Wed. ..	Math. F3	Eng. VI.	Math. F2	*Geol. F1	Geol. Lab.	Geol. Lab.
Thu. †	Drawing / Geology	Drawing / Geology	Drawing / Field	Drawing / Work		Eng. III.
Fri. ..	Math. F3	Eng. VI.	Math. F2	Geol. F1	Drawing	Drawing
Sat. ..	Mach. Design	Exer. Class	Eng. III.			

* This time may be altered to suit the convenience of students. † Alternate weeks.

Students are advised to take the Practical Surveying Class at Easter, and the special course of Geology for Civil Engineers on Mondays at 5 p.m. during the second and third terms.

9. Honours Degrees

THIRD YEAR COURSE FOR MECHANICAL ENGINEERING

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Elec. Ia	Eng. Lab.* Phys. F1†	Eng. Lab.	Engine	ering Lab	oratory
TUE. ..	Eng. IV. PartsI. II.	Eng. VII.	Drawing	D Elec.	r a w i n Eng. L	g (1) aby. (2, 3)
WED. ..	Elec. Ia	Engineer	ing Lab.	Engine	ering Lab	oratory
THU. ..	Eng. IV. PartsI. II.	Eng. VII.		Drawing	Drawing	Drawing
FRI. ..	Elec. Ia	Eng. Lab.* Phys. F1†	Eng. Lab.	D	r a w i n	g
SAT. ..	Exer. Class	Eng. VII.				

10. Honours Degrees

THIRD YEAR COURSE FOR CIVIL ENGINEERING

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Eng Lab.	Eng. Lab.* Phys. F1†	Eng. Lab.	Engineer Cement	ing Labor Laborato	atory* ry†
TUE. ..	Eng. IV.	Eng. VII.	Drawing	Drawing	Drawing	Drawing
WED. ..	Engin	eering La	boratory.	Engine	ering Lab	oratory
THU. ..	Eng. IV.	Eng. VII.		Drawing	Drawing	Drawing
FRI. ..	Eng. Lab.	Eng. Lab.* Phys. F1†	Eng. Lab.	Engine	ering Lab	oratory
SAT. ..	Exer. Class.	Eng. IV.				

* First and Third Terms. † Second Term.

11. Courses for Students not taking Degrees

FIRST YEAR COURSE (Civil, Electrical, Mechanical).

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Math. I.	Engineering		Laboratory		Eng. I.
TUE. ..	Mechs.	Drawing	Eng. I. Exercise Class	Drawing	Drawing	Drawing
WED. ..	Math. I.	Engineering Lab.		Engineering Laboratory		
THU. ..	Mechs.	Tech. of Fuel	Mechs. and Maths. Ex. Class	Drawing	Drawing	Drawing
FRI. ..	Math. I.	Engineering		Laboratory		Eng. I.
SAT. ..	Drawing.	Machine Drawing Lecture.				

12. Courses for Students not taking Degrees

SECOND YEAR COURSE (Civil).

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Math. II.	Eng. VI.	Exercise Class	Geol. F1	Phys. Int.	Drawing
TUE. ..	Engineering Laboratory			Engrg.	Laby.	Eng. III.
WED. ..	Math. II.	Eng. VI.	Drawing	*Geol. F1	Drawing	Drawing
THU. †{	Drawing Geology	Drawing Field Work				Eng. III.
FRI. ..	Math. II	Eng. VI.	Drawing	Geol. F1.	Phys. Int.	Drawing
SAT. ..	Mach. Design.	Drawing	Eng. III.			

* This time may be altered to suit the convenience of students.
† Alternate weeks.

Students are advised to take the Practical Surveying Class at Easter, and the special course of Geology for Civil Engineers on Mondays at 5 p.m. during the second and third terms.

13. Courses for Students not taking Degrees

THIRD YEAR COURSE (Civil).

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon. ..	Elec. Ia	Engineering Lab.		Engineering Laboratory (1, 3) Cement Laboratory (2)		
Tue. ..	Eng. IV.	Eng. VII.	Drawing	*Drawing †Elec. Eng. Lab.		
Wed. ..	Elec. Ia	Engineering Lab.		Engineering Laboratory		
Thu. ..	Eng. IV.	Eng. VII.		Drawing	Drawing	Drawing
Fri. ..	Elec. Ia	Engineering Lab.		Drawing		
Sat. ..	Exer. Class	Eng. IV.				

14. Courses for Students not taking Degrees

SECOND YEAR COURSE (Mechanical)

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon. ..	Math. II.	Eng. VI.	Eng. VI. Exercise Class	Drawing	Phys. Int.	Drawing
Tue. ..	Engineering Laboratory			Engineering Laboratory		
Wed. ..	Math. II.	Eng. VI.	Drawing	Drawing	Drawing	Drawing
Thu. ..	Engineering Laboratory			Physics	Laboratory	
Fri. ..	Math. II.	Eng. VI.	Drawing	Drawing	Phys. Int.	Drawing
Sat. ..	Mach. Design.	Drawing	Physics Lab.			

* First Term. † Two Terms.

15. Courses for Students not taking Degrees

THIRD YEAR COURSE (Mechanical)

	9.30 to 10 30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Elec. Ia	(1-3) Eng. Lab. *Phys. F1	Eng. Lab.	Engineering Cement	Laboratory	(1, 3) (2)
TUE. ..	Eng. IV.	Eng. VII.	Drawing	Elec.	Drawing Eng. Lab.	(1) (2, 3)
WED. ..	Elec. Ia	Engineering Lab.		Engineering Laboratory		
THU. ..	Eng. IV.	Eng. VII.	Drawing	Drawing	Drawing	Drawing
FRI. ..	Elec. Ia	(1-3) Eng. Lab. *Phys. F1	Eng. Lab.	Engineering Laboratory		
SAT. ..	Exer. Class	Eng. VII.				

* Second Term only.

FIRST, SECOND, AND THIRD YEAR COURSES (Electrical)

See Time Tables on pages 352 and 353.

16. Two-Year Course

FIRST YEAR COURSE (Mechanical)

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Math. II.	Eng. VI.	Eng. VI Exercise Class	Eng. Lab	oratory	Eng. I.
TUE. ..	Mechs.	Drawing	Eng. I. Exercise Class	Drawing	Drawing	Drawing
WED. ..	Math. II.	Eng. VI.	Engineering		Laboratory	
THU ..	Mechs.	Tech. of Fuel	Mechs. & Exercise Maths.	Drawing	Drawing	Drawing
FRI. ..	Math. II.	Eng. VI.	Engineering Laboratory			Eng. I.
SAT. ..	Mach. Design	Drawing				

17. Two-Year Course

FIRST YEAR COURSE (Civil)

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Math. II.	Eng. VI.	Eng. VI Exercise Class	Eng. Laboratory		Eng. I.
TUE. ..	Mechs.	Drawing	Eng. I Exercise Class	Drawing	Drawing	Eng. III.
WED. ..	Math. II.	Eng. VI.	Engineering		Laboratory	
THU. ..	Mechs.	Tech. of Fuel	Mechs. & Exercise Class	Drawing	Drawing	Eng. III.
FRI. ..	Math. II.	Eng. VI.	Engineering	Laboratory		Eng. I.
SAT. ..	Mach. Design	Drawing	Eng. III.			

18. Two-Year Course

SECOND YEAR COURSE (Mechanical)

	9-30 to 10-30.	10-30 to 11-30.	11-30 to 12-30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Elec. Ia	*Eng. VI.	Drawing	Drawing	Phys. Int.	Drawing
TUE. ..	Eng. IV. Parts I. II	Eng. VII.	Drawing	(1) Engineering Lab (2, 3) Elect Eng.		oratory Laby.
WED. ..	Elec. Ia	*Eng. VI.	Drawing	Drawing	Drawing	Drawing
THU. ..	Eng. IV. Parts I. II	Eng. VII.	Eng. Lab.	Engineering Laboratory		
FRI. ..	Elec. Ia	*Eng. VI.	Drawing	Drawing	Phys. Int.	Drawing
SAT. ..	Mach. Design	Eng. VII.	Physics Lab.			

* Portion of course to suit individual students.

19. Two-Year Course

SECOND YEAR COURSE (Civil)

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Elec. Ia.	*Eng. VI.	Drawing	Engineering Cement	Laboratory Laboratory	(1, 3) (2)
TUE. ..	Eng. IV.	Eng. VII.	Drawing	(1) (2, 3) Electrical Eng.	Drawing Laby.	
WED. ..	Elec. Ia.	*Eng. VI.	Engineering		Laboratory	
THU. ..	Eng. IV.	Eng. VII.		Drawing	Drawing	
FRI. ..	Elec. Ia.	*Eng. VI.	Drawing	Drawing	Drawing	
SAT. ..	Exercise Class	Eng. IV.				

* Portion of course to suit individual students.

SYLLABUS OF COURSES

I. First Year Course

Engineering Lecture Theatre

Mondays and Fridays, at 4 p.m.

Exercise class at 11.30 on Tuesdays, or at 10.30 on Fridays. (Room 114).

Part I

Strength of Materials: Stress, strain, Young's modulus of elasticity, properties of materials when tested in tension, compression, and shear. Testing Machines.

Strength of bolts, chains, ropes.

Riveted joints: Various systems of riveting, calculations of the pitch and arrangement of rivets for maximum strength ; efficiency of joints, lozenge riveting.

Beams: The strength of beams of various sections, rolled joists and girders.

Simple cases of bending moments.

Graphical constructions: Cranes, sheer legs, tripods, suspension chains, simple roof trusses and girders.

Part II

Steam boilers: Descriptions of various types, smoke prevention, mechanical stokers, heating surface, simple heat accounts.

Steam and the steam engine: Brief history of the steam engine, properties of saturated and superheated steam, expansive working, cylinder condensation, valve and piston leakage, jackets, compound engines, indicator diagrams, dynamometers.

Gas and petroleum engines: Description of various types.

Transmission of power: Elementary treatment of shafts, belts, gearing.

Hydraulics: Pressure due to head, simple water motors, pumps, measurement of water, flow in pipes.

Books Recommended.

GOODMAN'S Mechanics Applied to Engineering. (Longmans, 9s. net).
RIPPER'S Heat Engines. (Longmans, 3s.)
HILLER'S Notes on Land Boilers. (1/-. National Boiler Insurance Co., Manchester.)
KERSHAW'S Elementary Internal Combustion Engines. (Longmans, 2s. 6d.)

II. General Engineering

This course is intended to give students who are going into branches of industry other than that of Engineering an intelligent idea of engines and machinery, &c., without entering into minute details.

Course A

Mr. MYERS

Engineering Lecture Theatre

(For Students of Leather Industries, Tinctorial Chemistry and Dyeing, Chemical Engineering, Textile Industries.)

Mondays, Wednesdays, and Fridays at 9.30 a.m.

Materials: Strength and properties of cast iron, wrought iron, steel, copper, gun metal, timber.

Fuels: Solid, liquid, gaseous, heating power, air required, &c.

Boilers: Cornish, Lancashire, Vertical. Setting of Cornish and Lancashire Boilers.

Multitubular. Locomotive, portable.

Water Tube. Stirling, Babcock & Wilcox, &c.

Fittings. Safety valves, steam gauges, clack box, water gauges, fusible plugs, stop valves, drain cocks, &c.

Economisers and Superheaters.

Determination of efficiency with special reference to the importance of covering with non-conductors, keeping boilers and flues clean and preventing leakage of air through brickwork, &c.

Mechanical Stokers, forced draught, and smoke prevention.

Injectors, *Ejectors*, *Pulsometers*.

Joints for pipes, cylinder covers, stills, &c., to withstand various agents.

Steam Engines: Mill, Corliss, Locomotive, High Speed, Steam Turbines, &c.

Details: Slide and expansion valves, cylinders, pistons and rods, glands, connecting rods, cranks and crank shafts, governors, fly wheels, condensers and air pumps, superheated steam.

Gas and Oil Engines, principle of action, construction, &c.

Indicators, indicator diagrams, calculations, defects, &c.

I.H.P. B.H.P. E.H.P., and efficiency of engines.

Consumption of fuel and water per H.P. hour.

Hydraulics, general principles, friction of water in pipes.

Pumps, single and double acting, high and low pressure, centrifugals.

Accumulators, presses, hoists.

Prime Movers, other than heat engines: Water wheels, Motors, Turbines.

Transmission of power: Shafting, lubrication, pedestals, hangers, brackets, couplings, friction clutches, belts, ropes, toothed wheels, dynamos, electric motors, &c.

Various kinds of machines: Transference of liquids by means of compressed air or vacuum, hydro-extractors, elevators, grinding machines, edge rolls, ball mills, disintegrators, sifting machinery, stirring and agitating devices, drying plant, fans, water coolers, gas producers, filtration of waste water, &c.

Air compressors.

Choice of materials in the construction of vessels for various purposes: Cast-iron, wrought-iron, copper, silver, aluminium, &c.

Course B

Mr. DUNCAN

Engineering Lecture Theatre

(For Agricultural Students)

Mondays, Wednesdays, and Thursdays, at 2 p.m., during the First and Second Terms only.

1. *Mechanics*: Centre of gravity; stability of structures. The lever; toothed wheels; pulleys and ropes; wrapping connectors; winches; differential pulleys. Laws of motion. Strength of materials, tensile, compressive, torsional, and transverse; elastic limit; ultimate strength. Work; horse power; animal and human power. Friction of surfaces and axles; lubrication.

2. *Air*: Properties of air; elasticity, specific heat. Barometer. Moisture. Movement. Winds. Windmills.

3. *Water*: Composition. Weight. Height of column to balance atmosphere. Flow of water. Friction of water in pipes and channels. Usual speed of flow. Power derived from falls of water. Water wheels; turbines; water-pressure engines; pumps. Potable water. Sources of supply. Means of purification. Storage.

4. *Heat*: Nature of heat; thermometer; absolute zero; specific heat; latent heat; the unit of heat. Total heat of water; as ice, water, and steam. Conduction, convection, and radiation of heat. Mechanical equivalent of heat. Principle of combustion. Quantity of heat generated by combustion. Modes of transforming heat of combustion into power, as in the steam engine, and gas and oil engine.

5. *Steam-engine*: Construction of an ordinary portable-engine boiler, of a Cornish boiler, and its setting. Fittings of a boiler. Construction of the stationary and portable steam-engine. Single cylinder. Double cylinder. Compound. Slide-valve. Expansion valve. Cylinder. Piston-rod. Glands. Connecting-rod. Crank and crank shaft Fly-wheel. Bearings. Pet cocks. Lubrication. Steam and fuel consumed per horse-power.

6. *Gas and Petroleum Engines:* Principle of action. Construction of valve-gear. Sources of loss. Fuel and water required per horse-power.

7. *Electrical Generators, Motors, and Conductors:* Principles of action—shunt; losses in electrical machinery. Efficiency. Detection of faults. Regulation of shunt and series motors. Use of fuses and cut-outs. Horse power of motors, and calculation of Watts to be delivered at terminals. Ohm's law. Losses in conductors, and calculation of sizes to convey given currents with definite losses. Insulation of conductors.

Books Recommended.

Elementary Applied Mechanics, by MORLEY & INCHLEY. (Longmans, 3/-).
Natural Sources of Power, by BALL. (Constable, 6/-).
Heat Engines, by RIPPER. (Longmans, 3/-).

Course C

Mr. THOMSON

(For Mining Students) (Room 43)

Mondays—First and Third Terms, at 4 p.m.

Composition and resolution of forces, parallel forces, funicular polygon. Moments of forces, levers, pulleys, screws, gearing. Work, laws of friction, efficiency of machines.

Stress and strain, the strength and properties of iron, steel, gun metal, timber, ropes, chains.

Heat. Nature and effects of heat on solids, liquids, and gases. Temperature and quantity of heat, specific heat, relation of heat and work. Generation of steam, sensible or liquid heat, latent heat, total heat of steam. Elementary principles of the steam engine, economy in working. Measurement of the indicated and brake horse power. Fuels. Boilers, conditions necessary for economical working explosions.

Laboratory Class

Mondays, throughout the Session, 5.30 to 7 p.m.

Instruction will be given in the Engineering Laboratory in: The triangle and parallelogram of forces. Experimental determination of the forces acting on simple structures.

Levers. Efficiency of machines. Testing bars, pit props, chains, wire ropes. Indicating a steam engine and pump. Boiler and fan testing.

III. Second Year Civil Engineering

Mr. Gilchrist

Engineering Lecture Theatre

Tuesdays and Thursdays, at 4 p.m., and Saturdays, at 11.30 a.m.

Part I

General arrangement of a survey.

Chain Surveying: Chains, tapes, and measuring rods. Chaining on flat and sloping ground, over hills, obstacles in chain lines, errors in chaining, offsets, tie lines, booking observations, plotting results, calculation of areas from field-book notes and from plans by planimeter. Various problems in chaining.

Needle Surveys: Prismatic compass and circumferenter, tests and adjustments, declination, magnetic and true north, traversing, latitude and departure. Measurement of areas by chain and compass.

Plane Table: Various methods of using. Sources of error, tests and adjustments.

Angular Instruments: Sextants, uses, optical principle, tests and adjustments. Optical square. Theodolite, tests and adjustments, measurement of horizontal and vertical angles, taking bearings, triangulation, levelling, and measurements of heights.

Levelling: Levels, Dumpy, Wye, Abney. Levelling staffs, targets, correction for curvature of the earth and refraction. Methods of levelling and keeping the field book. Aneroids and their use. Contouring.

Part II

Geodetic Astronomy, finding of the true meridian, latitude and longitude.

Optical Instruments for the Measurement of Distances: Telemeters, tacheometers, range finders; uses, optical principles, tests and adjustments.

Hydrographic Surveying: Location of points on the surface of water, sounding lines of equal depth, measurement of streams, current meters, &c.

Geodetic Surveying: Setting-out of base lines with great accuracy. Triangulation, instruments employed.

Part III

Railways and other lines of communication: General principles of location and design, setting out of straight lines and curves on the surface and in tunnels, superelevation of outer rail on railways, transition curves, calculations of points and crossings, half widths on flat and sloping ground; calculation of volumes of earthwork. Design and construction of cuttings and embankments.

Books Recommended

Surveying and Levelling, by JAS. PARK. (Griffin, 6/-).
Topographical Surveying, by CLOSE. (Wyman, 3/6).
MIDDLETON & CHADWICK's Surveying. (Spon, 2 vols., 8/6 each).

NOTE: Students are recommended to read chapters 1 to 5 of Ball's Elementary Astronomy (Longmans), or the early chapters of Lockyer's Elementary Lessons in Astronomy (Macmillan), as a preparation for the geodetic astronomy.

IV. Third Year Civil Engineering

MR. GILCHRIST

Engineering Lecture Theatre

Tuesdays and Thursdays, at 9.30 a.m., and Saturdays, at 10.30 a.m.

Part I

Girder Bridges: Types of Bridges and arrangement of floor members. Effect of travelling loads for bending moments and shearing forces and their maximum values. Equivalent distributed loads for railway bridges.

Detailed consideration of theory of design of plate girders, box girders, &c. The complete design of a plate girder road bridge will be worked out in detail. Regulations of British and Foreign Governments in regard to design of railway bridges.

Part II

Framed Structures for Bridges: Different types of framed girders, maximum stresses in flange and web members. Design of joints.

Roofs: Types for different spans, methods of support, maximum stresses.

Part III

Limes and Cements: Manufacture and tests. British standard specification. Concrete, methods of preparation, water tightness, reinforced concrete, strength of beams and columns of reinforced concrete.

Theory of Masonry structures: Conditions of stability and strength, masonry arches, piers and masonry dams. Theory of earth pressure, retaining walls.

Part IV.

(To be held on Saturday mornings at 10-30 a.m.)

WATER SUPPLY, SANITARY ENGINEERING AND HARBOUR WORK.

Water supply: Quality and purity of water, sources of supply, quantities available and quantities required. Supplies by gravitation from streams and by wells. Design of works connected with supply and distribution.

Sanitary Engineering: Sanitation of buildings, sewerage of towns, sewage disposal and purification.

Harbour Work: Tides and waves. General principles, types and planning of breakwaters, harbours, docks.

Books Recommended.

WARREN'S Engineering Construction in Iron, Steel, and Timber (Longmans, 16s.)

Retaining Walls in Theory and Practise, by COLEMAN. (Spon, 5/-).

L. V. HARCOURT'S Civil Engineering (Longmans).

V. Practical Surveying

Mr. GILCHRIST

Instruction is given in Surveying and field work during the Easter vacation from March 17th to April 2nd. The class is held at Barden in Wharfedale, where accommodation is provided at farmhouses.

Fee: Including board and lodging... ...£6 6 0
Fee: Including half-time board and lodging 3 3 0

Students who have paid the Composition Fee of £31 will be charged a reduced fee of £4 4s, or for half-time, £2 10s.

Students will be held responsible to the full amount for any damage done to instruments.

VI. Second Year Mechanical Engineering

Engineering Lecture Theatre

Mondays, Wednesdays, and Fridays, at 10.30 a.m., with an exercise class one hour a week. (Room 114.)

1. *Graphical constructions:* Bending moment diagrams, shear diagrams, deflection of beams, setting out valve gear diagrams.

2. *Strength of Materials:* The deflection of beams of various sections, built-in beams, combined bending and direct stresses, hooks, struts, effects of end holding, eccentrically loaded columns, the torsional strength and stiffness of shafts, combined bending and torsion, crank shafts, close coiled helical springs, effect of repeated loading on structures.

3. *Air:* Properties, specific heats, properties of adiabatics and isothermals.

4. *Steam and the Steam Engine:* Wetness of steam, laws of thermodynamics, entropy-temperature diagrams, the heat efficiency of steam engines, steam engine trials.

5. *Steam Boilers:* Boiler trials, complete heat accounts.

6. *Gas and Petroleum Engines:* Calculation of temperatures produced by the burning of gases and vapours, cooling effect of cylinder walls, effects of compression on the efficiency, analysis of diagrams, complete heat accounts.

7. *Transmission of power:* Laws of friction of dry and lubricated surfaces, effect of temperature, intensity of pressure and speed, methods of lubricating, friction of screws, worms, pivots, rolling friction, ball and roller bearings.

8. *Hydraulics:* Weirs, orifices, Bernouilli's law, Venturi meter, flow in pipes and channels.

Sections 4, 5, 6, may, in some instances, be omitted by Civil Engineering Students.

Books Recommended.

GOODMAN'S Mechanics Applied to Engineering (Longmans, 9s. net.
RIPPER'S Steam Engine Theory and Practice (Longmans, 9s.)
EWING'S Steam Engine (Cambridge University Press, 15s.)
ROBINSON'S Gas and Petroleum Engines (Spon, 21s. net.)
GARRATT'S Principles of Mechanism (Arnold's Science Series, 3s. 6d.)
HOBBS' Thermo-dynamic Principles of Engine Desig (Griffin, 4s. 6d. net).

VII. Third Year Mechanical Engineering

Course A

Engineering Lecture Theatre

(For Civil and Mechanical Engineers)

Tuesdays and Thursdays, at 10.30 a.m., with an exercise class on Saturdays, at 9.30 a.m. (Room 114).

Hydraulics: Centre of pressure of immersed bodies, rational treatment of co-efficients of contraction, velocity and discharge for orifices, &c. Time required for the emptying and filling of tanks, docks, &c. Continuous and sinuous flow through pipes of constant and variable cross section. Friction in pipes and open channels, virtual slope, losses of head due to obstructions. Pressure of jets on various surfaces, application to water motors, hydraulic efficiency of motors. Design of blades for turbines and water wheels. Pumps, reciprocating, inertia effects, slip, centrifugal and other rotary pumps.

Compressed air: Problems in compressing, transmitting and utilizing. Friction of air in long mains. Compressed air pumps for lifting water, refrigeration by means of compressed air.

Strength of Materials: Poisson's ratio, problems in the mathematical theory of elasticity, flat plates, thick cylinders, open coiled helical springs, higher branches of testing, whirling of shafts, vibration.

Kinematics of machines: Analysis of the motions, velocities and accelerations in various mechanisms.

Course B

Engineering Lecture Theatre

(For Electrical and Mechanical Engineers)

Saturdays, at 10.30 a.m., with an exercise class on Saturdays at 9.30 a.m. (Room 114).

Dynamics of the Steam Engine: Cushioning for inertia pressures, balancing for reciprocating and rotating masses, twisting moment diagrams, locomotive balancing, balancing simple and complex engines, flywheels, fluctuation of energy and speed, stresses in rims of flywheels, governors, height, power, sensitiveness, hunting, flywheel governors, inertia effects.

Transmission of power by belts and ropes, coil friction, creeping of belts, centrifugal stresses, efficiency of parallel and tapered shafts.

Steam Turbines: Flow of steam through orifices. Design of blades and other details for impulse and reaction turbines.

Books Recommended.

GOODMAN'S Mechanics Applied to Engineering (Longmans, 9s. net).
UNWIN'S Transmission of Power (Longmans, 10s.)
COTTERILL'S Applied Mechanics (Macmillan, 12s. 6d.)
ROBINSON'S Gas and Petroleum Engines (Spon, 21s. net.)
RIPPER'S Steam Engine Theory and Practice (Longmans, 9s.)
EWING'S Cantor Lectures on the Mechanical Production of Cold, 1s.
DURLEY'S Kinematics of Machines (J. Wiley & Sons, and Chapman & Hall, 12s. 6d.).
GIBSON'S Hydraulics and its Applications (Constable, 16s. net.)
MORLEY'S Strength of Materials (Longmans, 7s. 6d.)
MORROW'S Steam Turbine Design (Arnold, 16s.)

VIII. Engineering Drawing

(Mechanical.)

Mr. MYERS and Mr.

The Drawing Department is open every day during working hours. A Draughtsman is always in attendance.

The work consists of tracing, copying and enlarging or diminishing machine drawings, making working drawings from freehand sketches and measurements of the

machinery in the engineering laboratory; designing machinery and gearing engine, details, working out valve motion diagrams

(Civil.)

Mr. GILCHRIST

Graphical determination of stresses in roofs, bridges, and other structures; plotting surveys from field book notes. Detailed design of structure.

Instruction is also given in copying drawings and tracings by sun printing.

VIIIa. Machine Design

Engineering Lecture Theatre

Saturdays, at 9.30 a.m.

The design of pipe flanges, valves, valve boxes, stuffing boxes, couplings, knuckle and cottered joints, bearings, hangers, teeth of wheels. Engine details, cylinder connecting rod, bed plate, &c.

The working out of the above designs will be done in the Drawing Department.

Books Recommended.

UNWIN'S Elements of Machine Design, 2 Vols. (Longmans, 10s. 6d.)

LOW & BEVIS, Manual of Machine Drawing and Design (Longmans, 7s. 6d.)

SPOONER'S Machine Design, Construction and Drawing. (Longmans, 10s. 6d. net.)

VIIIb. Machine Drawing and Graphics

Electrical Engineering Lecture Theatre

Saturdays, at 10.30 a.m.

Principles of projection.

Geometrical analysis of mathematical operations, Archimedian and logarithmic spirals, loci, link, parallel and straight line motions, cams.

Interpenetrations of prismoidal, pyramidal, spherical, and polyhedral bodies, development of surfaces, isometric protection.

IX. Engineering Laboratory

The work done in this department consists chiefly of making experiments and testing operations; it in no way whatever pretends to supersede the practical training that every Engineer must undergo in Engineering works. It should be clearly understood that no instruction is given in the use of either hand or machine tools; such work can only be properly done in Engineering works.

The experimental work consists of systematic instruction in the strength and properties of the chief materials used in Engineering construction. The work, as far as possible, is done on a large and practical scale to illustrate and verify the instruction given in the lectures. The equipment of the department consists of:

A 100-ton Buckton testing machine, which will deal with full-sized bridge ties, struts, columns, rolled joists, girders, floors, rails, chains, ropes, &c. Fitted with autographic recorder.

An "Olsen" 50,000 lbs. testing machine, for tension, compression and bending.

A Denison testing machine for lighter work in tension, torsion, and bending.

A Denison machine for testing the hardness of metals.

A microscope and appliances for studying the structure of metals.

A Wöhler testing machine for studying the effects of repeated loadings on materials, at both high and low temperatures.

Appliances for wire testing.

A 30-horse power compound steam engine and boiler, with natural and forced draught, fitted up expressly for experimental purposes; it can be worked under a great variety of conditions to demonstrate practically the conditions which tend to produce either economy or waste. The valves are so arranged that they can be wrongly set for giving instruction in valve setting, and the engine otherwise disarranged to illustrate the various defects to which engines are liable.

A 70-horse power compound Willans high-speed steam engine.

A McPhail and Simpson superheater, separately fired.

A "De Laval" Steam Turbine.

Apparatus for studying the flow of steam through nozzles.

Apparatus for analysing the furnace gases from boilers.

Calorimeters for measuring the heating power of solid and liquid fuels.

Apparatus for measuring the wetness of steam.

A 10-horse power steam engine, coupled to a 6-ft. Guibal fan, for experiments on fan efficiency.

A 6-ft. Capel fan driven by an electric motor.

A 3-ft. high pressure Capel fan.

A high pressure Schiele fan.

A 12-horse power Campbell oil engine.

A 15-horse power Otto cycle gas engine.

A Petrol engine.

A Linde ammonia refrigerating plant.

Transmission and absorption dynamometers.

A compound Ingersoll-Sergeant air compressor.

A Westinghouse air pump.

A machine for testing the friction of bearings on a 6-inch axle, under loads of 10 tons.

A Warren girder of 14-ft. span, fitted with apparatus for measuring the forces in the various members.

Apparatus for studying the explosion of gaseous mixtures, governors, work stored in flywheels, &c.

Hydraulic appliances, including a centrifugal pump, capable of lifting 75,000 gallons of water per hour, measuring tanks up to 25,000 gallons capacity, Pelton wheel, water meter, weirs, orifices, nozzles, &c. Apparatus for determining the friction of water in pipes, and the pressure of jets on surfaces.

A Berry's hydraulic test pump, working up to a pressure of 5 tons per square inch.

A 6in. × 4in. high pressure reciprocating pump, with separate measuring tank, tumbling bay, &c., and complete apparatus for studying the action of the valves, water hammer, &c.

A duplex Worthington pump.

A pulsometer steam pump and steam injectors.

A Gilkes' "Vortex" turbine, fitted with a Kent's Venturi water meter and tumbling bay.

(For Civil Engineering Students)

Testing the strength of brickwork, brick arches, stone, concrete, Portland cement, mortar, timber, beams, struts, ropes, chains, &c.

Measuring the stresses in the members of a Warren girder, and the links of a suspension bridge.

Measuring the flow of water in pipes, over weirs, through orifices, water meter testing. Experiments on a centrifugal pump.

Engine tests, pulsometer pump tests.

Tests and adjustments of measuring and surveying instruments.

Every student will be held responsible for the apparatus with which he is working, and will be required to make good any damage. A deposit of 10s. 6d. will be required, from which 1s. will be deducted for stationery, also fines (if any) for breach of regulations. If the machinery is required for private use by the student after ordinary working hours, a further charge will be made. The balance will be returned in the event of no damage being done to apparatus, but the student's liability is not limited to the above amount.

On application an illustrated pamphlet giving full particulars of the Laboratory will be sent.

Research Students

Research Students are admitted to the Laboratory on reduced terms. For particulars see page 133.

Mathematics I.—First Year Course for Engineers

Room 114

Mr. DUNCAN

Mondays, Wednesdays and Fridays at 9.30 a.m.

Logarithms and the slide rule.

Conversion of units.

The mensuration of the chief curves and solids met with in practice. Elements of spherical geometry.

Algebra. The solution of quadratic, exponential and logarithmic equations. Variation, partial fractions. Progressions. The binomial theorem.

Trigonometry. The elements of trigonometry to the solution of triangles.

Graphics. Curve plotting. The equation to a curve. The determination of laws. The graphical solution of equations. The slope and area of a curve.

Books recommended:

DUNCAN'S "Practical Curve Tracing." (Longmans, 5/-, net.)
HALL & KNIGHT'S "Elementary Algebra." (Macmillan, 4/6.)
LOCK'S "Trigonometry for Beginners." (Macmillan, 2/6.)
SAXELBY'S "A Course in Practical Mathematics." (Longmans, 6/6.)
LONGMANS' "School Mensuration." (Longmans 2/6, net.)

Mathematics II.—Second Year Course for Engineers

Mathematics Lecture Room

Mr. WATSON

Mondays, Wednesdays and Fridays at 9.30 a.m.

Graphical methods.

Differential and Integral Calculus.

Mechanics

Room 114

Mr. DUNCAN

Tuesdays and Thursdays at 9.30 a.m., and an exercise class on Thursdays at 11.30 a.m.

Statics.

Resolution and Composition of Forces.

Moments; Couples.

Centre of Gravity.

Simple Machines; Velocity Ratio; Mechanical Advantage; Efficiency.

Dynamics.

Velocity and Acceleration; Acceleration due to Gravity.

Angular Velocity and Acceleration.

Addition and Subtraction of Vectors.

Force; Newton's Laws.

Mass; its Measurement; Momentum; Impulse.

Work and Energy; The Conservation of Energy.

Power.

Circular Motion; Centrifugal Force.

Moments of Inertia.

The C.G.S. and the British Non-Gravitational Systems of Units.

Specific gravity.

Text Book Recommended

MORLEY'S Mechanics for Engineers (Longmans, 4s. net).

Special Course of Electrical Engineering for Mechanical and Civil Engineering Students

Electrical Engineering Lecture Theatre

Lectures Ia

Mondays, Wednesdays, Fridays at 9.30 a.m.

Electrical units; principal laws of resistance; electromagnetism in relation to commercial applications; fundamental principles and commercial applications of

electro-static and electro-magnetic induction; commercial instruments and methods of measuring current, resistance, pressure, power, and energy; electric incandescent lamps; electric arc lamps; secondary cells; construction, action, efficiency and regulation of (*a*) direct current generators and motors, (*b*) of alternating current generators and motors (single- and poly-phase); systems of electric distribution; rotary and static transformers, rectifiers, and boosters; important fundamental principles in single- and poly-phase alternating currents.

Laboratory Ia

Tuesdays from 2 to 5 p.m., second and third terms.

Measurement of resistance, current, and pressure by commercial methods; insulation, resistance, and localisation of faults; relation between E.M.F. speed and excitation in direct and alternating current generators; electrical and mechanical characteristic efficiency curves of direct and alternating current (single- and poly-phase) generators and motors, rotary converters, rectifiers, transformers, and boosters, from which the behaviour and regulation of such appliances will be practically determined; measurements showing the extreme importance commercially of a fundamental knowledge of electro-static and electro-magnetic induction with alternating currents.

ELECTRICAL ENGINEERING

Mr. Parr Mr. French

The complete course of instruction in Electrical Engineering is specially designed to meet the requirements of, and to provide a systematic training for, students purposing to become electrical engineers, and to enable them to acquire a sound knowledge of the scientific basis of the profession. It comprises (*a*) Lectures, (*b*) Exercises, (*c*) Electrical Design and Drawing, (*d*) Practical Work in th Laboratories.

Each student will be generally practised as far as possible in the manipulation, uses, and working of electrical apparatus, appliances, and machinery which he will meet with on entering the commercial side of his profession. The fact, however, that *a sound knowledge and actual practice in certain branches of mechanical engineering are of paramount importance to an electrical engineer*, must on no account be lost sight of, especially for those purposing to become Central Station Engineers. It is desirable that, when possible, students should have some practical experience in Engineering Works before taking up the University course. However practical a course of instruction at a University may be, it cannot provide the kind of practical experience obtainable in a works or central station. Such however can be easily and rapidly acquired by a student who has attended a University.

Choice of Courses

Students in this Department can enter for one of the following Courses of Study:

(*a*) Students who have passed the Matriculation examination are recommended to present themselves for the University B.Sc. degree.

(*b*) Those who have not passed the Matriculation examination are recommended to present themselves for the University Diploma, and also, if possible, the examinations of the Institution of Civil Engineers.

Entrance Examination

Students entering this department who have not matriculated must satisfy the Entrance requirements prescribed on page 311.

Degree of B.Sc. in Electrical Engineering

The degree course covers three years and can only be entered upon after the matriculation examination (held every July and September) has been passed. Students are strongly recommended to take this course.

The following courses of study are suitable for students who wish to take a B.Sc. degree :—

MATRICULATION, before leaving school. (Fee £2).

(1) English Language and Literature, and English History.

(2) Mathematics, including an additional paper in Trigonometry.

(3) Elementary Mechanics.

(4) Chemistry.

(5) Either French or German, or some other language approved by the Board.

INTERMEDIATE, at end of first year. (Fee £1).

(1) Mathematics (two papers).

(2) Physics (with practical examination).

(3) Chemistry (with practical examination).

(4) An Essay.

ADDITIONAL SUBJECT usually taken at end of second year. (No Fee).

Applied Mechanics.

ORDINARY DEGREE

FINAL, at end of third year. (Fee £1).

Defined by Lectures I, II, III and IV.

Electrical Engineering, principal subject.

Heat Engines and Dynamics of Machinery.

Electrical Generation and Transformation of Energy.

Electrical Distribution of Energy.

Electrical Design and Drawing, one day.

Electrical Laboratory, one day.

Subsidiary subjects, at end of second or third years:
Mathematics (see Examination Papers)—Pure Mathematics I and II or Pure Mathematics I and Subsidiary Applied Mathematics.
Physics, or Mechanical or Civil or Mining Engineering.
Translation from French or German.

Sample drawings done by the candidate, also his laboratory books must be handed in for the external Examiner to inspect.

The candidate must produce a certificate of having satisfactorily attended a prescribed course in Physics.

HONOURS DEGREE

INTERMEDIATE, at end of first year. (Fee £1).
Same as under Intermediate for ordinary degree.

FINAL, at end of the second or third year. (Fee £1).
Pure Mathematics (two papers).
Applied Mathematics (two papers).

Electrical Engineering, at end of third year. (Fee £1).
Generation of Electrical Energy.
Transformation of Electrical Energy.
Distribution of Electrical Energy.
Design of Electrical appliances.
Mechanical Engineering.
Heat Engines.
Electrical Laboratory, two days.
Translation from French or German.

Sample drawings done by the candidate, also his laboratory books must be handed in for the external examiner to inspect.

Regular Non-Degree and Diploma Courses

Students who are unable to enter for the preceding degree course may take up a regular DIPLOMA COURSE in ELECTRICAL ENGINEERING extending over THREE YEARS, but a modification of this course to TWO YEARS may in *special cases* be sanctioned for students who are able to produce satisfactory proof that they have a *sufficient knowledge of the whole of the first year's work* to commence at the beginning of the second year, and to follow the course of instruction therefrom, in which case they may have exemption from attendance on the first year course. Application for exemption must in such cases be made to the Head of the Department

at the commencement of the student's course. It cannot be too strongly pointed out to intending students that an Electrical Engineering course of less than three years' duration is very unsatisfactory to the University and much more so to the student himself, as it is quite impossible to get in the amount of work which is necessary in order that the student may be sufficiently benefited thereby afterwards.

The Institution of Civil Engineers now requires that all candidates for membership shall take an Engineering degree or shall pass an equivalent examination before being admitted.

All Engineering students of this University who have passed the Leeds Matriculation (including two Science subjects and an additional paper in Trigonometry) or other prescribed examination are eligible for election as Students of the Institution of Civil Engineers—the first step towards becoming a Member (M.Inst.C.E.). They are then entitled to attend the Meetings and Excursions of the Local Branch of the Institution of Civil Engineers and to receive four volumes of Proceedings per annum. Miller Scholarships and Prizes, value from £10 to £120, are awarded by the Institution for papers read by Students at either the Local Branches or at Head Quarters. Free Studentships for a period of two years are awarded to all students elected from this University, who have obtained a first class in the second year's examination, and have undertaken research work to the satisfaction of the Professor, the results of which must be forwarded to the Institution in the form of a Student's Paper.

Students who have not passed the Matriculation examination are strongly advised to take the Studentship examination of the Institution of Civil Engineers during their second year, and the Associate Membership examination during their third year.

All Diploma Students in Electrical Engineering take for their Final Examination in this particular subject the same Final Principal Electrical Engineering papers and work as is set for the Final Examination for the ordinary degree of B.Sc.

Only those students of Electrical Engineering who have gone through the complete or modified course of instruction,

and have done satisfactorily *not only in their electrical exercises, design, and laboratory work, but also in Engineering, Mathematics, and Physics* throughout the above course and who have passed the Final Examinations will be awarded the Diploma and will be proposed for admission to the Institution of Electrical Engineers.

A descriptive essay relative to the technical work of the candidates will be set as part of the Diploma examination, and will be examined by the Examiners in English in co-operation with the Examiners in the technical department concerned. Foreign students may be excused from presenting themselves for this essay on producing evidence of having received a satisfactory general education. All other students will be required to satisfy the Examiners in this essay.

In the Diploma examination there will be included, for translation into English, passages of French and German relating to the principal subject of a candidate's Diploma course, and credit will be given for correct rendering of such passages. Fee for Diploma Examination, £1.

The Clerk to the Senate will supply each candidate with a Diploma Course Record which he will be required to keep and to produce, prior to the Final Examination, to the Professors and Lecturers concerned, and on other occasions when called for.

Each candidate will also be required to obtain on his Diploma Course Record each session the signatures of the respective Professors or Lecturers to certify that his work has been satisfactorily done, and that he has reached a satisfactory standard in the required examinations in each subject forming part of the course.

The instruction during the first year of the complete course is the same for Civil, Mechanical, and Electrical Engineering students.

In the second year the student specialises more in his particular department, and in the third year he devotes most of his time to this department, attending three courses of lectures on advanced Electrical Engineering.

If a student fails more than once to satisfy the requirements of his class examinations in any subject, he will be

required to repeat the course in which he fails before proceeding to the higher course, and if he fails to pass in any of his examinations in Engineering I and Electrical Engineering I he will not be allowed to re-enter except on the special recommendation of the head of the department.

Special or Partial Courses

In the event of any person being unable to afford the time for either the complete or modified courses as above, he may be allowed to attend portions of the regular course if he furnishes proof that he possesses sufficient knowledge to follow the instruction. He must personally see the head of the department, and it will be to his advantage to select, if possible, his laboratory work in accordance with the Time Tables for Degree students.

A course of instruction extending throughout the Session will be given to Mining students in Electrical Engineering. The course will consist of lectures and in *testing* and *using* many of the Electrical appliances met with in Mining work, &c. Text books recommended: *Electricity as applied to Mining*, by Lupton, Parr & Perkin (Crosby Lockwood, 12s. net), Parr's *Electrical Engineering in Theory and Practice* (Macmillan & Co., 12s. net).

Classes are held for working electrical engineering problems, the electrical design of direct current dynamos and motors, alternating current generators, motors, transformers and high tension condensers. Students will be furnished with opportunities for constructing and repairing electrical apparatus in the Electrical Engineering Workshop.

THE ELECTRICAL ENGINEERING DEPARTMENT

The University has replaced the old department by a large and handsome building, specially designed for teaching Electrical Engineering. A very large addition has been made to the original equipment, in the form of the most modern machinery, general plant, and apparatus of all descriptions. The department, in addition to possessing a large Lecture Theatre, Drawing Office, Private Research Room, Workshop and Battery Room, contains the following:—

Electrical Engineering Laboratories

namely, DYNAMO, MOTOR, TRANSFORMER, INSTRUMENT, PHOTOMETER AND CABLE JOINTING ROOMS, and ELEMENTARY LABORATORY, which are fitted with a large variety of electrical engineering plant, including 26 different types of direct and alternating current generators, motors, double commutator converters, rotaries, and rectifiers, by the best makers, of which there are 8 large direct-coupled motor-generator "sets," ranging from 4- to 30-h.p., in the dynamo room. The motors of these "sets" are of the most modern types, with multipolar fields and commutation poles in the larger sizes, for giving wide variable speed ranges. The generators of direct current are respectively series, shunt and compound (long and short shunt) wound machines, and a 500 volt compound wound dynamo. The alternators are respectively single, two and three-phase machines. Two of the direct current dynamos are fitted with arrangements for delivering three-phase, and one for delivering two phase, alternating currents, and hence are rotatory converters for converting continuous to single,- two- and three-phase alternating currents or vice versa. In addition there is a 10 Kilowatt Westinghouse rotatory converter (continuous to single- two- and three-phase alternating currents or vice versa); an Electric Construction Co.'s motor generator of $2\frac{1}{2}$ K.W. THE MOTOR ROOM is equipped with separate series, shunt, and compound wound direct current motors, together with a G.E. Co.'s 800 tramway motor; also with single-phase alternating current induction and commutator motors, together with two- and three-phase induction motors, all fitted with different types of absorption dynometers, for measuring H.P. and efficiency. THE TRANSFORMER ROOM is equipped with electrolytic and rotary rectifiers; a three-phase transformer; a low tension Lowrie Hall converter; several high tension 2,000 Volt transformers of the Mordey, Swinburne, Lowrie-Hall, Berry, and Pyke-Harris types; high and low tension condensers. The remaining laboratories are equipped with the most modern standards, and a large variety of other instruments, &c., met with in commercial work, and necessary for ordinary and advanced testing work, The CABLE JOINTING ROOM is fitted with suitable stoves, tools, instruments, and different sized cables up to 37-strand,

and 0·1 sq. inch concentric armoured main, for practice, in joint making. The University is lighted throughout by the electric light, the plant for which Electrical Engineering students take charge of and are responsible for during a complete week.

Every Student will be held responsible for the apparatus with which he is working, and will be required to make good any damage. A deposit of 10s. 6d. will be required, from which fines (if any) for breach of regulations and cost of repairs to damaged apparatus will be deducted. The balance will be returned in the event of there being no fines and no damage done to University apparatus, but the student's liability is not limited to the above amount.

Appointments Register

A register of appointments is kept for the benefit of former students. For particulars apply to the Head of the Department.

During the Session courses of lectures and laboratory instruction will be given on:—(I) Electro-technology; (II and III) Advanced electrical engineering; (IV) Electrical design.

TIME TABLES

20. Ordinary and Honours Degrees

FIRST OR INTERMEDIATE YEAR COURSE FOR CIVIL, ELECTRICAL, AND MECHANICAL ENGINEERING.

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Eng. Laboratory		Chem. Int.	Math. Int.	Physics Int.	Eng. I.
TUE. ..	Drawing	Drawing	Math. Fi	Chemical Laboratory		
WED. ..	Eng. Laboratory		Chem. Int.	Engineering Laboratory (1st Term)		
THU. ..	Drawing	Drawing	Math. Fi	Physics Laboratory		
FRI. ..	Chem. Exercise Class	Eng. I. Exercise Class	Chem. Int.	Math. Int.	Physics Int.	Eng. I.
SAT. ..	Drawing	Machine Drawing Lecture	Physics Lab.			

21. Ordinary Degrees

SECOND YEAR COURSE FOR ELECTRICAL ENGINEERING,
with Mechanical Engineering as the subsidiary subject.

	9.30 to 10.30	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon. ..	Drawing	Eng. VI.	Math F_2	Elec. I.	Drawing	Drawing
Tue. ..	Engineering Laboratory			Engineering Laboratory		
Wed. ..	Drawing	Eng. VI.	Math. F_2	Drawing	Drawing	Drawing
Thu. ..	Elec. Engineering Lab.			Elec. Eng. Lab.		Elec. I.
Fri. ..	Drawing	Eng. VI.	Math. F_2	Elec. I.	Drawing	Drawing
Sat. ..	Mach. Design.	Mech. Ex. Class				

It may be advisable for students who have not done well in Maths. F_1 in their first year to repeat a part of the course during the third term of their second year.

22. Ordinary Degrees

THIRD YEAR COURSE FOR ELECTRICAL ENGINEERING

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon. ..	Elec. Design	†Phys. F_1. ‡E. E. Ex. Class	Elec. Design and Draw.	Elec. Design and		Drawing
Tue. ..	Electrical Engineering	*Eng. VII A Engineering Lab.	Elec. II	Electrical	Engineering Lab.	
Wed. ..	Mechanical Engineering Lab.			Electrical	Engineering Lab.	
Thu. ..	Elec. Design and Drawing	*Eng. VII A	Elec. III	Mechanical Engineering Lab.		
Fri. ..	Elec. Eng. Lab.	†Phys. F_1 ‡E. E. Ex. Class	Elec. IV	Electrical	Engineering Lab.	
Sat. ..	Eng. Excs.	Eng. VII B				

* Optional. † Second Term only. ‡ First and Third Terms only.

23. Honours Degrees

SECOND YEAR COURSE FOR ELECTRICAL ENGINEERING

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Math. F_3	Eng. VI.	Math. F_2	Elec. I.	Drawing	Drawing
TUE. ..	Mech.	Eng. Laby.		Mech.	Eng. Laby.	
WED. ..	Math. F_3	Eng. VI.	Math. F_2	Drawing	Drawing	Drawing
THU. ..	Elec.	Eng. Laby.		Elect. Eng. Laby.		Elec. I.
FRI. ..	Math. F_3	Eng. VI.	Math. F_2	Elec. I.	Drawing	Drawing
SAT. ..	Machine Design	Mech. Exer. Class				

24. Honours Degrees

THIRD YEAR COURSE FOR ELECTRICAL ENGINEERING

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Elec. Design	†Phys. F1 ‡E.E. Ex. Class	Elec. Design and Draw.	Elec. Design and		Drawing
TUE. ..	Elec. Eng. Lab.	*Eng. VIIA	Elec. II	Elec.	Eng.	Laby.
WED. ..	Mechanical Engineering Lab.			Electrical	Engineering Lab.	
THU. ..	Elec. Design and Drawing	*Eng. VIIA	Elec. III	Mech.	Eng.	Laby.
FRI. ..	Elec. Eng. Lab.	†Phys. F1 ‡E.E. Ex. Class	Elec. IV.	Electrical	Engineering Lab.	
SAT. ..	Eng. Excs.	Eng. VIIB.				

* Optional. † Second Term only. ‡ First and Third Terms only.

DIPLOMA

25. Courses for Students not taking Degrees

FIRST YEAR COURSE (Civil, Electrical, Mechanical)

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Math. I	Engineering		Laboratory		Eng. I
TUE. ..	Mechs.	Drawing	Eng. I Exercise Class	Drawing	Drawing	Drawing
WED. ..	Math. I	Engineering Lab.		Engineering Laboratory.		
THU. ..	Mechs.	Drawing	Mechs. and Maths.	Drawing	Drawing	Drawing
FRI. ..	Math. I	Engineering		Laboratory		Eng. I
SAT. ..	Drawing	Machine Drawing Lecture	Eng. I			

DIPLOMA

26. Courses for Students not taking Degrees

SECOND YEAR COURSE (Electrical)

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Math. II	Eng. VI	Drawing	Elec. I	Phys. Int.	Drawing
TUE. ..	Mech.	Eng. Laby.		Mech.	Eng. Laby.	
WED. ..	Math. II	Eng. VI	Drawing	Drawing	Drawing	Drawing
THU. ..	Elec.	Eng. Laby.		Elect. Eng. Laby.		Elec. I
FRI. ..	Math. II	Eng. VI	Drawing	Elec. I	Phys. Int.	Drawing
SAT. ..	Machine Design	Eng. Exer. Class				

DIPLOMA

27. Courses for Students not taking Degrees

THIRD YEAR COURSE (Electrical)

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Elec. Design	*Phys. F1 †E. E. Ex. Class	Elec. Design and Draw.	Elec. De	sign and	Drawing
TUE. ..	Elec. Eng.	‡Eng. VIIA Laby.	Elec. II	Elec.	Eng.	Laby.
WED. ..	Mechani	cal Engine	ering Lab.	Elect. En	gineering	Laboratory.
THU. ..	Elec. De Draw	‡Eng. VIIA sign and ing	Elec. III	Mech.	Eng.	Laby.
FRI. ..	Elec. Eng. Lab.	*Phys. F1 †E. E. Ex. Class	Elec. IV	Elec. En	gineering	Laboratory.
SAT. ..	Eng. Excs.	Eng. VIIB				

* Second Term only. † First and Third Terms only. ‡ Optional.

28. Special Two Years' Course

FIRST YEAR

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Math. II	Engineer	ing Lab.	Elec. I.	Phys. Int.	Eng. I.
TUE. ..	Mechs.	Drawing	Eng. I. (Exercise Class).	Drawing	Drawing	Drawing
WED. ..	Math. II	Engineer	ing Lab.	Eng. Lab.	Eng. Lab.	Eng. Lab.
THU. ..	Mechs.	Elec. En	g. Lab.	Elec. E	ng Lab.	Elec. I.
FRI. ..	Math. II	Engineer	ing Lab.	Elec. I.	Phys. Int.	Eng. I.
SAT. ..	Exercise Class	Drawing	Drawing			

29. Special Two Years' Course

SECOND YEAR

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Elec. Design and Draw.	Eng. VI.	Elec. Design and Draw.	Elec. De	sign and	Drawing
TUE. ..	Elec. Eng Labor	*Eng. VIIA ineering atory	Elec. II	Elec.	Eng.	Laby.
WED. ..		Eng. VI.		Elec. Eng	ineering L	aboratory
THU. ..	Elec. De Draw	*Eng. VIIA sign and ing	Elec. III	Mech. Eng	ineering L	aboratory
FRI. ..	Elec. Eng. Lab.	Eng. VI.	Elec. IV.	Elec. Eng	ineering L	aboratory
SAT. ..	Mach	Eng. VIIB ine Draw	ing			

* Optional.

Research Students

Research Students are admitted to the Electrical Engineering laboratories on reduced terms. For particulars see page 133.

SYLLABUS OF COURSES

I. Second Year Lecture Course

Mondays and Fridays, from 2 to 3 p.m., and Thursdays from 4 to 5 p.m. throughout the Session.

Second year students attend a course of lectures on Electro-Technology. The subjects treated will embrace absolute and practical electrical units — their derivation; measurement of currents, potential differences, resistances, power, and energy; construction and action of ammeters, voltmeters, ohmmeters, resistances, condensers, wattmeters, coulombmeters, ergmeters, electro-dynamometers, and other electrical measuring instruments; principles of electro-magnetism, induction, permeability, hysteresis; electro-magnetic induction; measurement and laws of combination of self and mutual inductions; principles of construction, characteristics, efficiency, coupling and conditions of automatic and self-regulation of direct

and alternating current dynamos and motors for constant pressure and current ; boosters ; types of armatures and field magnets; governing motors to run at constant speed ; relations between current and torque in series and shunt and compound motors ; application to lifts and traction ; speed reducing gear; load curves and their effect on all day efficiency; construction, capacity, life and management of secondary cells ; comparison of all the well-known present-day types ; use as regulators for small plants and as balancers for three-wire system ; construction, life, candle-power, and efficiency of glow and arc lamps—open, enclosed, and inverted ; distribution of light ; absorption by globes ; comparison of direct, rectified, and alternating current arcs ; distribution of electricity by series, parallel, three-wire, and five-wire systems ; regulating appliances ; transformers—their construction and uses ; direct current transformers ; rotary converters ; secondary cells as transformers ; substations ; comparison of efficiency with various systems of distribution, electric welding — Thomson and Bernardo's processes ; electric brazing ; electrolytic deposition of metals ; safety devices ; TELEGRAPHY—the most important instruments ; signalling through land lines and submarine cables; simplex, duplex, and multiplex systems ; wireless telegraphy ; TELEPHONY—transmitters, receivers, metallic circuits, trunk lines; multiple call systems; Phonophore multiple cables ; testing and localising faults in telegraph and electric light mains ; wireless telephony.

Books recommended

PARR's Electrical Engineering Measuring Instruments (Blackie & Sons, 9s. net).

PARR's Electrical Engineering in Theory and Practice (Macmillan & Co., 12s. net.)

Second Year Laboratory

The work will include amongst other things :—

Commercial methods of testing direct and alternating current ammeters, voltmeters, wattmeters, electricity supply meters and other important measuring instruments ; measurement of capacity of high and low tension condensers and cables; permeability; hysteresis; self and mutual induction ; insulation resistance of circuits, machines, and cables by Silvertown portable testing set and other methods; resistance

of liquids ; magnetic leakage, &c. ; measurement of efficiency and candle power of electric arc and glow lamps ; efficiency, internal resistance, and management of secondary batteries ; together with a jointing course in electric light cables of various sizes up to 37/16, lead covered cables, and 0.1 square inch concentric armoured street main ; the electrical and mechanical properties of which the student will afterwards test.

Each second year student will be required to provide himself with a copy of Parr's Practical Electrical Testing (Longmans, Green, and Co., 8s. 6d.).

1a. Lecture and Laboratory Course for Civil and Mechanical Engineers

This course is specially arranged and chosen so as to give Civil and Mechanical Engineering students a clear knowledge of Electrical Engineering more particularly in its relation to their own work.

For syllabus of subjects and work dealt with see page 343.

LECTURES.—Mondays, Wednesdays, and Fridays, 9-30 to 10-30 a.m.

LABORATORY.—[1]Tuesdays, 2 to 5 p.m.

II. and III. Third Year Lecture Courses

Tuesdays and Thursdays, from 11.30 to 12.30 p.m., throughout the session.

Course II will deal with alternating current work, and Course III with continuous current work.

The subjects treated will embrace : Electric transmission and distribution of power by continuous and alternating currents, treated practically, and from an economic point of view ; electric traction systems with surface contact, trolley wire, self contained (battery), third rail and underground conduit ; auto-car traction ; rail bonding ; controllers ; gearing ; relative cost of electric traction as compared with horse, steam, compressed air, and oil traction ; theory and measurement of current, voltage, and power in alternating single-phase and multiphase current circuits containing self and mutual induction, ohmic resistance and capacity, and the

[1] 2nd and 3rd Terms only.

effects of these with such currents ; size of " feeders " and mains in distributing systems ; generation, transformation, and distribution of multiphase currents.

IV. Third Year Lecture Course

Lectures on Fridays at 11.30 a.m., and Designing and Drawing on Mondays 11.30 a.m. to 12.30 p.m. and 2 to 5 p.m., and Thursdays 9.30 a.m. to 11.30 p.m.

This Course on Electrical Design consists of lectures on the general principles underlying electrical design, and also the complete mechanical and electrical design of direct and alternating current dynamos and motors, high tension condensers, alternating and continuous transformers, and the complete design, with estimate, of the electric light installation in a house.

Students will themselves design and draw from new data the machines and appliances enumerated in the course.

Third Year Laboratory

The work is of a more advanced and technical character than that of the second year, and will comprise:—Relations between E.M.F. and speed in direct current dynamos and alternators ; characteristics, output, H.P., and efficiency of continuous current dynamos, motors, alternators, transformers, and rectifiers, using laboratory and commercial methods ; calibration of high tension instruments; E.M.F. and current curves of alternators and transformers ; measurement of power developed in alternating single-phase and multiphase current circuits ; practical methods of measuring magnetic leakage in dynamos; tests employing multiphase currents ; efficiency tests on multiphase rotatory converters; combined efficiency tests on a motor generator set ; on a tramway set ; on an engine dynamo set ; and on a motor fan set ; tests employing high tension condensers with alternating currents ; investigations of wave forms by the oscillograph. Arrangements are also provided for instructing students in throwing into phase two single-phase or polyphase alternating currents.

Each third year student will be required to provide himself with a copy of Parr's Advanced Electrical Engineering Testing (Chapman and Hall, 9s. net).

MINING

Assisted by the Drapers' Company of the City of London, and by the West Yorkshire Coal Owners' Association, and the West Riding County Council

Professor

Mr. BOWEN Mr. MORGANS

The University, which is situated in the heart of a mining district possessing some of the deepest and best equipped of modern English collieries, enjoys the cordial support of the owners and managers of mines, who give the Professor every facility for instructing his students. As the University is, moreover, provided with excellent Physical, Chemical, Metallurgical and Engineering (Mechanical and Electrical) laboratories, it has every facility for giving its students both a theoretical and practical training in the art of Mining.

There are seven distinct courses of study arranged in this department to meet the requirements of different classes of students, viz:

1. A three years' course leading to the degree of B.Sc. in Mining.
2. A three years' course qualifying for the Diploma in Coal Mining.
3. A two years' course qualifying for the Diploma in Mine Surveying.
4. A four years' course in Coal Mining for miners and sub-officials.
5. A two years' course in Science as applied to Mining for teachers.
6. A course in Mine Gases and Explosions for teachers of classes in Gas-Testing, &c.
7. A two years' course of Engineering as applied to Mining for Teachers.

Students entering for courses 1, 2 or 3 must produce certificates of having passed either the Matriculation examination, the Oxford or Cambridge Local examination (including

Mathematics), the Matriculation examination of the University of London, or other approved examination, or they will be required to pass the following special entrance examination in each subject. Students under 17 have to take a paper on English Composition in addition.

ENTRANCE EXAMINATION[1]

(Time allowed, three hours.)

Arithmetic: The ordinary rules of Arithmetic including vulgar and decimal fractions, proportion, factors, H. C. F. and L. C. M., practice, square root, conversion from English to Metric system, averages, percentages, interest.

Algebra: The ordinary rules of Algebra including fractions, brackets, simple equations with problems. H. C. F. and L. C. M.

Geometry: The first book of Euclid or its equivalent, including riders.

Trigonometry: Simple problems involving the trigonometrical ratios.

Every student is required to pass in each subject.

Students who can devote three years to attendance at the University are strongly recommended to take the B.Sc. degree of the University of Leeds. Students intending to read for a degree must pass the Matriculation examination conducted by the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield (see regulations of the Matriculation Examination Calendar, and also the Calendar of the Joint Matriculation Board obtained from the Secretary, 24, Dover Street, Manchester, post free, 8d.).

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1 The Examination will be held on Tuesday, October 1st, 1912, the English subjects at 10 a.m. and the Mathematical subjects at 2 p.m., and on Tuesday, July 1st, 1913, at 2 p.m. in the Mathematical subjects only. Students should send in their names beforehand. The July Examination may be taken at any place convenient to the candidate provided suitable invigilation can be secured. Students who have attended Evening classes at the University and have taken a satisfactory position in the Examination will be exempted from this Examination.

I. Ordinary B.Sc. Degree Course in General Mining[1] (Three Years' Course)

This course of instruction is arranged for students who desire to qualify themselves as Mining Engineers, Surveyors, or Assayers, and also for those who intend, in the future, to take charge of mining and prospecting operations in the colonies or foreign countries. During the first year the student applies himself entirely to general science and Engineering, preparing for the Intermediate examination. In the second year he continues his work in general science and Engineering, adding Electrical Engineering and the introductory lectures on Coal Mining. In the third year the student spends the greater part of his time in special Mining work taking also a course of study in Geology, including field work. Students are required to devote the summer vacations to getting experience in mines.

In addition to the subjects specified in the time tables below, students are advised to study a modern language.

Students who are unable to afford time for the complete course may be admitted to the Mining, Surveying, and Assaying courses on furnishing proof that they possess sufficient knowledge to follow the instruction given.

Students reading for the degree are required to attend the courses specified in the following Syllabus. The time tables given are arranged to include these subjects, but in the second year the student may make slight modifications according as he wishes to give additional time to Engineering, Electrical Engineering, or general science.

Syllabus

First Year	Hours per week.
Mathematics, Intermediate ...	3
Physics, Intermediate ...	3
Chemistry, General Course ...	3
Engineering I.	3
Physical Laboratory... ...	3
Chemical Laboratory ...	6
Engineering Drawing and Laboratory...	9

Second Year	Hours per week
Mathematics, Final ...	3
Electrical Engineering Ia.	3
Electrical Engineering Ia. Laboratory, 2nd and 3rd Terms	3
Engineering VI.	3
Coal Mining	1
Engineering Laboratory ...	6
Engineering Drawing ...	6
Mining Lab. and Drawing	3

1 Graduation as B.Sc. on the Mining course prescribed has been recognised by the Secretary of State for the Home Office as equivalent to two years' experience at a mine for the purposes of the Colliery Manager's Certificate.

Third Year

	Hours per week.
Mining	3
Ore Dressing, &c. } Surveying }	2
Legislation and Economics	2
Geology F1	3
Geology Laboratory	6
,, Field Course	
Mining Laboratory and Surveying	15

First Year Time Table

	9.39 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Eng. La	boratory	Chem. Int.	Math. Int.	Phys. Int.	Eng. I.
TUE. ..	Chemica	l Laborat	ory	Chemica	l Laborat	ory
WED. ..	Eng. La	boratory	Chem. Int.			
THU. ..	Drawing	Drawing	Drawing	Phys	ics Labor	atory
FRI. ..		Eng. Ex. Class	Chem. Int.	Math. Int.	Phys. Int.	Eng. I.
SAT. ..	Drawing	Mac. Draw Lecture.	Eng. I.			

Second Year Time Table

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Elec. Eng. Ia.	Eng. VI.				Drawing
TUE. ..	Engine	ering Lab.	Math. F1.	Elec.	Engineer	ing Lab.
	or D	rawing		2nd	and 3rd	Terms.
WED. ..	Elec. Eng. Ia.	Eng. VI.	Drawing.	Mining	Lab. and	Drawing.
THU. ..	Engineer	ing Lab.	Math. F1.	Enginee	ring Labo	ratory.
FRI. ..	Elec. Eng. Ia.	Eng. VI.	Drawing.	Coal Mining.		Drawing.
SAT. ..	Machine Design.	Ex. Class				

Third Year Time Table

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 o 4.	4 to 5.
Mon. ..	Min	ing.	Math. F2	Geol. F1	Geol.	Laby.
Tue. ..	Min	ing		Laborator	y and Dra	wing.
Wed. ..	Min	ing.	Mining Lab.		Mining	Laby.
Thu. ..	Min	ing		Laborator	y and Dra	wing.
Fri. ..	Geol. Lab.	Mining.	Math. F2	Geol. F1	Geol.	Laby.
Sat. ..	Geolog	ical Field	Course.			

II. Honours B.Sc. Degree

Honours in Mining will be awarded to candidates, who, having taken the Ordinary B.Sc. degree in Mining and being recommended as suitable to proceed with an Honours course, shall have spent one year in research or in the preparation of a thesis on some Mining subject, to the satisfaction of the examiners. The candidates must have in addition taken Mathematics as a principal subject. Attendance at the University during this fourth year is optional.

III. Diploma Course in Mining Engineering[1] (Three Years' Course)

This course is arranged for those who intend to devote their attention to Coal Mining at home, and who, at the same time, desire to obtain a liberal training in the scientific principles underlying their profession.

Candidates for the Diploma in Mining Engineering will be required to give satisfactory attendance upon the following course :—

First Year: Mathematics I, Physics Int., Chemistry Int., and Engineering I.

1 Possession of the Diploma has been recognized by the Secretary of State for the Home Office as equivalent to two years' service in the mine for the purposes of the Colliery Manager's certificate.

Second Year: Mathematics II, Elect. Engineering I a, parts of Engineering VI and VII, Mining and Mine Surveying.

Third Year: Mining Engineering, Preparation of Minerals (Ore Dressing, Coal Washing, and Carbonisation of Coal), Mine Surveying, Mining Legislation and Economics, and Geology.

Students will be required to present themselves for any class examinations that may be held in the above subjects. Those who do not pass satisfactorily in these examinations in any year will be disqualified for the Diploma unless they repeat the course in whole or in part, as may be required by the Senate.

All Diploma students in Mining Engineering take for their Final Examination in this particular subject the same Final Principal Mining Engineering papers and work as is set for the Final Examination for the ordinary degree of B.Sc.

A descriptive essay relative to the technical work of the candidates will be set as part of the Diploma examination, and will be examined by the Examiners in English in co-operation with the Examiners in the technical department concerned. Foreign students may be excused from presenting themselves for this essay on producing evidence of having received a satisfactory general education. All other students will be required to satisify the Examiners in this essay.

In the Diploma examination there will be included, for translation into English, passages of French and German relating to the principal subject of a candidate's Diploma course, and credit will be given for correct rendering of such passages.

The Clerk to the Senate will supply each candidate with a Diploma Course Record which he will be required to keep and to produce, prior to the Final examination, to the Professors and Lecturers concerned, and on other occasions when called for.

Each candidate will also be required to obtain on his Diploma Course Record each session the signatures of the respective Professors or Lecturers to certify that his work

has been satisfactorily done, and that he has reached a satisfactory standard in the required examinations in each subject forming part of the course.

Students are required to obtain four months' experience at a mine during the vacations, or to have had previous experience at mines before entering on the course.

IV. Diploma Course in Mine Surveying (Two Years)

The institution of a Two Years' Diploma Course in Mine Surveying for those who wish to take up positions as Mine Surveyors in Coal Mines at home, is at present under consideration. Full particulars as to this Course will be found in the Prospectus of the Mining Department.

LECTURE COURSES

Coal Mining

(Second Year Diploma and Second Year Degree Course)

Mr. Bowen Mr. Morgans

Fridays, at 2 p.m.

These lectures are intended to co-ordinate the information which students have acquired during the previous vacation, and to show them what to observe in the next summer's work preparatory to the lectures of the following session.

With this object in view the general principles of mining and the methods of extraction of minerals will be outlined, while to relieve the lectures of the following session those mining operations which find their best exemplification in coal mining will be discussed in detail.

Mining Engineering

(Third Year Diploma and Third Year Degree Course)

Mr. Bowen

Mondays, Wednesdays, and Fridays, at 10.30 a.m.

This course will consist of about 90 lectures. The object of these lectures will be to explain to students the methods, operations, and appliances commonly employed in mining,

with illustrations from actual practice in various districts and countries, and to indicate the principles which should influence the selection of methods and the introduction of such variations in them as local circumstances may demand.

The syllabus will be as follows :—

1. *The Nature, Mode of Occurrence, and Origin of Mineral Deposits.*—General characters of deposits; association and sequence of minerals in veins ; chemical changes and mechanical disturbances in deposits ; secondary enrichment ; origin of deposits ; examples of deposits.
2. *Prospecting.*—Methods of search in general; geological evidence ; boring by various methods.
3. *Excavation.*— General considerations ; tools and machines used ; explosives and blasting—considerations as to choice of explosive and method of attack; rock-drills ; conduct of operations in general.
4. *Supporting Excavations.*—Considerations as to materials and methods ; coffering and tubbing of shafts ; dams, &c. ; design of supports.
5. *Excavation aud Support in Difficult Ground.*—Special methods of shaft sinking ; recent improvements ; driving in running ground.
6. *Methods of Working Deposits.*—General considerations as to choice of method, and subsidence ; methods of working in various cases.
7. *Transport Underground.*—Methods of transport ; considerations as to gradient of roadways ; design of tubs or waggons ; circumstances affecting the economy of transport ; power employed in transport ; systems of haulage ; conveyors.
8. *Transport on Surface.*—Roads ; waterways ; railroads ; haulage systems and machinery ; aerial ropeways.
9. *Transport in Shafts.—Hoisting.*— Receptacles—skips, cages ; guides ; keps and cage junctions ; ropes, and attachments to cages ; methods of counterbalancing ropes ; pulleys ; head-gear ; theory and design of winding-engine ; electric winding ; pneumatic hoisting.

10. *Ventilation.*—General considerations as to necessity for ventilation; the chemical and physical properties of mine gases in general, and fire-damp in particular; physiological effects of mine gases; explosibility of coal-dust; analysis of mine atmospheres.

    Theory of ventilation, based on theorems of Torricelli and Bernoulli; depression; temperament; equivalent orifice; useful effect and its experimental determination; measurement of depression and discharge; natural ventilation; furnace ventilation; general theory and design of mechanical ventilators of various kinds; distribution and control of air-currents.

11. *Lighting.*—Naked lights and safety lamps: principles of construction of safety lamps; experiments on safety lamps; electric lighting.

12. *Pumping.*—Methods of drainage; theory and design of pumps; duty and efficiency of pumps.

13. *Installation and Transmission of Power.*—Motive power available; transmission of power; comparative efficiences of various methods; recent developments, and economic considerations.

Dressing of Minerals

Mr. Bowen

A course of two lectures a week will be given during the second term at times to be arranged.

The syllabus will be as follows:—

1. *General Considerations* as to the mechanical preparation of minerals.

2. *Classification according to size.*—Principles and methods of sizing.

3. *Comminution.*—General principles of crushing, and as to the extent to which crushing is desirable; methods of crushing.

4. *Concentration by Hand Picking.*

5. *Concentration and Classification by Hydraulic Methods.*—Principles of free-settling and hindered-settling of mineral particles; laws of jigging; the concentration of fine sands and slimes.
6. *Pneumatic Concentration.*
7. *Magnetic and Electro-static Separation.*—Principles involved; special cases and methods.
8. *Separation by Surface-Tension Method.*
9. *Miscellaneous Methods of Separation.*—Automatic picking; dessication ovens and kilns; filter presses; distillation, solution, and crystallisation.
10. *Agglomeration.*—Application to coals, lignite, and ores; cements; processes, and briquetting machines.
11. *General.*—The selection of processes and appliances for particular ores and minerals; sequence of operations in dressing; general design of dressing plants; the control of dressing operations.

Mine Surveying

Mr. Bowen

During the first term a course of two lectures a week will be given at times to be arranged.

The syllabus will be as follows:—

1. *General Remarks on Surveying.*
2. *Fundamental Equations of Plane and Spherical Trigonometry.*—Differential relations between the parts of a triangle.
3. *Errors in Computation.*—Relation between errors of data and error of result; negligible errors.
4. *Elements of Theory of Errors and Method of Least Squares.*
5. *Measurement.*—Fundamental principles of measurement; linear measurement; measurement of arcs in general, and theory of the theodolite.
6. *Triangulation.*—Theory of polygons; missing data; various point problems; triangulation as the framework of survey; methods of triangulation.

7. *Traverse Surveying.*—With chain ; miner's dial ; theodolite ; considerations as to variations in the magnetic meridian.
8. *Levelling and Contouring.*
9. *Tacheometric Surveying.*
10. *Plane Table Surveying.*
11. *Setting Out.*
12. *The Correlation of Surface and Underground Surveys.*
13. *Collateral Astronomical Observations for Latitude, Time and Azimuth.*
14. *Office Work.*—Calculation of reserves, volumes, and quantities ; preparation and reproduction of plans and sections ; valuation plans ; &c.
15. *The Location of Magnetic Ore Deposits.*

Mining Legislation

Mr. Bowen Dr. Chapman

During the first term a course of two lectures a week will be given at times to be arranged. The subject will be dealt with from a broad point of view, and in its relation to mines in this country, in the colonies, and other countries.

The syllabus will be as follows :—

1. *Legal definition of Mineral, and classification of mineral workings.*
2. *The Right of Search, and establishment of Mining Concessions.*
3. *The Mining Property*—its general and civil aspects; mining companies law ; mining contracts and leases.
4. *Relations between Mine Owners and Landlords.*
5. *Relations between Mine Owners and Owners of neighbouring Mines.*
6. *Mines in relation to the State.*
7. *Rates and Rating of Mines ; Taxation of Mines.*
8. *Minerals as Merchandise.*
9. *Employers and Employed.*

Mining Economics

Mr. Bowen Professor Macgregor

During the second term a course of two lectures a week will be given at times to be arranged.

The syllabus will be as follows :—

1. *Valuation of Mineral Properties*—considerations affecting the value of mineral deposits ; prospective value ; extension in depth and depth of exhaustion ; cost of production, and development in neighbouring mines.
2. *Equipment*—conditions bearing on equipment ; determination of maximum possible output ; cost of equipment ; life of the mine.
3. *Labour and Labour-saving developments.*
4. *Methods of paying wages*—contract work, time and piece rates ; *methods of fixing wages*—the working of sliding scales and Conciliation Boards ; *the existing organisation and government of Trade Unions and Masters' Associations in the mining trades* ; *methods adopted to regulate prices and output* ; *combinations in the mining trades*—organisation of "Combines" in Great Britain, and "Kartels" in Germany.
5. *Accidents*—causes and prevention.
6. *Mine Accounts*—working analyses and summaries; determination of results of operations.
7. *Depreciation* ; *reserve funds* ; *redemption of capital*—shareholders' position.
8. *Reports and Statistics*—to shareholders ; to State.
9. *Examination of Mining Properties and Preparation of Reports.*

Mining Hygiene and Mines Rescue Work

Mr. Bowen Mr. R. Veitch Clark

During the session, a course of about ten lectures and demonstrations will be given at times to be arranged. Special attention will be given to the following :—

1. *Health of Miners.*

2. *Physiological Effects of Mine Gases on the Human System*—
   (*a*) Effects of deficiency of oxygen.
   (*b*) Effects of excess of carbon dioxide.
   (*c*) Effects of carbon monoxide.
   (*d*) Effects of sulphuretted hydrogen.
   (*e*) Effects of nitrous fumes.
   (*f*) Effects of moisture.
   (*g*) Effects of dust.
3. *Diseases of Miners*—phthisis, ankylostomiasis, nystagmus, &c.—sanitary considerations.
4. *Rescue Work and Rescue Apparatus.*

PRACTICAL WORK

Through the kindness of the local Coal Owners and Colliery Managers arrangements have been made for the instruction of the students at mines in the neighbourhood, not only in underground surveying and in the correlation of the underground and surface surveys, but also in general Mining work. The equipment of the department has therefore been designed to serve three purposes:

(a) To supplement the general training received by the student in the other departments of the University, and direct it to Mining applications.

(b) To provide apparatus and instruments for the investigation of problems at the mines, and for efficiency tests as to the consumption of power and as to haulage, winding, pumping, ventilating, and coal washing plants.

(c) To establish conditions and appliances which are not to be met with in the neighbouring mines, as for example, in the equipment for the study of Ore Dressing, and in the provision of chambers and galleries for the study of safety lamps under all conditions.

The equipment embraces the following:

For Surveying.

Hand instruments for prospecting and rough surveying.
Chains, tapes, steel bands, standard steel band.

Miners' dials, with sliding centre and with three tripod outfit.
Theodolites (Transit and Tacheometric).
Levels.
Transit instrument for connection of underground and surface surveys.
Shaft-Plumbing outfit for the same.

An Observatory has been established by the University and contains an 18 in. equatorially mounted reflector, $4\frac{1}{2}$ in. transit instrument, astronomical clock, chronograph, and a series of meteorological instruments.

The surveying students receive the Astronomical portion of their training in the Observatory.

For Work at Pits.

Steam engine indicators, ordinary and continuous.
Various indicator reducing gears.
Self-recording apparatus for investigating the stresses in ropes and cages during winding.
Electrical measuring instruments.
Portable thermoelectric pyrometers.
Steam calorimeter and gauges.
Tachometers, revolution counters, stop watches, &c.
Anemometers and water gauges.

For Laboratory Work.

Small sample crushing and grinding plant, with screens, &c.
Small jigs, shaking tables, slime frames, upward current classifiers and settling boxes; pan, batea, vanning shovels. Assaying furnaces and balances for testing the cleaned ores.
Experimental fan, fitted with transmission dynamometer, and galleries for illustrating the principles of mine ventilation.
Anemometer testing machine.
Chambers for experiment with safety lamps and for gas testing.
Gallery for testing lamps in explosive currents of high velocity.
12 ft. Photometric bench, standard lamp and photometers.

In addition to the above an ore dressing shed has been erected on a site adjacent to the General Mining Laboratory for the accommodation of larger plant, which includes the following:—

Large rock breaker
3-head battery of Californian stamps
Pair of roll-crushers
2 shaking tables, bucket elevators, &c.

Laboratory Work

The work in the Laboratory will include the following :—

1. The analysis and testing of fuels and refractory materials.
2. The assaying of ores and metallurgical products.
3. Experimental work in ore dressing and coal washing under different conditions.
4. Efficiency tests of crushing and dressing machinery, fans, pumps, winding engines, haulage systems, &c.
5. The testing of safety lamps under different conditions.
6. The analysis of mine atmospheres, the detection of mine gases by practical tests, &c.

Office Work

The work in the Drawing Office will include the following :—

1. The preparation of mine plans and sections, valuation plans, the estimation of mineral reserves, &c.
2. The drawing and design of mine machinery and plants.

The work in the design of mine machinery and plants will be based upon a course of lectures on Theory and Design in Mining Engineering, to be given during the session at times to be arranged.

Field and Underground Work in Surveying

During the session, at times to be arranged, instruction will be given in Field Work and Underground Surveying. Students will be required to go through a systematic course of work in the following :—

1. The use of surveying instruments.
2. Determination of constants of instruments.
3. Errors of instruments; their elimination and adjustment.
4. Methods of securing the degree of accuracy necessary in particular kinds of work.
5. Adjustment of observations.
6. Astronomical observations for latitude, time, and azimuth.

7. The location of magnetic ore deposits by magnetometric measurements.
8. The survey of the surface of a mineral property.
9. The survey of the underground excavations of a mineral property.
10. The correlation of surface and underground surveys.
11. Curve-ranging and setting-out work in general.

At the end of the course, students will be required to produce evidence of having carried out surveying work at a mine. Arrangements will be made whereby such work may be carried out at a neighbouring mine during part of the Easter vacation.

Elementary Science Applied to Mining

A course of lectures and laboratory work in Science applied to Mining will be held on Saturday mornings from 9.30 a.m. to 11.30 a.m., commencing Saturday, October 5th, 1912.

The course is intended for teachers in mining centres who are conducting evening classes in Practical Science preparatory to the local mining classes. Throughout the course—which extends over two sessions—two objects will be kept in view, viz., to show how to devise and arrange simple experiments to illustrate the work in hand, and to give the teachers attending the course a wider outlook than their students can possess as to the practical applications of science in mining work.

The subjects discussed will include:—

For session 1912-13—Properties of matter; heat; chemistry.

For session 1913-14.—Mechanics.

Engineering as applied to Mining

A course of lectures and laboratory work in Mining Engineering will be held during the session at times to be arranged.

The course is intended for teachers in mining centres who are conducting classes in Engineering for mining students.

The subjects discussed will include :—

For session 1912-13—Motive power, the transmission of power, and the theory and design of machines.

For session 1913-14—Strength of materials, and theory and design of structures.

Mine Gases and Explosions

Three separate courses of 6 lectures and laboratory work on Mine Gases and Explosions will be given on Saturdays during the session, commencing on Saturday, Oct 5th, 1912. The courses are intended for teachers in mining districts who intend to conduct classes in Mine Gases and Gas Testing. Others who wish to attend the courses should make early application to the Head of the Department.

The Syllabus will be as follows :—

Lectures.

1. Accidents in Mines due to general causes, and accidents due to firedamp.
2. Composition of Mine Atmospheres—causes of consumption of oxygen, and the presence of other gases such as carbon monoxide, carbon dioxide, sulphur dioxide, sulphuretted hydrogen, water vapour, &c.
3. The general physical and chemical properties of Mine Gases, and the effects of these gases on the human system.
4. Firedamp—its composition, general chemical and physical properties ; the combustion of firedamp ; temperature of inflammation, and inflammation hindrance ; mode of inflammation, and velocity of propagation of the flame ; temperature of combustion, and products of combustion ; effects of firedamp explosions ; accumulations of firedamp, outbursts of firedamp ; influences producing outbursts of firedamp—barometric pressure, temperature, atmospheric perturbations, earthquakes, &c.
5. The Detection of Firedamp—firedamp indicators, and analysis of mine atmospheres.
6. Ventilation—elementary principles of mine ventilation : the production, distribution, and measurement of air-currents, &c.
7. Lighting—naked lights and safety lamps ; the principles of construction of safety lamps ; history of the development in the construction of safety lamps ; experiments on safety lamps ; electric lighting.

Practical Work.

1. The estimation of various percentages of firedamp by the "cap" produced on the flame of a safety lamp.
2. The determination of velocities of air-currents.
3. The reading of ventilation pressures and the significance of such reading.
4. The reading of wet and dry bulb thermometers and the meaning of such readings.

Four Years' Coal Mining Course

This course is intended for miners and sub-officials who are occupied in or about collieries, and can only attend for one afternoon per week, but desire to qualify themselves for Managers' Certificates under the C.M.R. Act, and particularly for those who have attended complete courses of instruction in Mining at one of the local centres appointed by the West Riding County Council, or have attended the preparatory evening courses of the Leeds City Council.

Students resident in the City of Leeds, who are under 22 years of age, will be required to produce certificates of satisfactory attendance at the preparatory evening courses of the Leeds City Council for at least two sessions, or to have given satisfactory attendance at the West Riding Mining Course for at least two years, or to give evidence of possessing equivalent knowledge in the subjects of Mathematics, Mechanics and English.

Students resident in the West Riding Administrative Area, who are under 22 years of age, desiring to enrol for the four years' course in the Mining department, will be required to produce evidence of satisfactory attendance at courses of at least the 4th year grade in a Technical School or Class within the Riding, if available; or evidence that they have taken a similar course in a Technical School elsewhere of a standard equivalent to the "Lower Examination" or former second stage of the Board of Education, or, if no such course is available, evidence of attendance for at least two sessions at an Evening School, for a course equivalent to the preliminary Technical (Industrial) course as set forth in the Handbook of the West Riding Education Committee.

For students who cannot satisfy these tests an Entrance examination will be held on Monday, September 30th, 1912, at 3 p.m.

The course extends over four years. The first, third and fourth year students attend on Mondays, beginning on October 7, from 3 to 7 p.m. The second year students, on Tuesdays, during the same hours, beginning on October 8. Students must call at the University office on either October 7 or 8, between 2 and 3 p.m., to register their names and take out their class tickets.

The instruction in Engineering, Electrical Engineering and Geology will be given in the respective departments, the remaining subjects in the Mining Department. In the class on Mathematics the subject will be dealt with entirely from the mining point of view, the examples being taken from mining practice. Students will be given mining data in the examples set, and will be required to copy these out into an indexed pocket-book to form a nucleus for the observations which they subsequently make as a result of their own experience. A similar mode of treatment will be adopted for the Chemistry course, the properties of matter and chemical change being illustrated as far as possible from ordinary examples to be met with at a coal mine. In addition to the course of Surveying drawing, a course of practical work in the use of surveying instruments is given during the thrird term Lectures will be given in connection with the two Surveying courses as they become necessary to explain the work in hand.

The session in the Mining Department will be as follows: Monday, October 7th to Tuesday, December 17th, 1912; Monday, January 13th to Tuesday, March 18th, 1913; Monday, April 28th to Tuesday, June 24th, 1913.

Syllabus

First Year	*Second Year*	*Third Year*
Mathematics	Mining	Mining
Engineering	Chemistry of Coal Mining	Electricity
Engineering Laboratory	Surveying	Electrical Engineering Laboratory
Mining	Geology	

Fourth Year

Mining
Electricity
Electrical Engineering Laboratory

First Year Time Table

	3 to 4.	4 to 5.	3.30 to 7.
1st Term Mon.	Mathematics.	Engineering.	Engineering Laboratory.
2nd Term Mon.	Mining.	Mathematics.	Engineering Laboratory.
3rd Term Mon.	Mining.	Engineering.	Engineering Laboratory.

Second Year Time Table

	3 to 4.	4 to 5.	5.30 to 7.
1st Term. Tue.	Mining.	Chemistry of Coal Mining.	Surveying, Drawing, and Calculations,
2nd Term. Tue.	Mining.	Geology.	Geological Laby.
3rd Term. Tue.	Mining.	Geology.	Practical Surveying.

Third Year Time Table.

	3 to 4.	4 to 5.30.	6 to 7.
Monday	Electricity.	Electrical Engineering Laboratory.	Mining.

Fourth Year Time Table.

	3 to 4.	4 to 5.30.	6 to 7.
Monday	Electricity.	Electrical Engineering Laboratory.	Mining.

Fee for each year in the above course 10s. 6d.

COAL GAS AND FUEL INDUSTRIES

WITH

METALLURGY

Professor COBB

Mr.

Courses of Study

[N.B.—The Courses set forth in this department are under revision and some alterations may be made before the begining of the session].

The courses of study in this Department have been drawn up to meet the requirements of students who are preparing for responsible positions either as Gas Engineers or in Fuel and Metallurgical industries.

The courses in Gas Engineering and the Technology of Fuel will chiefly deal with the manufacture and distribution of coal gas and gas lighting problems, by-product coking processes, and the production and application of gaseous fuels for heating and power purposes.

The metallurgical courses, besides dealing with general processes for the concentration and extraction of ores, will be chiefly directed to problems underlying blast furnace and open hearth steel practice, and to the microstructure, physical properties, and heat treatment of steel and other industrial alloys.

The Chair filled by the head of the department has been endowed by special subscription raised by the Institution of Gas Engineers as a memorial to the late Sir George Livesey; the laboratories were built and equipped out of funds provided by the West Yorkshire Coal-owners, supplemented by a special donation of £1,000 by the late Mr. John Bray; the work of the Department is carried out under the auspices of two Advisory Committees, the Livesey (Coal Gas and Fuel Industries) Committee and the Mining Committee.

Degree Course

Students who can devote three years to attendance at the University are strongly recommended to take the B.Sc.

degree course, either in Fuel and Metallurgy, or in Gas Engineering. Before commencing the degree course, however, students must pass the Matriculation examination, conducted by the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds and Sheffield.

During the first year of the degree course the student will attend classes in Mathematics, Physics, Chemistry, and Applied Mechanics, the first three being the subjects for the Intermediate examination, which is taken at the end of the first year. After passing this examination, the student will, during his second year, continue the study of Physics and Chemistry, and will also take a course in Engineering and Mechanical Drawing, as well as a special course of lectures in the chemistry of Gases supplemented by work in the Fuel and Metallurgical laboratories. During the third year the student will mainly devote his attention to his special subject (*i.e.*, Fuel and Metallurgy or Gas Engineering), but will also spend 6 hours per week in the Mechanical Drawing office (Engineering Department) The three years course will thus include systematic training in Mathematics, Physics, Chemistry, General Engineering and Mechanical Drawing in addition to the study of the special branch of Applied Science (Fuel and Metallurgy or Gas Engineering). At the end of the course, the student will qualify for the B.Sc. degree by passing the prescribed Final examination in either Fuel and Metallurgy or Gas Engineering, as *principal* subject plus Chemistry and Engineering as *subsidiary* subjects.

I. Ordinary B.Sc. Degree Course in (i) Fuel and Metallurgy and (ii) Gas Engineering

All students will take the same Intermediate course in their first year after matriculation, as follows:—

	Hours per week
Mathematics, Intermediate	2
Physics, Intermediate	2
Chemistry, Intermediate	3
Engineering—First Year	3
Physical Laboratory	4
Chemical Laboratory	12
Engineering Drawing	4

First Year Time Table

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon. ..	Eng. Drawing		Chem.	Math.	Phys.	Engrg.
Tue. ..	Chemical Laboratory			Chemical Laboratory		
Wed. ..	Chemical Lab.		Chem.	—	—	—
Thu. ..	Chemical Laboratory			Physical Laboratory		
Fri. ..	Physical Lab.		Chem.	Math.	Phys.	Engrg.
Sat. ..	Eng. Drawing		Engrg.	—	—	—

The courses during the second and third years will be somewhat differentiated, according to the respective needs of metallurgists and gas engineers, as follows:—

Second Year Course

All students must take the following:—

	Hours per week
Chemistry F2	3
Engineering VI	3
Chemistry of Gases	1
Technology of Fuel, General	1
Physical Laboratory	2
Chemical Laboratory	6
Fuel and Metallurgical Laboratory ...	6
Engineering Drawing and Laboratory ...	9

Metallurgical students will also attend in addition to the above:—

	Hours per week.	
Metallurgy IX (General and Non-Ferrous)	1	(1st and 2nd terms)
Metallurgy XA (Blast Furnace Practice) ...	1	(2nd and 3rd ,,).
Metallurgy XI (Alloys. Introductory) ...	1	(3rd term).

Second Year Time Table*

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	—	Engrg. VI	Chemical or Fuel Laboratory			
TUES. ..	Chem. F2	Engineering Lab.		Engineering Laboratory		
WED. ..	—	Engrg. VI	Metall'gy (Gen.)	Chemical	or Fuel	Laboratory
THU. ..	Chem. F2	Tech. of Fuel (Gen)	Eng. Drawing	Chem. of Gases	Eng. Drawing	
FRI. ..	—	Engrg. VI	Chemical or Fuel Laboratory			
SAT. ..	Chem. F2	Physical Lab.		—	—	—

* The times for Metallurgy X (Blast Furnace Practice) in the second and third terms and for Metallurgy XI (Alloys) in the third term will be fixed later, and are not included in this Table.

Third Year Course

	Hours per week.
All students must attend :—	
Technology of Fuel, Special Lectures	1
Mechanical Drawing	6
Fuel and Metallurgical Laboratory	22 to 24
Metallurgical students will also attend :—	
Metallurgy X (Steel), Lectures (1st and 2nd terms)	1
Metallurgy XI (Alloys) ,, (3rd term) ...	2

Special Lecture Courses to be taken during the second or third years.

In addition to the above lectures, students must also attend, during either the second or third year, the special lectures given in the department by outside lecturers in the following subjects :—*

METALLURGICAL STUDENTS	GAS ENGINEERING STUDENTS
Bye-Product Coking Processes	Bye-Product Coking Processes
Refractory Materials	Manufacture of Coal Gas
	Distribution and Uses of Coal Gas
	Refractory Materials
	Gas Lighting and Heating

* This list is subject to variation, either by substitution or addition, according to the arrangements for special ecture courses which may be in vogue during any particular session or sessions.

II. Honours B.Sc. Course

Honours in Fuel and Metallurgy or Gas Engineering will be awarded to candidates who, having obtained the Ordinary degree, with either Fuel and Metallurgy or Gas Engineering as a principal subject, and being recommended as suitable to proceed with an Honours course, shall have spent one year in research or advanced study, or in the preparation of a thesis on some industrial process, to the satisfaction of the examiners, attendance at the University during this fourth year not being compulsory.

Diplomas and Degree Courses for Post-Graduate Students

(*a*) A Diploma in either (i) Gas Engineering or (ii) Fuel and Metallurgy will be awarded to graduates of this or some approved University who, having graduated in Science with Chemistry or Engineering as a principal subject, shall have attended for at least one year an approved selection of lectures (including special lectures) together with not *less* than 24 hours per week laboratory work, in either (i) Fuel and Metallurgy, or (ii) Gas Engineering from those prescribed for the second and third years of the Ordinary degree course, and have passed an examination thereon. Students taking this special Diploma course must put in a full attendance at the University for at least one year.

(*b*) The degree of B.Sc. with Honours may, in Gas Engineering or Fuel and Metallurgy, be conferred upon students who, having obtained the diploma under the provisions of the preceding section, shall have spent an additional year in research in the department, to the satisfaction of the examiners.

Two Years Courses for Non-Graduates

These Courses are intended for students who, while not proposing to proceed to a degree, desire to take systematic instruction in either (i) Gas Engineering or (ii) Fuel and Metallurgy.

Students entering for these Courses must produce certificates of having passed either the Matriculation examination, the Oxford or Cambridge Local examination in Mathematics,

London University Matriculation, or other approved examination, or they will be required to pass the special entrance examination prescribed for Mining students (see page 362).

The First Year's Course will be the same for all students and will include Mathematics, Physics, Chemistry, and General Engineering, up to Intermediate standard, with Laboratory work in the three last named subjects. The Time Table will be identical with that prescribed for the first year of the Ordinary degree course.

The Second Year's Course may be differentiated according to individual requirements, and will include Chemistry (Lecture and Laboratory), Fuel and Metallurgy *or* Gas Engineering, with practical work, and in certain cases, Mechanical Drawing. All students must, however, take Chemistry F2 lectures; the lecture courses to be taken in the Fuel and Metallurgical Department (including Gas Engineering) will be decided in each case by the Professor, after consideration of the student's requirements and attainments.

Students who have passed satisfactorily through the Two Years' Course *may* be permitted to enter for the Diploma Examination.

In *special* cases, when a student has served an apprenticeship as a gas engineer and has acquired a knowledge of Mathematics, Physics, and Chemistry substantially equivalent to the standard of the 1st year's Diploma Course, he may be allowed to take a *one* year's course in the subjects comprised in the 2nd year's Diploma Course, but such a one year's course will not entitle the student to enter for the Diploma Examination. Applications for such a course must be made to the head of the department, and each case will be decided on its merits.

SYLLABUS OF LECTURE COURSES

I. The Physical and Chemical Properties of Gases

Thursdays at 2.0 p.m. throughout the session.

(*a*) Kinetic theory; fundamental gas laws; Van der Waal's equation; compressibility and liquification of gases;

the critical state; specific heats of gases; diffusion and transpiration; viscosity of gases; modern theories as to the nature and conditions of chemical changes in gaseous systems; factors governing reaction velocity; equilibrium in reversible systems; influence of moisture and surface in gas reactions; surface combustion.

(*b*) The mechanism of combustion, &c.: slow combustion; ignition points of gaseous mixtures; flames and explosions; the explosion wave; rates of explosion; the combustion of carbon, carbon monoxide, and cyanogen; the combustion of hydrogen and of hydrocarbons; the action of steam upon incandescent carbon; the reversible system $CO + OH_2 = CO_2 + H_2$; the thermal decomposition of hydrocarbons

II. Technology of Fuel—General Course

Thursdays at 10.30 a.m. (first and second terms).

This Course is specially intended for Engineering Students and others who wish to acquire a general knowledge of fuel technology; it will also form part of the second year's course for students taking the B.Sc. Degree in either (i.) Gas Engineering or (ii.) Fuel and Metallurgy.

Fuels, their classification and distribution; mechanical theory of heat; heat transmission; specific and latent heats; variation in specific heats of gases with temperature; heat recuperation; general chemical and thermal aspects of combustion; Fuel Calorimetry; Pyrometry; Radiometry; Analysis of Combustion Products; Heat Balances.

General description of Fuels: Natural Gas; Petrol; Petroleum; Shale Oil; Peat; Coal; British Coal-fields and fuel resources; Analysis and Valuation of Coals for industrial purposes; Distillation and Gasification of Coal; Coalite; Coke; Coal Gas; Producer Gas; Water Gas.

Advantages of Gaseous Fuels: The firing of Boilers and Furnaces; Internal Combustion Engines.

III. Technology of Fuel—Special Course

(Carbonisation of Coal. Gaseous Fuels.)

Tuesdays at 11.30 (First and second terms).

1st Term.

Distillation and Carbonisation of Coal. Influence of Temperature upon character and yields of various products. General review of principles underlying carbonisation processes and of operations involved in the manufacture of coalite, coal-gas, and "by-product" coke. Coal Tar.

2nd Term.

Principles underlying the gasification of coal and coke; action of air and of steam upon incandescent carbon at different temperatures.

The blast furnace as a gas producer. Cleaning and utilisation of blast furnace gas for power purposes. Gas Producer design and practise. Selection of fuels. Qualities of gas required for furnace work and for power purposes. Typical gas producers, including Suction Producers. The cooling and washing of gas for power purposes. Ammonia Recovery Systems. Efficiencies of gas producers.

The manufacture and uses of "blue" water-gas.

The following four Courses (IV. to VII. inclusive) will be given by specially appointed outside lecturers

IV. The Manufacture of Coal Gas

Dr. Harold G. Colman

A special Course of 20 Lectures (Wednesdays at 6 p.m. and Thursdays at 9 a.m.) during the *second* term (January to March), to be delivered in *alternate* sessions, namely 1911-12, 1913-14, etc.

V. The Distribution and Uses of Coal Gas

A special Course of 20 Lectures (Wednesdays at 6 p.m. and Thursdays at 9 a.m.) during the *second* term (January to March), to be delivered in *alternate* sessions, namely 1912-13, 1914-15, etc., by specially appointed lecturers.

VI. By-Product Coking Processes

Mr. Ernest Bury, M.Sc.

A special Course of 8 Lectures on Saturdays, at 3 p.m. during the *second* term in *alternate* sessions, namely 1912-13, 1914-15, etc.

VII. Refractory Materials

Mr. C. D. McCourt.

A special course of 8 Lectures on Saturdays, at 3 p.m. during the *second* term in *alternate* sessions, namely 1911-12, 1913-14.

VIII. Gas Lighting and Heating*

Tuesdays at 11.30 during the third term.

The nature and structure of coal-gas and hydrocarbon flames; theories of luminosity; the bunsen burner; construction of "atmospheric" burners for various purposes; the incandescent mantle; acetylene as an illuminant; outlines of photometry and spectrometry.

IX. Metallurgy—General and Non-Ferrous

Wednesdays at 11-30 a.m, during first and second terms. The course is intended both as a general introduction to the study of metallurgy and to cover the principal processes for the extraction of non-ferrous metals.

Metallic ores, their classification and valuation; refractory materials used in furnace construction; general furnace design; fuels and fluxes; typical metallurgical products, including slags.

Outline of typical metallurgical operations selected from the following:—Roasting of ores; blast furnace smelting for lead and copper mattes; reverberatory smelting for copper and lead.

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* The title and scope of this course is subject to variation, according to departmental requirements.

Bessemerising of copper mattes; desilverisation of lead including cupellation processes; Mond process for nickel extraction; the electric furnace; electrolytic refining of copper; zinc and tin smelting, &c.

X. Metallurgy—Iron and Steel

A. Blast Furnace Smelting of Iron Ores

Fifteen Lectures.—One hour per week during the 2nd and 3rd terms.

This course must be taken by all Fuel and Metallurgical Students during their second year.

Character and distribution of the principal ores of iron: the economic condition of the iron and steel industries; factors governing costs of production; preparation of ores for the blast furnace; blast furnace construction and practice; chemistry of the process; heat balance of the furnace; utilisation of blast furnace gases and slag; properties and uses of cast iron.

B. The Manufacture of Steel.

Twenty Lectures.—One hour per week during the 1st and 2nd terms.

This course will usually be taken by Fuel and Metallurgical students during their third year.

The course will include, principally, the refining and puddling of cast iron and the manufacture of steel by the Bessemer and open hearth processes; the rolling and forging of steel will also be dealt with incidentally, and some reference will be made to cementation and crucible steel processes.

XI. Metallurgy. Alloys

There will be special lectures and classes during the *third term* in each session, upon the constitution, heat treatment and microstructure of industrial alloys, as follows:—

A. Introductory (6 lectures). Thursdays at 10.30 a.m. Intended for engineering and metallurgical students,

and dealing in an elementary way with the nature and methods of investigation of common industrial alloys.

B. Advanced. This will take the form of special lectures, demonstrations, &c., in which the constitution, microstructure and heat treatment of industrial alloys will be explained. Students will be expected to supplement the class instruction by a considerable amount of private study and laboratory practice.

Fuel and Metallurgical Colloquium

There will be a weekly colloquium held in the department on Tuesday afternoons at 4 p.m. (or at such other hour as may be arranged) for the discussion of questions relating to the chemistry of gases, fuel technology, and metallurgical practice and theory. All third year students and members of the research staff will be required to attend and take part in the proceedings.

Fuel and Metallurgical Laboratory

The Laboratories will be open during the session from 9.30 a.m. to 1 p.m. and from 2 to 5 p.m. except on Saturday afternoons.

The research students of the department will also have the use of a machine for producing liquid air, erected in the Chemical Department of the University.

A fully equipped workshop, with a mechanic in charge, is provided. The laboratory equipment will provide for instruction and research in the following subjects :

(*a*) Gas analysis, photometry and spectrometry, gas calorimetry, gaseous combustion and explosions, the chemistry of gas production, testing of gas coals, and experiments with gases under high pressures including the compression and liquefaction of gases.

(*b*) The analysis and testing of coals.

(*c*) The analysis of ores, slags, mattes, alloys, and other metallurgical products.

(*d*) Microstructure, heat treatment and mechanical testing of steels and other industrial alloys, including the rolling and annealing of the same.

(*e*) Pyrometry.

Special courses for outside students in any of the above subjects can be provided by arrangement with the Professor, and every facility will be afforded to properly qualified persons who may wish to undertake research work in connection with industrial processes.

Students will also be encouraged to make themselves acquainted with the researches which are being carried out in the department, the results of which will, at convenient intervals, be explained.

Each student will be furnished with a separate working table, water and gas, and will be required to provide himself with a regulation set of apparatus, and also, if required, a few of the more costly tests, and any expensive materials which he may need for research purposes. Apparatus of a special or expensive character may be obtained on loan, subject to such conditions as may be prescribed by the Professor.

Students will be charged a fee of £1 per session for the hire of microscopes and special apparatus, and will in addition, be held liable for any damage arising from careless or unauthorised use of the same.

TEXTILE INDUSTRIES

Endowed by the Clothworkers' Company of the City of London

Professor BEAUMONT

Mr. HOLLIS	Mr. YEWDALL	Mr. LAW
Miss BENTON	Mr. WILKINSON	Mr. FARLEY

The Department comprises the following branches:

(*a*) Woollen Yarn Manufacture.

(*b*) Worsted Yarn Manufacture (English and Continental systems).

(*c*) Designing, Weaving, and Textile Manufacturing.

(*d*) Finishing of Textile Fabrics.

Each branch possesses a complete plant of machinery designed and constructed for the demonstration of the technicalities of the various processes of manufacture.

The experiments made on the scouring, blending, carding, combing, spinning, weaving, and finishing machines are primarily conducted for showing the nature and results of certain methods of work. Records of the experiments are made during the session, and students receive specimens of materials, yarns, and fabrics.

The scheme of teaching, as it relates to mechanical operations, is devised to give as varied an experience in spinning and textile manufacturing as possible, and also to supplement the lecture courses of study.

The Spinning Buildings are equipped with machinery for treating fine, medium, and coarse wools from the raw or greasy state to the spun yarn, whether on the worsted or woollen system, and for the construction of single, folded and fancy twist threads. There is also a plant for carbonizing and extracting.

In the Weaving Section there are 116 looms, including the principal types of power looms, with the necessary machinery for the Preparatory processes.

The Finishing Section contains machinery for the various methods of scouring, milling, crabbing and boiling, raising, cutting, pressing and other processes.

In the Conditioning Laboratory, the chemical analysis of materials used in textile manufacturing is treated of, and the Laboratory contains apparatus for microscopical examination and testing of fibres, yarns and fabrics.

In the Textile Museum there is a valuable collection of woven and other specimens, which students have the privilege of examining during the session.

Courses of Study

The following are the principal courses of study:

(A) Textile Designing and Cloth Finishing.

(B) Woollen and Worsted Yarn Manufacture.

(C) Textile Manufacture, including Woollen and Worsted Yarn Manufacture, Textile Designing and Weaving and Cloth Finishing.

Diplomas in Textile Industries

Diplomas are awarded in the above courses, when the following subjects are also taken:—

(A) Engineering, French or German, Applied Art, and Mechanical Drawing.

(B) Engineering, French or German, and Mechanical Drawing.

(C) Engineering, French or German, and Mechanical Drawing.

A descriptive essay relative to the technical work of the candidates will be set as part of the Diploma examination and will be examined by the Examiners in English in co-operation with the Examiners in the technical department concerned. Foreign students may be excused from presenting themselves for this essay on producing evidence of having received a satisfactory general education. All other students will be required to satisfy the Examiners in this essay. For other conditions see pages 193 and 288.

Course of Study—Diploma A

First Year Time Table

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON.	Engrg. Lect.	Woollen	Spinning	German	Woollen Spinning	Woollen Spinning Lect.
TUE.	Tex. Lect.	Tex. Lect.	*Tex. Col. Lect.	Experimental Weaving		
WED.	Engrg. Lect.	Mech. Draw.	Mech. Draw.	Mechanical Drawing		
THU.	Design Pattern	ing or Analysis	*Colour Practice	Experimental Weaving		
FRI.	Engrg. Lect.	Worsted	Spinning	German	Worsted Spinning	*Worsted Spinning Lect.

*First and Second Terms only.

Course of Study—Diploma A

Second Year Time Table

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON.	Worsted Spinning			Power Loom Practice		French or German
TUE.	Worsted Spinning			Worsted Spinning		*Worsted Spinning Lect.
WED.	Woollen Spinning			Woollen Spinning		French
THU.	Woollen Spinning			Woollen Spinning		*Woollen Spinning Lect.
FRI.	Worsted Spinning			Worsted Spinning		French or German

*First and Second Terms only.

THIRD YEAR : Specialized and original studies in Spinning, supplemented by occasional Lectures on Inventions, Industrial Developments, Output of Machinery, &c.

Course of Study—Diploma B

First Year Time Table

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON.	Engrg. Lect.	Mech. Draw.	Mech. Draw.	German	Mech. Draw.	Woollen Spinning Lect.
TUE.	Tex. Lect.	Tex. Lect.	*Tex. Col. Lect.	Experimental Weaving		
WED.	Engrg. Lect.	Applied Art	Applied Art	Applied Art	Applied Art	Applied Art
THU.	Design ing or Pattern Analysis		*Colour Practice	Experimental Weaving		
FRI.	Engrg. Lect.	Experimental Weaving		German	Experi-mental Weaving	*Worsted Spinning Lect.

*First and Second Terms only.

Course of Study—Diploma B

Second Year Time Table

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON.	Tex. Lect.	Tex. Lect.	*Col. Lect.	Power & Loom	Harness Practice	French or German
TUE.	Designing & Loom Practice			Cloth Finishing		*Worsted Spinning Lect.
WED.	Experimental Weaving			Experimental Weaving		French
THU.	Applied Art			Applied Art		*Woollen Spinning Lect.
FRI.	*Cloth Finishing Lect.	Pattern or Designing	Analysis	Power & Loom	Harness Practice	French or German

*First and Second Terms only.

THIRD YEAR: Specialized and original studies in Designing, Weaving, and Cloth Finishing, supplemented by Lectures on Textile Inventions, Industrial Developments, Output of Machinery, Textile Economics, &c.

Course of Study—Diploma C

First Year Time Table

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON.	Engrg. Lect.	Woollen Spinning		German	Woollen Spinning	Woollen Spinning Lect.
TUE.	Tex. Lect.	Tex. Lect.	*Tex. Col. Lect.	Experimental Weaving		
WED.	Engrg. Lect	Mechanical Drawing		Mechanical Drawing		
THU.	Design ing or Pattern	Analysis	*Colour Practice	Experimental Weaving		
FRI.	Engrg. Lect.	Worsted Spinning		German	Worsted Spinning	*Worsted Spinning Lect.

*First and Second Terms only.

Course of Study—Diploma C

Second Year Time Table

	9.30 to 10.30	10.30 to 11.30	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON.	Tex. Lect.	Tex. Lect.	*Tex. Col. Lect.	Power & Loom	Harness Practice	French or German
TUE.	Worsted Spinning			Cloth Finishing		*Worsted Spinning Lect.
WED.	Experimental			Weaving		French
THU.	Woollen Spinning			Woollen	Spinning	*Woollen Spinning Lect.
FRI.	Cloth Finishing Lect.	Design Pattern	ing or Analysis	Power & Loom	Harness Practice	French or German

*First and Second Terms only.

THIRD YEAR: Specialized and original studies in Spinning, Designing, and Weaving, and Cloth Finishing, supplemented by occasional Lectures on Inventions, Industrial Developments, Textile Economics, &c.

Lecture Courses and Experimental Work

I. Woollen Yarn Manufacture

FIRST YEAR: A course of twenty lectures on Mondays from 4 p.m., to 5 p.m. during the first and second terms.

SUBJECTS.—*Materials*: Varieties of animal, vegetable, waste and re-manufactured fibres manipulated and spun on the woollen system; their character, uses, and relative values.

Processes: Opening, sorting, dusting, steeping, scouring, drying, carbonizing and burring wool; sorting, seaming, carbonizing, blending and pulling rags; garnetting hard waste, mixing, blending and oiling.

Machinery: Details of machines for dusting, steeping, scouring, drying, carbonizing and burring wool, dusting, carbonizing and pulling rags; garnetting hard waste; teazing, blending and oiling.

Calculations relating to cost of materials, blending, speed, and output of machines.

Fee, £1 17s. 6d.

SECOND YEAR: A course of about twenty lectures on Thursdays, from 4 to 5 p.m., during the first and second terms.

SUBJECTS.—*Processes*: Scribbling, carding, condensing and spinning.

Machinery: Details of automatic and intermediate feeders, scribblers, carding engines, condensers, self-actor mules and spinning frames. Recent modifications and alterations, and a comparison of the different types of machines.

Details of card clothing and the requirements and variations to suit different classes of material. Details of manipulation, factors governing the clothing, grinding, and setting of the parts in carding machines. The draft, twist, and shape of bobbins or cops in spinning, and the speed and production of the different machines.

Calculations of weight and value of spun materials, and the speed and output of the machines.

Fee, £1 17s. 6d.

II. Worsted Yarn Manufacture

(English and Continental Systems.)

FIRST YEAR: A course of twenty lectures, on Fridays, from 4 to 5 p.m., during the first and second terms.

SUBJECTS.—Characteristic features of a typical worsted thread, variations due to the use of materials different or mixed in quality and length, features due to special methods of treatment in manufacture.

Processes: Preparing long and medium staple wools for combing (gilling), preparing medium and short staple wools for combing (carding), backwashing, combing, and finishing.

Machinery: Details of preparing gill boxes; sets of preparing gill boxes; carding engines; backwashing machines; combs built on the Noble, Lister, and Holden principles; methods of setting, adapting and manipulating the machines.

Calculations for speed, drafts and output.

Students taking this course are required to attend the first year course of lectures on Woollen Yarn Manufacture, in which raw materials and the operations up to drying are considered.

Fee, £1 17s. 6d.

SECOND YEAR: A course of twenty lectures on Tuesdays, from 4 to 5 p.m., during the first and second terms.

SUBJECTS.—*Materials*: Tops from different fibres; features controlling their quality and value, testing, costing, &c.

Processes: Re-combing, mixing, drawing, (open, cone, French); spinning (cap, ring, flyer, mule); doubling, twisting, and yarn finishing.

Machinery: Details of the separate machines, and also sets of machinery for drawing on the open, cone and French principles; of spinning frames on the mule, flyer, ring and cap systems; of the various types of doubling and twisting frames, and yarn finishing machinery; of the methods of setting, adapting, and manipulating the machines.

Calculations for speeds, drafts and output.

Testing and comparing the material at different stages in the manufacture and also the finished yarn.

Fee, £1 17s. 6d.

III. Experimental Work

Woollen Section.—Experiments in scouring, mixing, carding, spinning and twisting.

Worsted.—Experiments in carding, gilling, combing, drawing, spinning, and doubling.

The building, setting, construction, and manipulation of the different machines.

Senior students will also have practical demonstrations on the output and adaptability of the machines for the production of different kinds of yarn, and will be instructed in the use of apparatus for conditioning and testing materials and yarns.

IV. Designing and Weaving

FIRST YEAR: Lectures on designing, fabric structure, hand and power looms, textile calculations and fabric analysis on Tuesdays from 9.30 to 10.30 a.m., and 11.30 to 12.30 p.m., and Thursdays from 10.30 a.m. to 12.30 p.m. throughout the session.

SECOND YEAR: Lectures on advanced subjects of the First Year Course, also on compound fabrics, principles of design and manufacture, weaving mechanism, construction of power looms, and the Jacquard loom, textile calculations and costing, analysis of compound fabrics on Mondays from 9.30 to 10.30 a.m., and 11.30 a.m. to 12.30 p.m., and Fridays from 10.30 a.m. to 12.30 p.m. throughout the session.

THIRD YEAR: The class meets on Mondays, Tuesdays, Wednesdays, Thursdays, and Fridays, from 9.30 a.m. to 12.30 p.m. and from 2 to 5 p.m., throughout the session.

It is intended for students who desire to study any particular branch of textile manufacture.

Each member of the class has the privilege of making experiments in the Weaving Sheds, under the direction of the Professor. He is provided with materials and other requisites for experimental work.

Text Books.

BEAUMONT'S Worsted and Woollen Cloth Manufacture.
BEAUMONT'S Colour in Woven Design.
BEAUMONT'S Finishing of Woven Fabrics.
BRADBURY'S Textile Calculations.
FOX'S Mechanism of Weaving.

V. Experimental Weaving

Experimental Weaving forms an essential part of the course of study in Design and Weaving, hand and power looms, suitably mounted, being provided for this branch of textile instruction.

In the Third Year Course, in addition to Pattern Origination, experiments are conducted in Cloth Manufacture and Finishing.

VI. Textile Colouring

FIRST YEAR: A course of lectures with experiments, on the principles of Textile Colouring, during the first and second terms on Tuesdays from 10.30 to 11.30 a.m., and Thursdays from 9.30 to 10.30 a.m.

Fee, £2 12s. 6d.

SECOND YEAR: A course of lectures on Specific Styles of Woven Colourings during the first and second terms, on Mondays from 10.30 a.m. to 11.30 a.m.

Fee, £1 17s. 6d.

VII. Finishing of Woven Fabrics

A course of lectures on the Styles of Finish, Construction of Finishing Machinery and Processes of Finishing, during the first and second terms, on Friday mornings, from 9.30 to 10.30 a.m.

Fee, £1 17s. 6d.

The Finishing Section of the department is equipped with modern machinery for dressing or finishing such fabrics as are produced on the University looms, whether woollen, worsted, silk, cotton, or union goods. It is open for work on Tuesdays and Thursdays, from 2 to 4 p.m.

This course, which is intended for students attending the Second and Third Year Classes only, includes practical instruction in the following processes: Scouring, tentering, milling, washing off, raising—both on the gig or the Moser machine, and by hand – cutting or cropping, pressing and steaming.

VIII. Special Courses

Third and fourth year students, and students who have graduated at other institutions, are afforded facilities for

pursuing special courses of study in any branch of woollen and worsted spinning, designing and weaving or manufacturing.

IX. Research Work

The equipment in the various sections of the Department affords facilities for original research in the Processes of Manufacturing, Fabric Structure, Designing and Finishing.

X. Art Applied to Textile Design

Mr. FARLEY

The courses of study relate to the analysis, composition and colour qualities of decorative design applicable to the various styles of woven fabrics; and comprise first, second, and third year classes in both lectures and practice.

Textile students for the Diploma in Designing and Weaving and also students in the Designing of carpets, tapestries, mantle cloths and other figured fabrics are required to take the courses in Applied Art.

First Year Course

Lectures on Wednesdays, from 10.30 to 11.30 a.m.

Practical Work in the Art Studio on Wednesdays, from 9.30 to 10.30 a.m., 11.30 a.m. to 12.30 p.m., and from 2 to 4 p.m. or 3 to 5 p.m.

Text Book for First and Second Year Courses
Ornamental Design for Woven Fabrics, by C. Stephenson and F. Suddards (Methuen & Co., 7s. 6d.).

Second Year Course

Lectures on Thursdays, from 11.30 a.m. to 12.30 p.m.

Practical work in the Art Studio on Thursdays, from 9.30 to 11.30 a.m., and from 2 to 4 p.m.

Third Year Course

Wednesdays or Thursdays, from 9.30 a.m. to 12.30 p.m., and from 2 to 4 p.m.

Arrangements may be made by which students who wish to devote themselves more closely to the artistic side of Textile Design may attend the Art Department for two or more days per week.

TINCTORIAL CHEMISTRY AND DYEING

Professor GREEN

Mr. PERKIN Mr. FRANK Mr. WOODHEAD

The instruction given in this Department is more especially arranged to meet the requirements of students intending to become practical dyers or masters of dyeworks, and of those wishing to acquire a more thorough acquaintance with the chemistry of the colouring matters and their manufacture, with the object of becoming dyers' chemists, chemists in colour works, travelling chemists for dye manufacturers, calico-printers' chemists, experts in analysis of dyewares, &c. For the latter class, *i.e.*, colour chemists, an intimate acquaintance with the structural organic chemistry of the artificial dyestuffs is essential, and a very thorough knowledge of pure chemistry is required before specialising in this direction. For the first class, *i.e.*, dyers, such an advanced knowledge, though useful, is not essential, and in any case cannot be acquired in a three years' course. It is, however, equally necessary for the dyer that he should obtain at the outset a sound fundamental knowledge of the chemical and physical sciences underlying the art with which he is ultimately to deal, whilst the study of the colouring matters may be confined to a general acquaintance with their chemical relationships and a knowledge of their properties and dyeing behaviour.

Course I qualifies for the diploma in dyeing of the University. The first year will be spent by the student in the Chemical department, and he will during the same year attend lectures on Physics and German. The second year will be divided between pure chemistry, elementary engineering and practical work in dyeing; whilst the last year will be devoted entirely to dyeing, technical analysis of dyewares, study of the chemical properties of dyestuffs, examination of textile fibres, and calico printing.

In Course II more time will be devoted to organic chemistry and to the chemistry of the colouring matters, their examination and analysis. In the fourth year some research work on colouring matters or dyeing

processes may also be undertaken. Attendance on this course by students who have previously passed the Matriculation examination qualifies for the Honours or Ordinary degree of B.Sc.

Course III has been arranged to meet the requirements of those who desire to combine a University training with Apprenticeship in a dyeworks. This course extends over five years, in each year of which the period from October to the end of March (two terms) is spent at the University, whilst the period from April to the end of September can be employed at the Dyeworks. The course also qualifies for the University Diploma in Dyeing.

Course IV has been arranged for those who wish to specialise as textile chemists or to acquire a special knowledge of chemistry as applied to the textile arts in conjunction with a technical knowledge of the various branches of textile manufacture.

Students holding a degree of any University (English or foreign) or otherwise bringing forward satisfactory evidence of a sufficient previous training in pure chemistry and general science will be admitted at once to the lectures or laboratory work in the department.

The lectures on the chemistry of the artificial and natural colouring-matters will be open to senior students in the department of pure chemistry without attendance on any special course.

Attention is also drawn to the provisions of the Ordinances of the University by which periods of study and examinations passed at other Universities may be accepted by the Senate as exempting undergraduates from a certain amount of attendance and from certain examinations in this University.

Graduates or persons who have passed the Final examinations for degrees of other approved Universities may, under certain conditions, enter the University and after not less than two years of attendance on advanced study or research, become candidates for the degree of M.Sc. without taking the B.Sc. degree.

SYLLABUS OF COURSES

I. Three Years' Course qualifying for a Diploma in Dyeing

This course is recommended to students who wish to obtain a good scientific and practical education in the art of Dyeing.

In awarding the Diploma the Senate will take into account the results obtained in all the term examinations throughout the entire course in addition to any final examination which may be imposed. Students not reaching a satisfactory standard in all the subjects taken will be disqualified. For other conditions see pages 193 and 288. Examination Fee, £1.

Students already holding a University degree or otherwise bringing forward satisfactory evidence of previous scientific training, may upon application, be admitted to the Diploma upon a shortened period of study.

First Year

	Per week.
Lectures on Chemistry (General Course)	4 hrs.
Chemical Laboratory	22 ,,
Lectures on Physics (Intermediate Course) ...	3 ,,
German	

The work in the chemical laboratory will consist of inorganic preparations and qualitative analysis.

Second Year

	Per week.
Lectures on Inorganic Chemistry (F1)	3 hrs.
Lectures on Organic Chemistry (F3)	3 ,,
Chemical Laboratory	14 ,,
Experimental Dyehouse	15 ,,
German	

The work in the chemical laboratory will consist of quantitative analysis and simple organic preparations. In the experimental dyehouse the work will comprise the study of the dyeing properties of the various classes of colouring matters in relation to different fibres, methods of application, colour-matching and mixing, tests for fastness, comparison of dyes for strength, &c.

Third Year

	Per week.
Experimental Dyehouse Practical Dyehouse Calico Printing	30 hrs.
Lectures on Chemical Technology of Textile Fibres (1st Term)	2 ,,
Lectures on Dyeing (2nd Term)...	
Lectures on General Engineering (II A.)...	3 ,,

The work in the experimental dyehouse will include examination of the chemical properties of dye-stuffs, the detection of various colours on the fibre, preparation of mordants, examination of textile fibres, and the technical analysis of dyewares. The work in the practical dyehouse will consist in dyeing wool and cotton on a larger scale in model machines, thus giving a general knowledge of dyeing machinery and of the practical conditions of dye-house work. In calico printing a practical study will be made of the principles of the more important styles.

II. Four Years' Course for Colour-Chemists qualifying for B.Sc. Degree

Suitable for those desiring to become chemists in colour works, dyers' chemists, print works chemists, travelling chemists for dye manufacturers, experts in analysis of dye-wares, &c.

If taken after Matriculation this course qualifies for an Ordinary or Honours B.Sc. degree. Unmatriculated students are eligible for the Diploma under the conditions mentioned above.

First Year

(Intermediate Course)

	Per week.
Lectures on Chemistry (General Course)	4 hrs.
Chemical Laboratory	18 ,,
Lectures on Physics (Intermediate Course) ...	6 ,,
Mathematics (Intermediate Course)	2 ,,
German	

The work in the chemical laboratory will consist of inorganic preparations and qualitative analysis.

Second Year

	Per week.
Lectures on Inorganic and Organic Chemistry (F1 and F3)	6 hrs.
Chemical Laboratory	26 ,,
Experimental Dyehouse	3 ,,
German	

The work in the chemical laboratory will consist of quantitative analysis, organic analysis, and organic preparations.

Third Year

	Per week.
Experimental Dyehouse Clothworkers' Laboratory	27 hrs.
Lectures on Organic Chemistry (H1)	3 ,,
Lectures on Chemical Technology of Textile Fibres (1st Term)	2 ,,
Lectures on Dyeing (2nd Term)	
Lectures on General Engineering (II A)	3 ,,
German	

The work in the experimental dyehouse will include dyeing trials with various classes of colouring matters, methods of application upon different fibres, testing colours for fastness, comparison of dyes for strength and shade, identification of dyestuffs on the fibre and in bulk, examination of textile fibres, and technical analysis of dyewares.

Fourth Year

	Per week.
Clothworkers' Laboratory ... ... Calico Printing and Practical Dyehouse	30 hrs.
Lectures on Artificial Colouring Matters (1st and 2nd Terms)	2 ,,
Lectures on Natural Colouring Matters (3rd Term)	

The work in the clothworkers' laboratory will comprise further preparations of coal-tar products and colouring matters, identification of colouring matters and mixtures, determination of the constitution of colouring matters, and valuation of intermediate coal-tar products such as benzene, aniline, toluidine, naphthol, &c. Research work may also be undertaken by the more advanced students.

III. Part-time Apprenticeship Course

This course is designed for those who wish to make arrangements to be simultaneously apprenticed in a Dye-Works. The course will cover five years but work at the University will only extend over two terms in each year, viz: from the beginning of October to the end of March, the remainder of the year being spent in the works.

An alternative arrangement (especially recommended if the student is under 16) is for the first year to be spent entirely in the Dye-Works, the second, third and fourth years half-time at the University as above, and the fifth year entirely at the University.

The articles of apprenticeship must contain a provision that the apprentice is entitled to spend the whole of his time at the University during the periods specified.

The full course qualifies for the Diploma in Dyeing.

First Year

Chemistry Lectures (Int. Course)	... ...	4 hours
Chemical Laboratory	... ...	23 ,,
Physics Lectures ...	... ...	3 ,,
Physical Laboratory	... ...	3 ,,

Fee for the Half-year (including Registration, Library and Union Fees), £21.

Second Year

Inorganic Chemistry Lectures (F 1)	... ...	3 hours
Chemical Laboratory	... ...	27 ,,
Experimental Dye-house ...	... ...	3 ,,

Fee for the Half-year (including Registration, Library and Union Fees), £21.

Third Year

Organic Chemistry Lectures (F 3)	... ...	3 hours
Chemical Laboratory	... ...	12 ,,
Engineering (II A)	... ...	3 ,,
Experimental Dye-house and Dyeing Laboratory		12 ,,

Fee for the Half-year (including Registration, Library and Union Fees), £21.

Fourth Year

Organic Chemistry Lectures	3	hours
Lectures on Chemical Technology of Textile Fibres (1st term)	2	,,
Lectures on Dyeing (2nd term)		
Experimental Dye-house and Dyeing Laboratory	25	,,

Fee for the Half-year (including Registration, Library and Union Fees), £21.

Fifth Year

Lectures on Artificial Dyestuffs or on Chemical Technology of Oils, Fats and Soaps ...	2	hours
Experimental Dyehouse		
Dyeing Laboratory		
Practical Dye-house	31	,,
Calico Printing		
Textile Manufacture		

Fee for the Half-year (including Registration, Library and Union Fees), £21.

Diploma students will also be required at some time during their course to attend such classes in German as will qualify them to pass the reading test in this language.

IV. Diploma Course for Textile Chemists

(Four Years)

This course is intended to supply a thorough scientific training in the chemistry and art of dyeing and finishing in conjunction with a sound technical knowledge of the principles and practice of the various branches of textile manufacture. It should, therefore, fulfil the requirements of those who will, eventually, become head chemists, or managers, in such manufacturing concerns in which are undertaken all the processes, mechanical and chemical, involved in the production of textile materials from the raw fibre to the finished fabric.

First Year

	Per week.
Lectures on Chemistry (General Course)	4 hrs.
Lectures on Physics (Intermediate Course) ...	3 ,,
Chemical Laboratory	24 ,,
German (optional)	

Second Year

Lectures on Inorganic and Organic Chemistry (F1 and F3)...	6	hrs.
Chemical Laboratory	25	,,
Experimental Dyehouse	3	,,
German (optional)		

Third Year

Experimental Dyehouse and Technical Analysis ...	15	hrs.
Designing and Weaving Lectures	4	,,
Woollen and Worsted Yarn Manufacture Lectures	2	,,
Textile Colouring Lectures...	2	,,
Experimental Spinning and Weaving	9	,,
Lectures on General Engineering (IIa)	3	,,

Fourth Year

Chemical Technology of Textile Fibres, 1st term) Dyeing Lectures ... ... 2nd term)	2	hrs.
Experimental Dyehouse and Technical Analysis ...	15	,,
Designing and Weaving Lectures	4	,,
Woollen and Worsted Yarn Manufacture Lectures	2	,,
Textile Colouring Lectures...	1	,,
Finishing Lectures	1	,,
Experimental Spinning and Weaving	6	,,
Practical Finishing	2	,,
Lectures on Chemistry of Textile Manufacture and Materials (V)	2	,,

In awarding the Diploma, the Senate will take into account the results obtained in all the term examinations throughout the entire course in addition to any final examination which may be imposed. Students not reaching a satisfactory standard in all the subjects forming the course will be disqualified. Candidates holding a University degree in science or otherwise bringing forward satisfactory evidence of previous scientific training may, upon application, be admitted to the Diploma upon a shortened period of study. For other conditions see pages 193 and 288.

LECTURES

I. The Chemical Technology of Textile Fibres

Tuesdays and Thursdays at 9.30 a.m. during the first term.

The lectures will deal with the chemical and physical properties of the various animal and vegetable fibres, viz., cotton, flax, hemp, ramie, jute, wool, hair, silk, and artificial silk; and with the processes and machinery employed in the isolation, purification, bleaching, and finishing of the different fibres and of the textile materials prepared from them.

II. The Chemistry and Technology of Dyeing

Tuesdays and Thursdays, at 9.30 a.m. during the second term.

The following are among the subjects to be treated in the lectures: Mordants; classification of colouring matters; methods of application in dyeing and printing of the various classes of colouring matters; theory of dyeing; testing of colours for fastness; machinery for dyeing; printing of cotton, wool and silk.

Books recommended for Courses I and II.

Knecht, Rawson, & Loewenthal, *Manual of Dyeing.* (2nd ed.)
Georgievics, *Chemical Technology of Textile Fibres.*

III. Chemistry of the Artificial Colouring Matters

Tuesdays and Thursdays at 4 p.m., during the first and second terms.

The lectures will comprise the following subjects:

Distillation of coal-tar and separation of benzene, toluene, naphthalene, anthracene, phenol, cresol, &c. Preparation of intermediate products of colour manufacture. Manufacture, properties, and constitution of the most important colouring matters belonging to the following groups: Triphenylmethane, pyrone, azine, oxyazine, thiazine, acridine, quinoline, thiazol, nitro, azo, stilbene, anthracene, sulphide colours and indigo. General methods and plant employed in the preparation of colouring matters and their raw materials. Relation between constitution and colour.

Books recommended.

Georgievics, *Chemistry of Dye-stuffs*, translated by Salter (10/6).
Survey of the Organic Colouring Matters, by A. G. Green (21/-).
Thorpe & Cain, *The Synthetic Dyestuffs* (16/-).
Nietzki, *Organische Farbstoffe.*

IV. Chemistry of Natural Colouring Matters

Tuesdays and Thursdays at 4 p.m., during the third term. The lectures will deal with the origin, chemistry and technology of the principal natural dyestuffs: Madder, logwood, brazilwood, cochineal, barwood, safflower, cudbear, orchil, weld, turmeric, quercitron bark, Persian berries, fustic, catechu, indigo.

Book recommended:
Chemie der Naturlichen Farbstoffe, by H. Rupe.

V. The Chemistry and Technology of Paints, Pigments, Oils, Varnishes, Printing and Lithographic Inks

A course of twenty lectures dealing with the above subjects will be delivered during the Second Term by Dr. Harry Ingle, Ph.D., D.Sc., F.I.C. The lectures will be held at 4 p.m. on Mondays and Fridays, and will commence on January 13th, 1913. In conjunction with the lectures a tutorial class will be held on each Wednesday at 4 p.m. throughout the term. Fee for the course £1 10s. Students attending the lectures can also make arrangements for laboratory instruction in connection therewith.

General composition of a paint. Pigment, drying oil and diluent. Paint grinding plant.

Properties of pigments. Physics of colour. Light. The Spectroscope. Primary colours. Tintometer.

Testing of pigments. Staining power. Covering power. Oil absorption. Fastness to light. Specific gravity of oil paint. Fineness. Drying power of lead, manganese and iron pigments.

Manufacture, properties and analysis of various pigments. White Lead. Lithopone. China Clay. Barytes. Lamp Black. Vegetable Black. Bone Black. Prussian and Ultramarine Blue. Chrome Yellows and Oranges. Ochres. Oxides of Iron. Venetian Red. Vermilion. Umbers.

Lake Pigments. General methods of formation. Basic dyestuffs. Acid dyestuffs. Mordant dyestuffs. Vat dyestuffs. Mixed lakes. Amphoteric lakes. Analysis of lakes. Paranitraniline Reds. Azo Reds. Magenta. Eosine, and Alizarine lakes. Blue lakes. Green lakes. Yellow and Orange lakes.

Linseed and other drying oils. Extraction and properties. Oil boiling. Chemistry of "drying." Dryers. Turpentine and its substitutes.

Varnishes. Gum resins. Oil and Spirit varnishes. Manufacture. Enamel paints.

Printing Inks. Ink-grinding mills. Toned Blacks. Inks for three-colour process. Bronze Blues. Litho Inks. Principles of Lithography.

LABORATORY WORK

A. Experimental Dyehouse

Open for work every weekday during the session from 9 a.m. to 5 p.m., Saturdays 9 a.m. to 1 p.m. The dyehouse is fitted up with modern dyebaths suitable for comparative dyeing trials, drying stoves, and other appliances.

The work in the experimental dyehouse will include the following subjects:—Systematic dyeing trials with the different groups of dyestuffs upon cotton, wool, and silk. Application of various mordants and assistants. Methods of dyeing union materials. Also the dyeing of artificial silk, linen, ramie, &c. Principles of colour mixing and matching. Scouring and bleaching of cotton and wool. Quantitative dyeing of colouring matters for strength and shade. Identification and analysis of colouring matters on the fibre. Testing colouring matters for fastness. Preparation and analysis of mordants. Analysis of water and removal of impurities. Technical analysis and valuation of dyewares, soap, oils, etc. Detection of different fibres and estimation in mixtures. Examination of newly introduced colouring matters, and determination of their value as dyestuffs. Investigations upon dyeing processes. The use of the colorimeter, tintometer, and spectroscope. Identification of impurities in grey and dyed cloths. Examination of "finishes." Identification of stains and faults in dyed materials, and their removal.

A special exposure chamber has been erected in a convenient position for the purpose of making tests of the fastness of colours to light.

B. Practical Dyehouses

The Practical dyehouses are equipped with machinery for carrying out experiments on a practical scale. The equipment includes many model machines, all of which are driven by electric motors.

In these dyehouses advanced students of dyeing receive training in the treatment of various classes of textile materials.

Arrangements have also been made with the Technical College, Bradford, by which Senior Students of the Leeds University can, if they desire, spend one or two afternoons a week (time to be fixed later) in the Practical Dyehouse of the Bradford College. This dyehouse has been recently equipped with modern plant for piece, warp and slubbing dyeing. No charge for attendance will be made to Students who have paid composition fees.

C. Printing Room

The Printing laboratory is equipped with a model printing machine, steaming chamber, colour pans, &c.

A practical course in calico printing is held during the third term, the work comprising experiments in the different styles, discharges, resists, printing with diazo compounds, aniline black, indigo, &c.

D. Clothworkers' Chemical Laboratory

The Clothworkers' laboratory is a spacious building provided with every facility for the conduct of chemical work upon colouring matters. The work carried out comprises the following subjects:

(*a*) Analysis of colouring matters and their intermediate products; (*b*) preparation of coal tar derivatives and colouring matters; (*c*) researches upon artificial and natural colouring matters, directed to the determination of their constitution, discovery of new groups, the solution of technical problems, &c.

To cover cost of materials and loan of special or large apparatus a charge of £3 per session will be made to all research workers or students working full time in this laboratory, and of £2 per session to part-time students. All ordinary apparatus, however, must be provided by the student.

E. Practical Course in Oils, Paints, Pigments and Varnishes

A course of laboratory work in connection with the above subjects will be conducted throughout the Session on Tuesday and Thursday afternoons, from 2 to 5.30. It is intended in particular to meet the requirements of those interested in the various industries in which oils are used, such as the Textile Industry, Dyeing, Paint Making, Soap Making, Linoleum Manufacture, Printing Ink Trade, Lithographic Printing, Margarine Manufacture, etc.

The course will include practical work on the following subjects:

Determination of the physical and chemical constants of oils. Specific Gravity. Viscosity. Flash point. Acid value. Saponification value. Iodine value (Hubl and Wijs). Oxidised acids (Fahrion). Reichert-Wollney value. Estimation of Glycerine. Analysis of textile oils, sulphated oils, leather oils, degras, boiled oils, lubricating oils, butters, etc. Soap analysis. Valuation of varnishes. Determination of the constants and solubilities of typical gum resins, *e.g.* kauri, dammar, copal and shellac. Determination of the staining power, covering power, and oil absorption of pigments. Identification of dyestuffs in lakes.

RESEARCH WORK

Special facilities are provided in the Clothworkers' research laboratory for the conduct of original research in the chemistry of colouring-matters, and upon dyeing processes. The laboratory is a spacious one and well equipped for carrying out scientific and technical investigations in these subjects. Post graduate and other advanced students are admitted to research work under the direction of the Professor, and will find an extra year thus spent greatly to their future advantage. Graduates of other Universities (British or foreign), and other qualified chemists, may also obtain admission as research workers for any period desired.

For conditions of admission to research work at special fee, see page 133.

A research scholarship of the value of £60, tenable in this laboratory, is awarded annually upon the results of the Final examination for the B.Sc. degree, preference

being given to candidates who graduate with honours in colour chemistry and dyeing. The scholar will be required to devote his whole time to carrying out some special branch of research in colour chemistry.

A Research Fellowship of the value of £100 per annum will be awarded from time to time by the Senate upon the recommendation of the Board of Science and Technology, for the prosecution of scientific investigations in Textile and Colour Chemistry, under the direction of the Professor of Tinctorial Chemistry. Preference will be given to candidates who have graduated in the University of Leeds with Honours in Colour Chemistry.

The Fellow will be required to devote the whole of his time to the pursuit of the research in question, and (unless the results are published in the form of a communication to a scientific or technical journal) to present a report of the work to the Senate.

It will be in the power of the Senate on the recommendation of the Board of Science and Technology, to renew the Fellowship to the holder of the same for a second year, instead of proceeding to a fresh election.

Special Courses of Study

Experimental classes will also be held in the following specialised subjects if a sufficient number of students present themselves:

1. Paper staining.
2. Straw dyeing.
3. Lake and pigment manufacture.
4. Oils, fats and waxes.

Museum

The museum of natural and artificial dyestuffs and textile fibres is open to students daily.

Work during Vacation

The laboratories of the department will be open to qualified students for research and private study during a part of the long vacation, but students are strongly recommended to employ the time in gaining practical experience in works wherever such a course is possible. The Professor will be glad to give advice before the end of the term as to

suitable courses of vacation study, and to consider applications from students desiring the use of the laboratory.

Positions on Leaving

Students who have taken the full courses as recommended above, and have done satisfactory work during the period may rely upon receiving all possible assistance in obtaining suitable positions when their term of study is completed. The Professor takes a personal interest in placing students, and keeps a record of firms having vacancies.

Examinations of the City and Guilds of London Technical Institute

The above courses prepare for the technological examinations of the City and Guilds of London Institute in Dyeing and also in Coal Tar Products. Students of the Department are recommended to present themselves for these examinations in the last year of their University course.

In connection with these examinations certificates, money prizes, and silver and bronze medals are awarded to the successful candidates. The examinations are held annually at the University in April. Entries for the next examination will be received by the Local Secretary, Mr. G. R. Brench, The University, Leeds, not later than March 1st, 1913.

TIME TABLES

These time tables are subject to variations according to the attainments of the student when he enters the University, and to his subsequent progress.

Diploma in Dyeing

FIRST YEAR TIME TABLE

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon. ..	Chemical	Lab.	Chem. Int.		Phys. Int.	
Tue. ..	Chemi	cal Labora	tory	Chemi	cal Labora	tory
Wed. ..	Chemical	Lab.	Chem. Int.		Phys. Int.	
Thu. ..	Chemi	cal Labora	tory	Chemi	cal Labora	tory
Fri. ..	Chemical	Lab.	Chem. Int.		Phys. Int.	
Sat. ..	Chemi	cal Labora	tory			

Diploma in Dyeing

SECOND YEAR TIME TABLE

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	12 to 1.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Chem. F1	Experimental Dyehouse (10.30-1)			Chemical Laboratory		
TUE. ..		Experimental Dyehouse (9.30-12)		Chem. F3	Experimental		Dyeh'se
Wed. ..	Chem. F1	Experimental Dyehouse (10.30-1)			Chemical Laboratory		
THU. ..	Experimental Dyehouse (9.30-12)			Chem. F3	Experimental		Dyeh'se
FRI. ..	Chem. F1	Chemical Lab			Chemical Laboratory		
SAT. ..	Chemical Laboratory			Chem. F3			

Diploma in Dyeing

THIRD YEAR TIME TABLE

	9.30t o 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Eng. IIA	Experimental and Practical Dyehouses, etc.	(10.30-1)	Experimental and Practical Dyehouses,		etc.
TUE. ..	Dyeing I and II	Experimental Dyehouse (10.30-1)		Experimental and Practical Dyehouses,		etc.
WED. ..	Eng. IIA	Experimental and Practical Dyehouses etc.	(10.30-1)	Experimental and Practical Dyehouses,		etc.
THU. ..	Dyeing I and II	Experimental Dyehouse (10.30-1)		Experimental and Practical Dyehouses,		etc.
FRI. ..	Eng. IIA	Experimental and Practical Dyehouses etc.	(10.30-1)	Experimental and Practical Dyehouses,		etc.
SAT. ..	Experm. Dyehouses, etc.	and Prac.				

Ordinary and Honours Degree in Colour Chemistry

FIRST YEAR TIME TABLE

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Chemical Lab.		Chem. Int.	Math. Int.	Phys. Int.	
TUE. ..	Chemical Laboratory			Chemical Laboratory		
WED. ..	Chemical Lab.		Chem. Int.	Chemical Laboratory		
THU. ..	Chemical Laboratory			Physical Laboratory		
FRI. .	Chemical Lab.		Chem Int.	Math. Int.	Phys. Int.	
SAT. ..	Chemical Laboratory					

Ordinary and Honours Degree in Colour Chemistry

SECOND YEAR TIME TABLE

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	12 to 1.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Chem. F1	Chemical (10.30-1)	Lab.		Chemical Laboratory		
TUE. ..		Chemical (9.30-12)	Lab.	Chem. F3	Chemical Laboratory		
WED. ..	Chem. F1	Chemical (10-30-1)	Lab.				
THU. ..		Chemical (9.30-12)	Lab.	Chem. F3	Chemical Laboratory		
FRI. .	Chem. F1	Chemical (10.30-1)	Lab.		Chemical Laboratory		
SAT. ..	Experimental Dyehouse			Chem. F3			

Ordinary and Honours Degree in Colour Chemistry

THIRD YEAR TIME TABLE

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Eng. IIA	Exper. Dyehouse. (10.30-12)	Org. Chem. H1	Experim	ental Dye	house, etc.
TUE. ..	Dyeing I and II	Experi Dyehouse, (10.30	mental etc. -1)	Experim	ental Dye	house, etc.
WED. ..	Eng. IIA	Exper. Dyehouse. (10.30-12)	Org. Chem. H1	Experim	ental Dye	house, etc.
THU. ..	Dyeing I and II.	Experi Dyehouse, (10.30	mental etc. -1)	Experim	ental Dye	house, etc.
FRI. ..	Eng. IIA	Exper. Dyehouse. (10.30-12)	Org. Chem. H1	Experim	ental Dye	house, etc.
SAT. ..	Experim	ental Dye	house, etc.			

Ordinary and Honours Degree in Colour Chemistry

FOURTH YEAR TIME TABLE

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Clothwork Practical P	ers' Chemi Dyehouse, rinting, e (9.30-1)	cal Lab. Calico tc.	Clothwork Practical P	ers' Chemi Dyehouse, rinting, e	cal Lab. Calico tc.
TUE. ..		ditto.		dit	to.	Tinct. Chem. III and IV
WED. ..		ditto.			ditto.	
THU. ..		ditto.		dit	to.	Tinct. Chem. III and IV
FRI. ..		ditto.		dit	to.	
SAT. ..		ditto.				

Diploma for Textile Chemists

FIRST YEAR TIME TABLE

	9.30 to 10.30	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. .	Chemical	Lab.	Chem. Int.	Chem. Lab.	Phys. Int.	Chem. Lab.
TUE. ..	Chemical Laboratory			Chemical Laboratory		
WED. ..	Chemical	Lab.	Chem. Int.	Chem. Lab..	Phys. Int.	
THU. ..	Chemical Laboratory			Chemical Laboratory		
FRI. ..	Chemical	Lab.	Chem. Int.		Phys. Int.	
SAT. .	Chemical Laboratory					

Diploma for Textile Chemists

SECOND YEAR TIME TABLE

	9.30 to 10.30	10.30 to 11.30.	11.30 to 12.30	12 to 1.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Chem. F1	Chem.	Lab.		Chemical	Laboratory	
TUE. ..	Chemical Laboratory			Chem. F3	Chemical	Laboratory	
WED ..	Chem. F1	Chem.	Lab.		Chemical	Laboratory	
THU. ..	Chemical Laboratory			Chem. F3	Chemical	Laboratory	
FRI. ..	Chem. F1	Chem.	Lab.		Chemical	Laboratory	
SAT. ..	Experimental Dyehouse			Chem. F3			

Diploma for Textile Chemists

THIRD YEAR TIME TABLE

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Eng. IIA	Experm. and Te Anal	Dyehouse chnical ysis.	Experim and Tec	ental Dye hnical Ana	house lysis
TUE. ..	Text.	Lects.	Text. Col. Lect.	Experim	ental Wea	ving
WED. ..	Eng. IIA	Experm. and Te Analysis.	Dyehouse chnical (10.30-1)	Weaving	Lects.	Woollen Spinning
THU. ..	Text	Lects.	Text. Col. Lect.	Experim	ental Wea	ving
FRI. ..	Eng. IIA	Experm. and Te Analysis.	Dyehouse chnical (10.30-1)	Weaving	Lects.	Woollen Spinning
SAT. ..	Experim and Tec	ental Dye hnical Ana	house lysis			

Diploma for Textile Chemists

FOURTH YEAR TIME TABLE

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Text. Des	ign Lect.	Text. Col. Lect.	Wea	ving Lect	ures
TUE. ..	Dyeing I and II	Dyehouse Technical (10.30-	and Analysis 1)	Prac Cloth	tical Finishing	Woollen Spinning Lecture
WED. ..	Text. Chem. V	Experim	ental Dye	house and	Technical	Analysis
THU. ..	Dyeing I and II	Dyehouse Technical (10.30	and Analysis -1)	Dyehouse Technical	and Analysis	Worsted Spinning Lectures
FRI. ..	Cloth Finishing	Textile	Designing	Wea	ving Lect	ures
SAT. ..	Text. Chem. V	Dyehouse Technical	and Analysis			

LEATHER INDUSTRIES

Assisted by the Skinners' Company of the City of London and by Members of the Leather Trades

Professor PROCTER
Dr. STIASNY
Mr. BRUMWELL Mr.

The object of the course of study in this department is, in the first instance, to familiarise students, both by information in lectures and by practical handling of the materials, with the details of the tanning process and the reasons why particular modes of treatment produce particular effects. This knowledge once gained, the student is in a position to judge of the causes of defects, and the changes which it is necessary to make to prevent or remedy them or to modify the leathers produced in such a way as may meet the requirements of the trade. Methods of chemical and microscopic analysis are also taught and practised for determining the purity and value of the various materials employed, and for checking their use in the different stages of the process. In the latter part of the course, students are encouraged to carry out the practical production of leathers in which they are interested, and to study the smaller details of the processes. Particular attention is paid to leather dyeing and the manufacture of coloured leathers, and small quantities of almost all kinds of leather are produced of commercially saleable quality.

In addition to actual teaching, the department undertakes a large amount of research work in connection with leather manufacture with regard to the practical production of leather and the scientific principles on which it is based, and the methods of analysis employed in controlling the purity of materials and the conduct of tanning processes. On these points much useful information has been freely given to the trade.

COURSES OF INSTRUCTION.

The laboratories will be open during the session from 9.30 a.m. to 1 p.m. and from 2 to 5 p.m. except on Saturday afternoons. No student will be admitted to work until he has

satisfied the Professor by examination or otherwise that he has an adequate knowledge of general chemistry to enable him to profit by special work.

Students work independently, and the course of work is so arranged as at the outset to familiarise them with the various agents employed in the manufacture of leather, and with their action on hide and skin, and on each other. Later on, methods of chemical examination and analysis of the various materials are studied, with their application to the control of manufacturing processes, and to tracing the causes of defects in leather. Instruction is given in the use of the microscope for this purpose, and for the study of the minute structure of the skin and of ferments.

Experiments in actual leather manufacture on a small scale are also carried on by the students, in such a way as to illustrate the subject matter of the lectures, and to show the effect of variations in the processes. This is, when possible, supplemented by visits to works where the manufacture is carried on.

Leather Dyeing, Staining and Finishing is taught by a systematic course of experimental Dyeing in the laboratory and workshops of the Leather Industries Department, beginning with small samples and proceeding to the colouring and finishing of whole skins.

All the more important kinds of leather are made and finished in the experimental tannery and workshops from the raw materials, with the assistance of the students ; and opportunities are given to those who are sufficiently advanced to work upon branches of manufacture in which they are specially interested, or to undertake scientific research in connection with the trade.

There is also an Honours and M.Sc. course for graduates and advanced students, consisting principally of research work under the direction of the Professor and his assistants, with a special course of lectures on the Physics and Chemistry of the subject ; and advanced students and others are admitted for independent research at reduced fees.

All the ordinary chemicals (except silver nitrate and alcohol) and small quantities of skin and leather for experimental purposes will be furnished by the Department, but larger quantities required for special experiment or research may be charged to or provided by students at the discretion of the Professor. A certain amount of apparatus must be purchased by the student, who will also be held accountable for breakage of apparatus belonging to the University.

LECTURE COURSES

I. The General Principles of Leather Manufacture

Lectures on Mondays, Wednesdays, and Fridays at 10.30 a.m. throughout the session, comprising the following subjects:

The skin and its structure. Character and source of hides and of skins employed in tanning. Soaking and washing and the nature of putrefaction and antiseptics. The chemistry of lime and water in relation to tanning. The liming of hides and skins. Other methods of depilation. Unhairing, fleshing and rounding. Removal of lime before tanning. Bating, puering and drenching, and other means of depleting the skin.

The principal vegetable tanning materials. The elementary chemistry of tanning materials. The grinding and leaching of tanning materials and the manufacture of extracts. The uses of spent tans. The tanning effect of different materials.

The vegetable tanning process and the treatment of hides and skins in the liquors. Principles of rapid tannage. The use of acids and other "assistants" in the tanning process. Quinones and other organic tanning agents.

The tannage of upper leathers as compared to that of sole leather. The chemistry of currying and the oils and fats employed. Japanning.

Oil Tannages.—Chamois. Buff-leather. Formaldehyde tannages. Fat-leathers. Crown and Helvetia leathers.

General principles of mineral tannages. Aluminium leathers. Kid process. Chrome Leathers — Knapp's, Cavallin's, Heinzerling's and other early processes. Modern "one bath" or basic process. "Two bath" or reduction process.

Combination Tannages.—Vegetable in conjunction with aluminium, chrome and oil tanning. Stripping and retannage.

II. Physics and Chemistry of Leather Manufacture

(*Honours and M.Sc. course*)

Lectures on Tuesdays and Thursdays, at 9.30 a.m. (or at a time to be arranged) throughout the session.

Energy and its transformations. The gas-laws and their practical applications to heating, drying, evaporation and heat-engines. The properties of liquids and their relation to gases. Surface-tension and internal pressure, solution, diffusion and osmotic pressure, electrolytic dissociation, and its relations to electromotive forces, measurement of ionic concentration, chemical and ionic equilibria and the mass-law. The use of salts as regulators. The colloidal state, the Brownian movement, cataphoresis, and colloidal precipitation. Nature of jellies, their swelling and repression. Applications to leather manufacturing processes.

The detailed chemistry of oils and fats employed in Leather Manufacture. The classification and constitution of the more important dye-stuffs. The reactions, constitution and classification of the vegetable tannins, and their relation to colouring matters.

Classification of the proteids; and detailed description of the proteids of the hide, their properties and behaviour with reagents and probable constitution; and the changes involved in the processes of leather manufacture.

The more detailed chemistry of the chrome process, and of other recent tanning methods.

III. Methods of Leather Manufacture

Lectures on Tuesdays and Thursdays at 10.30 a.m. throughout the session.

The manufacture and finishing of sole, belting and dressing leathers. Currying. Manufacture of moroccos and other fancy leathers; staining; dyeing, and finishing. Oil and fat tannages, including so-called "rawhide" leathers. Alum dressing, including glove and calf-kid. Chrome and formaldehyde tannages. Combination tannages.

These lectures will be in connexion with the practical work in tanning, currying and leather dyeing carried on in the Leather Industries laboratories and workshops, and will, as far as possible, furnish the working details necessary to practical manufacture.

IV. Analytical Chemistry of Leather Manufacture

Lectures on Saturdays at 10.30 a.m. throughout the session, including the analytical investigation of the following: waters; liming and deliming materials; lime liquors; tanning materials; extracts; tanyard liquors; gelatine; glue; soaps, oils, fats and waxes; mineral and vegetably tanned leathers; tannery effluents.

These lectures will explain the analytical methods in use in the Leather Industries Laboratories.

V. Technical Microscopy, Bacteriology and Micology

Lectures and practical work on Fridays from 2 to 5 p.m. during the first and second terms.

The use of the microscope in the examination of skin and leather, and in the detection of adulterants, in connexion with work carried on in the laboratories. The bacteriology and mycology of leather manufacture, including some introduction to general technical bacteriology.

Students are encouraged to provide their own microscopes, but will be allowed to use those of the Department at an additional charge of 5s. For bacteriological work a 1/12th inch oil immersion objective and substage condenser is required; but for the technical microscopy a simpler microscope will suffice.

VI. Practical Leather Manufacture

(*for Elementary Students*).

Demonstrations on Mondays, Wednesdays and Fridays at 9.30 a.m. throughout the session.

Sole leather: The liming and beam house work of hides for sole leather; mixed tannage with the common materials and extracts, the finishing processes for bends and offal.

Dressing leather: The liming, bating, drenching and other beam house work, and the tanyard work for belting and harness leathers, dressing hides for upper leathers, E.I. kips and calfskins.

Light leathers: The preparation of goatskins for morocco leathers, including liming, puering, drenching, and the tannage with sumach. The fellmongering of sheep skins, including painting, unwooling, liming, de-liming, pickling. The tannage of sheep skins for basils, skivers, &c. The manufacture of sumach calf and tawed leathers.

Chrome and mineral tannage: Tawing and white leathers. Chroming by one-bath and two-bath processes. Re-tannage with basic liquors. Semi-chrome and other combination tannages.

VII. Practical Leather Manufacture

(*for Advanced Students*).

Demonstrations in Workshops, Wednesdays, 2—5 p.m. throughout the session.

Sole leather and dressing leather, including wet-work and tannage, and the methods of tannery control. Finishing of sole leather.

The currying and finishing of dressing leathers. Scouring, hand and machine shaving, splitting, hand and drum stuffing, staining, blacking, waxing, seasoning, glazing, graining, &c. Dressing of strap butts; harness; split hides; waxed kip, calf and splits, satin leathers, lining leathers, memel, levant.

The dressing of moroccos and light leathers from crust skins. Blacking and dyeing; mordanting. Use of natural and artificial dyestuffs. Dyeing to shade. Graining, seasoning, glazing and finishing. Dressing of sumach goat, sheep, E.I. tanned sheep and goat, bookbinding calf, basis, skivers, chamois, &c.

Chrome and combination leathers: The manufacture of box and willow calf, including wet work, tanning, dyeing, fatliquoring, staking, glazing and finishing. Skins will be tanned by both one-bath processes (glucose liquor, basic alum liquor, &c.) and two-bath processes (Schultz

bath, acid bath, &c.) The retannage in chrome of vegetable tannages, and their finishing for "semi-chrome" box and willow calf. The manufacture of glacé kid, including wetwork, tannage by two-bath process, and the finishing operations. Imitation glacé from sheep skins. Heavy chrome leathers.

Text Books (which must be purchased by the student).

PROCTER'S *Leather Industries Laboratory Book* (E. & F. N. Spon Ltd.)

PROCTER'S *Principles of Leather Manufacture* (E. & F. N. Spon Ltd.)

BENNETT'S *Manufacture of Leather* (A. Constable & Co. Ltd.)

SCHEMES OF STUDY

The following schemes are arranged so as to give students the fullest advantage of the instruction provided by the University, and must generally be adhered to. Time is allowed however, for taking up additional subjects, and special courses may be arranged for students who can satisfy the Vice-Chancellor and the Professor that they already have adequate knowledge of some of the subjects included. Some preliminary acquaintance with actual leather manufacture is very desirable before taking the University courses, and in no case is University training an adequate substitute for practical experience in actual manufacture, though it usefully supplements it, and greatly lessens the time which is necessary to its aquirement.

Students are not admitted to advanced courses unless they have sufficient elementary knowledge to follow them with advantage.

Shorter courses of study may be arranged for students who cannot afford the necessary time for a degree or diploma course. (See Scheme IV and V).

Degrees in Science of which particulars are given below, are conferred in connection with Leather Manufacture, Before beginning courses for Degrees, the student must have passed the Matriculation examination of the Joint Board of the Northern Universities, or of the University of London.

A Diploma in Leather Manufacture, for which matriculation is not required, is also given by the University.

A one-year course for Honours or M.Sc. can be arranged for students who have already graduated.

Scheme I. Three Years' Course for Ordinary B.Sc.

First Year (Intermediate)

Preparation for Intermediate examination in Physics and two of the following: Mathematics, Chemistry, Zoology, Botany.

An additional subject, selected from the list of Intermediate subjects given in the Calendar, must also be presented at some Intermediate examination during the course.

Students will also be required to write a short descriptive essay relative to their scientific or technical work.

It is also desirable that German and French should be studied, as passages for translation from scientific or technical works will be set in the Final examination, and a sufficient knowledge to read one of these languages is compulsory.

Second and Third Years

Preparation for Final examination in Chemistry, and Chemistry of Leather Manufacture. Approved courses on Physics and Engineering must also be attended.

First Year	Per week
General Course of Chemistry (Chem. Int.) ...	3 hrs.
Chemical Laboratory	12 ,,
Physics Intermediate	3 ,,
Physics Laboratory	3 ,,
Mathematics Int.	3 ,,
German or French Intermediate	3 ,,
Leather VI (Practical Leather Manufacture) ...	3 ,,

TIME TABLE.

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	L. VI		Chem. Int.	Math. Int.	Physics Int.	
TUE. ..	Chemical	Laboratory		Physic	Laboratory	
WED. ..	L. VI		Chem. Int.			
THU. ..		Chem. Laboratory		Chemical	Laboratory	
FRI. ..	L. VI		Chem. Int.	Math. Int.	Physics Int.	
SAT. ..	Chemical	Laboratory				

Second Year [1]

	Per week.
Chemistry F_2 (Inorganic)	3 hrs.
Chemistry F_3 (Organic)	3 ,,
Chemical Lab. (Inorganic and Organic)	12 ,,
Engineering II.A	3 ,,
Principles of Leather Manufacture (L. I) ...	3 ,,
Analytical Chemistry of Leather Manufacture (L. IV)	1 ,,
Leather Laboratory	9 ,,

TIME TABLE.

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Eng. IIa	Leather I	Chem. Lab.	Chemical	Laboratory	
TUE. ..	Chem. F_2	Chem. Lab.	Chem. F_3 (12-1)	Leather	Laboratory	
WED. ..	Eng. IIa	Leather I	Chem. Lab.	Chemical	Laboratory	
THU. ..	Chem. F_2	Chem. Lab.	Chem. F_3 (12-1)	Leather	Laboratory	
FRI. ..	Eng. IIa	Leather I		Leather	Laboratory	
SAT. .	Chem. F_2	Leather IV	Chem. F_3 (12-1)			

[1] Candidates applying for exemption from the Intermediate course must also apply for the substitution of Leather VI for Eng. IIa in the second year course.

Third Year

	Per week.
Chemistry (Inorganic) (F1)	3 hrs.
Methods of Leather Manufacture (L. III) ...	2 ,,
Microscopy and Bacteriology of Leather Manufacture (L. V) (1st and 2nd terms)	3 ,,
Practical Leather Manufacture (L. VII) ...	3 ,,
Leather Laboratory	18 ,,

TIME TABLE.

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Chem. F1	Leather L	aboratory	Leath	er Labora	tory
TUE. ..	Leather Lab.	Leather III	Leather Lab.	Leath	er Labora	tory
WED. ..	Chem. F1	Leather L	aboratory	Leather	VII	
THU. ..	Leather Lab.	Leather III		Leath	er Labora	tory
FRI. ..	Chem. F1	Leather L	aboratory	V & Mi	cro. Labor	atory
SAT. ..	Leath	er Labora	tory			

Scheme II. Four Years' Course for B.Sc. with Honours

First Year

The intermediate course for the ordinary degree.

Second Year [1]

The second year course for the ordinary degree, except that Chemistry F1 is taken instead of Engineering IIA.

Third Year

The third year course for the ordinary degree, except that Chemistry H3 is taken instead of Chemistry F1.

1 Candidates applying for exemption for the Intermediate course must also apply for the substitution of Leather VI for Chemistry F1 in the second year course.

Fourth Year[1]

Engineering IIA., Leather II and Research in the Chemistry of Leather Manufacture.

Scheme III. Course for Diploma in Leather Manufacture

This course, extending over three years, is suitable for those who intend to become technical managers in leather works, and is recommended to sons of tanners and others who require a practical knowledge of the science and technology of the industry, but are unable to take a degree course. Though not actually prescribed in the course, the study of a modern language, especially of German, is extremely important, and time is allowed for taking it as an extra subject.

In the Diploma examination there will be included, for translation into English, passages of French and German relating to the principal subject of a candidate's diploma course, and credit will be given for correct rendering of such passages.

A descriptive essay relative to the technical work of the candidates will be set as part of the Diploma examination and will be examined by the Examiners in English in co-operation with the Examiners in the technical department concerned. Foreign students may be excused from presenting themselves on producing evidence of having received a satisfactory general education. All other students will be required to satisfy the Examiners in this essay.

Examination Fee, £1.

First Year

	Per week.
General Course of Lectures (Chem. Int.)	3 hrs.
Chemical Laboratory	18 ,,
Mechanical Drawing	3 ,,
Leather Industries Workshops (VI)	3 ,,

1 Candidates may take Chemistry H1 in either the third or fourth years of their course, but this is not compulsory.

TIME TABLE.

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Leather VI		Chem. Int.	Chemical Laboratory		
TUE. ..	Chemical Laboratory			Chemical Laboratory		
WED. ..	Leather VI		Chem. Int.	Chemical Laboratory		
THU. ..	Chemical Laboratory			Engineering Drawing		
FRI. ..	Leather VI		Chem. Int.	Chemical Laboratory		
SAT. ..						

Second Year

	Per week.
Chemistry (Organic) (F_3)	3 hrs.
Principles of Leather Manufacture (L. I) ...	3 ,,
Analytical Chemistry of Leather Manufacture (L. IV)	1 ,,
Chemical Laboratory (Organic)	6 ,,
Leather Industries Laboratories and Workshops	15 ,,

TIME TABLE.

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	12 to 1.	2 to 3.	3 to 4.	4 to 5.
MON.		Leather I			Leather Laboratory		
TUE...	Chemical Laboratory	(9-12)		Chem. F_3	Leather Laboratory		
WED.		Leather I			Leather Laboratory		
THU...	Chemical Laboratory	(9-12)		Chem. F_3	Leather Laboratory		
FRI. ..		Leather I			Leather Laboratory		
SAT...		Leather IV		Chem. F_3			

Third Year

	Per week.
Methods of Leather Manufacture (L. III) ...	2 hrs.
Technical Microscopy and Bacteriology (L. V) ...	3 ,,
Engineering (IIA)	3 ,,
Leather Industries Laboratories and Workshops (including Leather VII)	20 ,,

TIME TABLE.

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	Eng. IIA	Leather	Lab.	Leather	Laboratory	
TUE. ..	Leather Lab.	Leather III		Leather	Laboratory	
WED. ..	Eng. IIA	Leather	Lab.	Leather	VII	
THU. ..	Leather Lab.	Leather III		Leather	Laboratory	
FRI. ..	Eng. IIA	Leather	Lab.	L. V &	Micro. Laboratory	
SAT. ..	Leather	Laboratory				

NOTE.—These Time Tables are subject to slight variations according to the attainments of the student when he enters the University, and to his subsequent progress.

In awarding this Diploma, in addition to any special examinations which may be imposed, the University will take into account the result of all terminal examinations during the course, and students failing in any of these may be disqualified, or required to repeat that part of the course. Students must obtain a Diploma Record which must be signed by Professors and Lecturers at the end of each session, and on which any exemptions or allowed changes of course must be recorded.

Students who give evidence of adequate previous scientific or practical training, may, upon application, be exempted from a portion of the course, and admitted to the Diploma upon a shortened period of study.

SHORTER COURSES.

Schemes IV and V are given as illustrations of what may be done by students who can only devote a single year to the subject, but may be modified to suit individual knowledge and requirements. No diploma or certificate will be given, beyond one of satisfactory attendance.

Scheme IV. An Elementary One-Year Course[1]

For Students possessing some knowledge of Chemistry and of practical leather manufacture.

Classes

	Per week.
General Course of Chemistry (Chem. Int.) ...	3 hrs.
Principles of Leather Manufacture (L. I.) ...	3 ,,
Methods of Leather Manufacture (L. III.) ...	2 ,,
Analytical Chemistry of Leather Manufacture (L. IV.)	1 ,,
Practical Leather Manufacture (L. VI. & VII.) ...	6 ,,
Leather Laboratory	9[2] ,,
Chemical Laboratory	6 ,,

TIME TABLE.

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	L.VI	L. I	Chem. Int.	Chemical Laboratory		
TUE. ..	Lr. Lab.	L. III	Lr. Lab.	Chemical Laboratory		
WED. ..	L.VI	L. I	Chem. Int.	Leather VII		
THU. ..	Lr. Lab.	L. III	Lr. Lab.	Leather Laboratory		
FRI. ..	L.VI	L. I	Chem. Int.	Leather Laboratory		
SAT. ..	Lr. Lab.	L. IV.	Lr. Lab.			

Scheme V. An Advanced One-Year Course

For post graduate students or those possessing considerable knowledge of Chemistry.

1 Courses IV and V, involving neither degree nor diploma, may be modified in special cases.

2 Including dyeing class, control methods, some microscopy and small experiments in leather manufacture.

Classes	Per week.
Principles of Leather Manufacture (L.I.) 1st and 2nd terms	3 hrs.
Chemistry and Physics of Leather Manufacture (L.II.)	2 ,,
Methods of Leather Manufacture (L.III.) ...	2 ,,
Analytical Chemistry of Leather Manufacture (L IV.)	1 ,,
Technical Microscopy and Bacteriology, 1st and 2nd terms	3 ,,
Practical Leather Manufacture (L.VII.) ...	3 ,,
Leather Laboratory	15 ,,

TIME TABLE.

	9 30 to 10.30.	10.30 to 11.30.	11.30 to 12-30.	2 to 3.	3 to 4.	4 to 5.
MON. ..	L. VI	L. I *	Leather Lab.	Leather	Laboratory	
TUE. ..	L. II	L. III	,,	Leather	Laboratory	
WED. ..	L. VI	L. I *	,,	Leather	VII	
THU. ..	L. II	L. III	,,	Leather	Laboratory	
FRI. ..	L. VI	L. I *	,,	V. and	Micro. La	boratory
SAT. ..	Leather Lab.	L. IV	,,			

Degrees of Master of Science (M.Sc.) and Doctor of Science (D.Sc.)

These will be awarded to students who have obtained the B.Sc. degree in Leather Manufacture on the conditions stated for Science graduates.

Work During Vacation

The laboratories of the department will be open by arrangement to qualified students for research and private study during a part of the long vacation, but students are strongly recommended to employ the time in gaining practical experience in works wherever such a course is possible. The Professor will be glad to give advice before the end of term as to suitable courses of vacation study, and to consider applications from students desiring the use of the laboratories.

AGRICULTURE

Professor SETON

Mr. HAYDON Mr. ARCHIBALD Dr. CROWTHER
Mr. STEUART Mr. HECTOR Mr. POTTS Mr. GODDEN
Mr. TAYLOR Mr. PARTON Mr. RUSTON Mr. BOWES
Mr. T. REDINGTON Mr. GAUT Mr. GALT
Mr. F. REDINGTON Miss MCKERROW Miss LEADLAY
Mr. ANSTEY

The Winter Course in the Department of Agriculture will begin on Monday, October 14, 1912, when the Vice-Chancellor will admit students from 9.30 a.m. to 12.30 p.m., and also from 2 to 4 p.m. All students are expected to register their names on this day.

Lectures will begin on Tuesday, October 15.

The Winter Course extends over two terms: the first term begins October 14, and ends December 21, 1912; the second term begins January 6, 1913, and ends March 15, 1913.

The Summer Course extends over the third term, which commences April 16, and ends June 28, 1913, Lectures will begin on April 17 at 9 a.m.

Fee for the Winter Course £10, for the Summer Course £5.

All Fees are payable to the Accountant. Cheques should be made payable to "The University of Leeds," and crossed "Beckett & Co."

ADMISSION OF STUDENTS

The classes and laboratories are open to men and women on the same terms. Special arrangements are made for the convenience of women students.

No day students are admitted under the age of sixteen years. Students under seventeen years of age may be required to pass an entrance examination.

Candidates for admission to the University who are under nineteen years of age, and who have been at a school or

other educational institution within one year of their application for admission, are required to produce a certificate of good conduct from the head of such institution.

It is recommended that applicants for admission should have spent at least one year on an approved farm before entering the Department of Agriculture.

Applications for admission to the University from persons residing out of the United Kingdom, must in all cases be accompanied by certificates of good conduct duly authenticated. Indian students are, in addition, required to produce certificates of identity, which should also, as a rule, be furnished by students from foreign countries.

All students are required, prior to admission, to sign a declaration that they will observe the statutes, ordinances, and regulations of the University for the time being.

COURSES OF STUDY

The courses of study in Agriculture at the University are:

1. A general course designed without reference to the requirements of any examining body.
2. A course for the National Diploma.
3. A course for the B.Sc. Degree.

I. and II.—General and National Diploma Courses

Winter Course

Students may obtain a full course during winter, and are free to devote the spring and summer months to practical farm work.

The instruction has been arranged to meet the requirements of young men who intend to become farmers, land agents, valuers, or teachers of agricultural science.

The complete course extends over three winters, but students may take a one or two winters' course. The complete course prepares students for the examination for the National Diploma in Agriculture, awarded jointly by the Royal Agricultural Society of England and the Highland

and Agricultural Society of Scotland. Students are also prepared for the examination of the Surveyors' Institution.

The University of Leeds is among the places of professional education which have been approved by the Surveyors' Institution. The effect of this recognition is that students of the University who have taken the two years' course in Agriculture are admitted to the examinations of the Institution in Sub-Division 1, "chiefly Land Agency," without the usual period of pupilage in a land agent's or surveyor's office. Students preparing for the above examination are advised to attend in their last year the short course of lectures on Agricultural Law which has been specially arranged. The fee for the course is 10s. 6d.

A course of lectures on Agricultural Economics, which all Agricultural Students are recommended to attend in their second or third year, has also been specially arranged. The fee for the course is 10s. 6d.

The Agricultural Chemical Laboratory will be open on special terms to those who wish to devote their whole time to agricultural chemical analysis.

Practical instruction in Agriculture is provided for at the Educational Farm at Garforth. In addition to the lectures at the University, students must attend regular classes at the Farm, where class-rooms and laboratories are provided, in which classes will be conducted when necessary.

All students taking a full course will be required to follow closely the farm work, including field operations, methods of feeding stock, and progress of experiments.

Students will be required to pay their railway fares to and from Garforth. The cost of a contract ticket between Garforth and Leeds during the Winter Course (five months) for students under 18 years of age is £1 8s. 3d.

A Tutor is provided to supervise the studies of first year students. Tutorial classes will be formed to suit their requirements.

Summer Course

A special course has been arranged for students who can devote the summer as well as the winter months to study. This will extend from April 16 to June 28, 1913.

The subjects will comprise Agricultural Chemical Analysis General Botany, Forest Botany, Horticulture, Poultry Keeping, Farm Bacteriology, Surveying and Levelling, and Practical Agriculture.

Students reading for the National Diploma are required to take the Summer course in their first year.

TIME TABLES

First Year Winter Course

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON.	Tutorial.	Natural	History.	Chem	ical Laborat	ory.
TUE.	Agri.	Physics & Mechanics.	Chemistry (1st Term). Nat. Hist. (2nd Term).	Phys	ics Laborato	ry.
WED.	Agri.	Nat. Hist. (1st Term). Chemistry (2nd Term)	Geology.	F	arm Clas	s
THU.	Agri.	Physics & Mechanics.	Tutorial.	Geolo	gical Labora	tory.
FRI.	Natural	History.	Geology.	Occasional	Classes at	Garforth.
SAT.	Chemistry					

Second Year Winter Course.—A

[FOR STUDENTS READING FOR THE NATIONAL DIPLOMA.]

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
MON.	Chem.	Surveying.	B'k-keeping	Farm Im Engineering (2nd Term)	plements at (1st Term).	Farm
TUE.	Chem.	Chemical	Laboratory.	Agri.	Botany.	Surveying
WED.	Chem.	Buildings & Implements.	*Geology.	Engineering (2nd Term).	Agri.	Botany.
THU.	Chem.	Ag. Zo	ology.	Engineering (2nd Term).	*Geologi	cal Lab.
FRI.	Ag. B	otany	*Geology.	Chem	ical Laborat	ory.
SAT.	Ag. Zo	ology.	B'k-keeping	..	..	..

Winter Session 1912-13 only.

Second Year Winter Course.—B

[For Students taking the General Course.]

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon.	Vety. Sc.	Agri.	B'k-keeping	Agri	cultural Bot	any.
Tue.	Vety. Sc.	Agri.	Agri. Chem.	F	arm Clas	s
Wed.	Vety. Sc.	Agri.	Agri. Chem.	..	..	..
Thu.	Vety. Sc.	Agri.	Agri. Chem.	Chemic	al Laborato	ry.
Fri.	..	Agri.	Agri. Chem.	F	arm Clas	s
Sat.	Chemical	Laboratory.	B'k-keeping	..	..	..

Third Year Winter Course

[For Students Reading for the National Diploma.]

	9.30 to 10.30.	10.30 to 11.30.	11.30. to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon.	Vety. Sc.	Agri.	..	*Engin'ering	..	..
Tue.	Vety. Sc.	Agri.	Agri. Chem.	F	arm Clas	s
Wed.	Vety. Sc.	Agri.	Agri. Chem.	*Engin'ering	..	..
Thu.	Vety. Sc.	Agri.	Agri. Chem.	*Engin'ering	Chem.	Lab.
Fri.	..	Agri.	Agri. Chem.	F	arm Clas	s
Sat.	Chem	ical Laborat	ory.	..	..	..

* Winter Session 1912-13 only.

Summer Course

	9.30 to 10.30.	10.30 to 11.30.	11.30 to 12.30.	2 to 3.	3 to 4.	4 to 5.
Mon.	Dairying.	Forest	Botany.	Chem.	Chemical L	aboratory
Tue.	9 to 10. Horticulture	10 to 12. Gen. Botany.	12 to 1. Surveying.	Surveying	field or draw	ing office
Wed.	9 to 10. Poultry.	10 to 11. Dairying.	11 to 1. Forest Bot.	Surveying	field or draw	ing office
Thu.	9 to 10. Poultry.	10 to 12. Gen. Botany.	12 to 1. Surveying.	Surveying	field or draw	ing office
Fri.	9.30 to 10.30. Dairying.	10.30 to 11.30. General	11.30 to 12.30. Botany.	Chem.	Chemical L	aboratory
Sat.	9.30 to 10.30. Excursions	10.30 to 11.30 or Botanical	11.30 to 12.30. Laboratory.	..	..	..

III.—Degree Course

Students who intend to present themselves for the B.Sc. degree will not enter the Agricultural Department until they begin the work for the Final examination. The fees and time tables for the Intermediate and Final examinations are the same as for all students of Science. The conditions as to fees and attendance will be found in previous pages.

For the B.Sc. degree, Students must pass three examinations, viz. :—

MATRICULATION,
INTERMEDIATE,
FINAL.

In no case can a degree be obtained except after three years of attendance at the University.

SUBJECTS OF EXAMINATION FOR THE DEGREE

Matriculation Examination

1. English Language and Literature.
2. English History.
3. Mathematics.
4. *Three* of the following, *one* of which must be a language:
   - (i) Greek.
   - (ii) Latin.
   - (iii) French.
   - (iv) German.
   - (v) Some other Language approved by the Joint Matriculation Board.
   - (vi) *Either* Mechanics *or* Physics.
   - (vii) Chemistry.
   - (viii) Geography (Physical, Political and Commercial)
   - (ix) *Either* Natural History (Plants and Animals) *or* Botany.

Of these, Agricultural Students are recommended to take German or French, Mechanics and Chemistry.

Full particulars of this examination may be obtained from the Secretary, Joint Matriculation Board, 24, Dover Street, Manchester.

Intermediate Examination

Candidates who intend to present themselves for the Intermediate examination must take:

Physics, and two of the following: Chemistry, Zoology, Botany, Geology.

In addition, *one* of the following to be presented at either the Intermediate or Final examination, the standard being that of the Intermediate examination in either case:

Greek.
Latin.
French.
German.
English Literature.
Ancient or Modern History.
Logic.
Economics.
Economic Geography.
Mathematics.
Chemistry.
Zoology.
Botany.
Geology.
Applied Mechanics.
General Engineering.

Candidates are also required to satisfy the Examiners in a descriptive essay relative to their scientific or technical work.

Final Examination

For the Final examination, the subjects are:

1. Agriculture, including special courses in *two* of the following:

Agricultural Chemistry.
Agricultural Botany.
Agricultural Zoology.
Agricultural Geology.
Agricultural Entomology.
Agricultural Economics.
Veterinary Science.
Bacteriology.
Surveying.

2. *Either* one of the following as a principal subject:
   Mathematics.
   Physics.
   Chemistry.
   Zoology.
   Botany.
   Physiology.
   Geology.

   or two subsidiary subjects from the following:
   Mathematics P. (Pure).
   Mathematics PA. (Pure and Applied).
   Physics.
   Chemistry.
   Zoology.
   Botany.
   Physiology.
   Geology.
   Human Anatomy.
   Bacteriology.
   Education (including the teaching of Elementary Science).

Mathematics P. and PA. cannot be taken together as subsidiary subjects.

During the two years' study for the Final examination, students will be required to spend at least six months on the Manor Farm, Garforth, where each student must conduct an experiment on some Agricultural subject and present a report on the same.

SYLLABUSES

FIRST YEAR

Agriculture (1)

Lectures on Tuesdays, Wednesdays, and Thursdays, at 9.30 a.m., by Professor Seton.

SUBJECTS.—Agriculture and its relation to the sciences.

Soils.—Their nature, functions, origin and wasting. Texture and general characteristics. Soil temperature. Soil water and its conservation. Relations between the soil

and the plant. Chemical composition of soils; potential and available plant food.

Characteristics, classification and distribution of soils. Chief types of Yorkshire soils.

Tillage operations. Ploughing; specific results of ploughing; times and methods of ploughing. Autumn and Spring cultivation. Surface tillage. Preparation of seed-bed for different crops on various classes of soil.

Steam cultivation.

Farm drainage. Irrigation. Sewage farms. Warping. claying, marling, chalking, liming, paring and burning, clay-burning.

Manures.—Characteristics of the various nitrogenous, phosphatic, and potassic manures in common use. Conditions affecting their succesful application. Their specific effects on the various farm crops. Farm-yard manure; its production, variation, preservation and application. Liquid manure. Composts. Green manuring.

Rotations.—The rotation of crops. Arrangements of cropping according to the system of farming adopted.

Seeds, Grasses, and Pastures.—Common grasses and clovers, their suitability for different soils and local conditions. Laying down land to permanent pasture. Grass seed mixtures. Treatment of new grass land. Management of old-established grass. Deterioration of grass land; its causes and remedies. Hay-making. Silage and the system of ensilage.

Chemistry (2)

Tuesdays, at 11.30 a.m. First Term; Wednesdays at 10.30 a.m. Second Term; and Saturdays at 9.30 a.m., by Mr. Ruston.

SUBJECTS.—Chemistry so far as is sufficient to enable students to understand thoroughly the application of this science to Agricultural practice.

Physics and Mechanics (2A)

Tuesdays and Thursdays, at 10.30 a.m., by Mr. Ruston.

SUBJECTS.—Physics and Mechanics so far as is sufficient to enable students to understand thoroughly the application of these sciences to Agricultural practice.

Natural History

Botany.—During first term only, Mondays, 10.30 a.m. to 12.30 p.m., Wednesdays at 10.30 a.m., and Fridays, 9.30 to 11.30 a.m., by Prof. Priestley and Mr. Walker.

SUBJECTS.—Elementary facts of structure of plants; drawing; the use of the microscope; simple experiments on the growth of plants and allied matters; the elements of Agricultural Botany.

Zoology.—During second term only, Mondays, 10.30 a.m. to 12.30 p.m., Tuesdays at 11.30 a.m., and Fridays, 9.30 to 11.30 a.m., by Mr. Taylor.

SUBJECTS.—Elementary facts of structure of the higher animals; the use and mechanism of special organs; drawing; the use of the microscope.

Agricultural Geology (Geology S1)

Lectures on Wednesdays and Fridays, at 11.30 a.m., by Professor Kendall and Mr. Gilligan. Practical work Thursdays, from 2 to 5 p.m.

SUBJECTS.—Scope of the science. The composition and physical characters of the common rock-forming minerals. Classification of rocks according to (*a*) their mode of origin and (*b*) chemical composition. Climate. Rainfall. Temperature. Winds. Construction and interpretation of weather charts. Examination of meteorological instruments in use at the Cecil Duncombe Observatory.

Denudation, transport and accumulation. Forms of stratification. The subdivision of stratified rocks. Economic products of the chief formations. The nature and origin of the drift deposits. Their importance in relation to the soils of the North of England. The soils of the Warp lands and the Yorkshire Wolds.

The disintegration of rocks and the formation of soils. Geological maps, their interpretation and use. British rainfall, its measurement and variation. Storage of

subterranean waters. Water supply from springs and deep and shallow wells. Application of geological knowledge to the selection of sites for roads, bridges, &c.

Tutorial Classes

Mondays, 9.30 a.m., and Thursdays at 11.30 a.m., by Mr. Ruston.

SUBJECTS.—Correspondence, Calculations, Elementary Mathematics preparatory to Book-keeping, Surveying, and Engineering.

Chemical and Physics Laboratory

Mondays and Tuesdays, from 2 to 5 p.m.

Selected experiments arranged to illustrate the Chemical and Physical principles underlying Agricultural operations. These will include the preparation of the elements of special interest to agriculturalists, and experiments leading up to a correct knowledge of the nature, properties, composition, and use of soils, manures, and feeding stuffs.

Practical Agriculture

Wednesday and Friday afternoons, at Garforth.

SUBJECTS.—Stock. Stock-feeding. Estimation of weights of crops and animals. Pastures and pasture plants. Practical examination of seeds, manures and feeding stuffs.

Seasonable operations will be closely followed; different systems will, so far as practicable, be illustrated, and the reasons for the variations explained. Students will be required to follow closely stock-feeding and other experiments at Garforth.

SECOND AND THIRD YEARS

Agriculture (3)

Lectures daily, except Saturdays, at 10.30 a.m., by Mr. Haydon and Mr. Potts.

SUBJECTS.—*Feeding Stuffs.*—Animal nutrition. Process of digestion. Functions of the various constituents of food. Suitability, comparative nutritive value, and economical use of the commoner feeding stuffs for the different

classes of farm stock. Preparation of food. General requirements of the different animals on the farm. Food rations.

Crops and Cropping.—Characteristics, habits, cultural requirements, and management of the various arable land crops. Variation in yield, composition, and quality according to local conditions and treatment. Factors to be considered in the selection of varieties.

Live Stock.—Origin, history, and description of the different breeds of horses, cattle, sheep, and pigs in the British Isles. Relation between districts and breeds. Comparative powers of adaptation. Essential points in size, conformation, and character. Standards of perfection. Principles involved in improvement and early maturity. Fixation and preservation of desirable qualities. Advantages and dangers of pedigree breeding. Pure, cross-grade, and high-grade breeding. Laws of animal development.

Accommodation for farm stock.

Horses.—Working horses. Breeding mares. Gestation, foaling, weaning, and rearing. Breaking and preparation for sale.

Cattle.—Management of cows. Calving. Rearing of calves and young cattle. Treatment of fattening cattle.

Sheep.—Special features of sheep farming. Systems of flock management. Permanent and temporary flocks. The year's work on a sheep farm: lambing, weaning, rearing, fattening.

Pigs.—Selection of breeds. Breeding sows. Farrowing, weaning, rearing, fattening.

Buying and selling of stock. Agricultural statistics.

Labour and Implements.—Management of farm labour. Manual labour, horse labour, water, wind and steam power. Agricultural implements and machinery.

Farm buildings and fences.

Agricultural Economics.—Considerations involved in the valuation and taking of farms. Times of entry. Yearly and other tenancies. Leases and agreements. Acts of Parliament affecting landlord and tenant.

The tenant's capital and its distribution. Live and dead stock required. Valuation of tenant-right, and of live and dead stock.

Different systems of farming. Arrangement and cost of labour in connection with stock, cultivation, cropping, harvesting, &c.

Chemistry (4)

Mondays, Tuesdays, Wednesdays and Thursdays, at 9.30 a.m., and Fridays at 2 p.m., by Dr. Crowther and Mr. Godden.

SUBJECTS.—Chemical combination. The atomic and molecular theories. Atomic and molecular weights. Quantitative chemical notation. Valency of the elements. General characteristics of the solid, liquid, and gaseous states of matter. Liquefaction of gases. Solution. Mass action. Transformation of chemical energy into other forms and *vice versâ*. Classification, distribution, and functions in nature and the arts of the chemical elements. The chemistry of the more common elements and of their most important compounds. Chemistry of carbon and of some typical carbon compounds important in Agriculture. Chemistry of Fermentation.

Agricultural Chemistry (5)

Tuesdays, Wednesdays, Thursdays, and Fridays at 11.30 a.m., and Friday at 2 p.m., by Dr. Crowther and Mr. Godden.

The Plant.—Elementary constituents of the food of plants. Forms in which these constituents may be absorbed. The atmosphere and its relations to plant life. Assimilation of the various ingredients of plant food. Production of organic substances by the plant. Transport and storage of prepared material. The chief organic constituents of the plant. Respiration. Germination, growth, and maturation.

The Soil.—Its constituents, their origin and properties. Analysis—mechanical and chemical. Variation in mechanical texture and in chemical composition. The chief chemical processes at work in soils. Bacteria of the soil.

Nitrification. Factors that determine the relative fertility or sterility of soils. Chemical and physical effects of the various tillage operations. Relations between soil and subsoil. The sources of loss and gain to the soil.

Manures.—Their composition and commercial value The manufacture of superphosphates. Mixing of manures. Fermentation of farmyard manure. Liquid manure. Sewage manures. Changes undergone by manures in the soil. Specific action of manurial and other dressings on the soil.

Crops.—Characteristic composition of the various farm crops. Adaptation of manures to crops. Influence of manures, soil, climate, and season on quality and quantity of crop. Crop residues. Influence of crop and crop residues on soil. Rotation of crops.

Animal Nutrition.—Constituents of the animal body. Nature of animal nutrition. Food constituents and their functions. Digestion and excretion. Functions of the blood. Sources of loss and gain to the blood. Secretion. Respiration. The composition of foods. Their digestibility and comparative nutritive value. Relation of food to animal requirements and to manure.

The Dairy.—The chemical composition and properties of milk and the chief products obtained from it. Conditions influencing the quality and yield of milk. Principles involved in cream-separation and in the making of butter and cheese. The influence of ferments on milk and milk products. The preservation of milk.

Agricultural Botany (Botany S2)

Tuesdays, 2 to 4 p.m.; Wednesdays, 3 to 5 p.m.; and Fridays, 9.30 to 11.30 a.m., by Mr. Hector.

SUBJECTS.—Physiology of agricultural plants. The cultivated plants of arable land, and the more important weeds. Identification of grasses, clovers and other plants of agricultural importance. Identification of materials used in feeding cakes and meals. The outlines of bacteriology. The principles of heredity in plants, with special reference to plant breeding. Diseases of crops, with remedial measures.

This course will prepare for the examination in Agricultural Botany for the National Diploma in Agriculture.

Agricultural Zoology (Zoology S2)

Thursdays, 10.30 a.m. to 12.30 p.m., and Saturdays 9.30 to 11.30 a.m., by Mr. Taylor. (Lectures and laboratory work).

SUBJECTS.—Structure and life history of insects; spiders, mites and ticks; centipedes and millepedes; worms; slugs and snails. Remedial and preventive measures. Sprays and spraying machines. Natural checks to the increase of insects—birds, small mammals, &c.

This course covers the syllabus of the examination in Agricultural Zoology for the National Diploma in Agriculture.

Book-keeping (6)

Mondays and Saturdays at 11.30 a.m., by Mr. Ruston.

SUBJECTS.—Accounts, Day Book, Cash Book, Ledger, Balance Sheet, Profit and Loss Account, &c.

Chemical Laboratory

Tuesdays, 10.30 a.m. to 12.30 p.m.; Thursdays and Fridays, 2 to 5 p.m.; Saturdays, 9.30 a.m. to 12.30 p.m.

Chemical Analysis, with special reference to Agriculture.

Veterinary Science (8)

Mondays, Tuesdays, Wednesdays, and Thursdays at 9.30 a.m., by Mr. Bowes.

SUBJECTS.—Anatomy and Physiology of farm animals. Recognition of diseases affecting farm animals. Means of preventing disease, including ventilation, drainage, judicious feeding, grooming. Nature of heredity, contagion, infection.

Practical Agriculture

Tuesday and Friday afternoons.

Classes at the Farm on the same lines as for first year students, with the addition of practical demonstrations by Mr. Bowes on conformation, handling, &c., and generally the application of veterinary hygiene to farm animals.

Agricultural Geology (Geology S1)

During Winter Session 1912-13, the second year students "A" will take the same Course in Agricultural Geology as the first year students.

Agricultural Engineering

Mondays, Wednesdays, and Thursdays, at 2 p.m., by Professor Goodman and Mr. Duncan, during the first and second terms only.

1. *Mechanics.*—Centre of gravity; stability of structures. The lever; toothed wheels; pulleys and ropes; wrapping connectors; winches; differential pulleys. Laws of motion. Strength of materials, tensile, compressive, torsional, and transverse; elastic limit; ultimate strength. Work; horse-power; animal and human power. Friction of surfaces and axles; lubrication.

*2. *Air.*—Properties of air; elasticity; specific heat. Barometer. Moisture. Movement. Winds. Windmills.

*3. *Water.*—Composition. Weight. Height of column to balance atmosphere. Flow of water. Friction of water in pipes and channels. Usual speed of flow. Power derived from falls of water. Water-wheels; turbines; water-pressure engines; pumps. Potable water. Sources of supply. Means of purification. Storage.

*4. *Heat.*—Nature of heat; thermometer; absolute zero; specific heat; latent heat; the unit of heat. Total heat of water; as ice, water, and steam. Conduction convection, and radiation of heat. Mechanical equivalent of heat. Principle of combustion. Quantity of heat generated by combustion. Modes of transforming heat of combustion into power, as in the steam engine, and gas and oil engine.

*5. *Steam-engine.*—Construction of an ordinary portable engine boiler, of a Cornish boiler, and its setting. Fittings of a boiler. Construction of the stationary and portable steam-engine. Single cylinder. Double cylinder. Compound. Slide-valve. Expansion valve. Cylinder. Piston-rod. Glands. Connecting-rod. Crank and crank shaft.

* Second year students "A" take these portions of the syllabus only.

Fly-wheel. Bearings. Pet cocks. Lubrication. Steam and fuel consumed per horse-power.

*6. *Gas and Petroleum Engines.*—Principle of action. Construction of valve gear. Sources of loss. Fuel and water required per horse-power.

7. *Electrical Generators, Motors, and Conductors.*—Principles of action—shunt ; losses in electrical machinery. Efficiency. Detection of faults. Regulation of shunt and series motors. Use of fuses and cut-outs. Horse power of motors, and calculation of Watts to be delivered at terminals. Ohm's law. Losses in conductors, and calculation of sizes to convey given currents with definite losses. Insulation of conductors.

Farm and Estate Engineering.

(A.) Surveying (9)

Mondays at 10.30 a.m. and Tuesdays at 4 p m., by Mr. Archibald.

These lectures are intended for students who have attended the course of Surveying in the summer term, a syllabus of which is given on page 458. A general revision will be made of the work already done, illustrated by further examples of surveying and levelling ; together with a more detailed study of the adjustments of the instruments, the ordnance maps and other matters, than is possible during the summer course.

(B.) Farm Buildings, Implements, and Machinery

Wednesdays, 10.30 a.m., by Mr. Archibald, and Monday afternoons (1st term) at Garforth.

Buildings.—Homesteads for different classes of farms—circumstances to be taken into consideration in deciding upon the size of the various buildings—their arrangement with a view to economy of construction and of farm labour—dimensions and other details of buildings for the accommodation of live-stock, crops and implements, with approximate estimates of their cost—Water-supply and drainage.

*Second year students "A" take these portions of the syllabus only.

Implements.—Implements for the preparation of the soil—for planting and harvesting crops—for the preparation of food—for the dairy—general principles underlying their construction and mode of action—prices.

Agricultural Economics.

A short course will be given in the Economics and Statistics of Agriculture, chiefly in the United Kingdom. The course will deal with the principles of rent, the forms of land tenure, and the returns of acreage, stock, and output of Great Britain and Ireland.

One hour a week in the second term, at a time to be arranged.

Special fee for the course, 10s. 6d.

Agricultural Law.

A course of lectures of one hour a week during one term will be given by Dr. Chapman at times to be arranged, on the Law of Landlord and Tenant.

This course is intended for students in the Agricultural department who propose to present themselves for the examinations of the Surveyors' Institution in Sub-Division I, "chiefly land agency."

Special fee for the course, 10s. 6d.

SUMMER COURSE.

Agriculture.

A study of the practical operations and experiments at the Manor Farm, Garforth.

Practical Agricultural Chemistry.

Mondays and Fridays at 2 p.m., by Dr. Crowther.

Qualitative and quantitative analysis.

General Botany (for Diploma Students only).

Tuesdays and Wednesdays, 10 a.m. to 12; and Thursdays, 10.30 a.m. to 12.30 p.m., by Mr. Hector.

The elementary study of Bacteria, Spirogyra, Fucus, Eurotium, Pythium, Funaria, Aspidium, Selaginella, Pinus

and the Flowering plant. The classification of Flowering plants, with special reference to orders including plants of Agricultural importance.

Forest Botany (Botany S3).

Mondays, 10.30 a.m. to 12.30 p.m.; Wednesdays, 11 a.m. to 1 p.m.; and Saturdays, 9.30 a.m. to 12.30 p.m., by Mr. Hector.

SUBJECTS.—(1) Forest Botany: Recognition of the principal British trees. Identification of the more important timbers. The growth of trees and timber. Diseases of trees.

(2) General Forestry: Trees in relation to soil and climate. The growth of trees in the open and in forests. Formation and regeneration of woods and plantations. Pure and mixed woods. General management of trees. Formation and care of nurseries.

Occasional excursions will be made during the term; students to pay their own railway fares or other expenses.

Horticulture (10)

Tuesdays at 9 a.m., by Mr. Redington.

SUBJECTS:—Preparation of the soil of the garden. The use and application of farm yard manure, artificial manures and lime. Seeds and their treatment. *Garden Crops.*—Their cultivation and management. *Fruit Culture.*—Propagation by seed, cuttings, layering, budding, grafting, &c.; planting; root and branch pruning. Produce—gathering, grading, storing, packing, marketing, preserving, bottling, &c. *The Flower Garden.*—Autumn, Spring, and Summer work; special subjects of the flower garden.

Poultry Keeping (11)

Wednesdays and Thursdays at 9 a.m., by Mr. Parton.

SUBJECTS.—Origin and antiquity of fowls. Breeds and their characteristics. The anatomy of the fowl. Accommodation and sanitation of the house. Embryology of the chicken. Natural incubation. Rearing chickens. Use of Incubators and of Brooders for artificial rearing. Foods—the

principles and methods of feeding. Fattening—the different methods adopted. Breeds of ducks, geese, and turkeys. Marketing poultry produce—preserving eggs. Diseases of poultry. General management.

Dairying (12)

Mondays at 9.30 a.m.; Wednesdays 10 to 11 a.m.; and Fridays 9.30 to 10.30 a.m., by Mr. Haydon.

SUBJECTS:—Commercial aspects. Conditions which favour foreign importation. The factory system. Relative merits of milk-selling, butter-making and cheese-making under different conditions. Cost of production and realisation. Influence of breed, strain, feeding, and general management on the quantity and quality of milk. Testing quality. Pasteurisation and sterilisation. Separation of cream by gravitation and centrifugal force. Merits of different separators. Ripening and preparation of cream for churning. Butter-making.

Live and dead stock and buildings required on cheese-making farms. General management of the herd. Details of the manufacture of Cheddar, Stilton, Cheshire, and Wensleydale cheese. Utilisation of by-products.

Dairy Bacteriology.[1]—Bacteria: Nature and functions. Food. Secretion and excretion. Respiration. Multiplication. Resting and active stages. Motile and non-motile forms. Relation between environment and activity. Bacteria and disease.

Origin, nature, function, and control of bacteria in milk, butter, and cheese. Useful and injurious species. Tainted milk, rancid butter, sour, soapy, and discoloured cheese. Pure cultures for butter and cheese-making—their preparation and use. Diseases spread by milk and its products.

Surveying (13)

Tuesdays and Thursdays, 12 to 1 p.m.; and 2 to 5 p.m. Tuesdays, Wednesdays and Thursdays, by Mr. Archibald.

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1 Previous to attendance on this course students are recommended to take the practical Bacteriological Course in the Leather Industries Department. The course consists of instruction in the general methods of Bacteriology and the study of Fermentation. It will embrace the preparation of nutrient media, separation of micro-organisms, and the preparation of pure cultures. Students will be made familiar with the characteristics of typical forms of micro-organisms.

Chain surveys. Principles involved. Chains. Arrangement of lines and method of proving the work. Sources of error and precautions to be adopted. Chaining past obstacles. The field book. Scales. Plotting the survey. Calculating areas from the field notes; by give-and-take lines; by the computing scale; and by the planimeter. Surveys in which the lines are fixed by angles. Instruments required, the Theodolite, Box Sextant, Prismatic Compass, Graduated Cross Staff. The Vernier, its construction and use. Proving the accuracy of the angles taken.

The maps of the Ordnance Survey, their value to the land agent and farmer.

Levelling. The Level and Staff. Bench marks. Booking the readings and working out the reduced levels. Checking the level book. Proving the field work. Sections, their use for road making and similar purposes. Cross sections. Contours. Curvature and refraction.

During this course a survey, involving the use of all the instruments mentioned above, is made of the Manor Farm buildings, and levels are also taken; the plan and sections are plotted in the drawing office as the work in the field proceeds.

COUNTY LECTURES, DAIRY INSTRUCTION, &c.

The County Councils of the three Ridings of Yorkshire make annual grants to the University to enable it to carry out a system of instruction on subjects connected with Agriculture, and, in the case of the East and West Ridings, to give practical instruction also in Dairy work at various centres.

The members of the staff engaged in this work are :— Prof. R. S. Seton, Mr. R. W. Haydon, Mr. C. F. Archibald, Mr. J. Potts, Mr. F. W. Parton, Mr. T. Redington, Mr. A. Gaut, Mr. A. S. Galt, Miss A. D. McKerrow, and Mr. W. Jones Anstey.

County Lectures

Each course consists of five or ten Lectures given in the evenings at intervals of one week. Each Lecture may be followed by a class at which questions may be asked of the

Lecturer. Before the University enters into any arrangements with a locality for the delivery of such a course of Lectures, a Local Committee must be appointed with a secretary to correspond with the University. The Local Committee will be required to guarantee a certain average attendance, also the local expenses, consisting of hire of hall, advertising, &c. With these exceptions the Lectures will be given free.

The subjects treated in the several Courses embrace: Results of Garforth experiments, soils and their properties, manures, farm crops, insect pests and diseases of crops, the management of grass land, live stock and feeding stuffs, dairying and poultry keeping, horticulture and fruit culture, small farming and gardening, management of allotments, the foot of the horse, and the principles of horse shoeing.

Advisory Work

Under a scheme of the Board of Agriculture, the facilities have been extended whereby members of the staff of the Department of Agriculture can give technical advice to farmers, horticulturists, poultry-keepers, etc., and undertake the investigation of local problems.

Provision is made for the testing of seeds and for the determination of fat and other solids in new milk.

Communications, with reference to Advisory work, seed testing, etc., should be addressed to "The Professor of Agriculture, The University, Leeds."

Dairy Instruction

The Dairy School at Garforth is open for practical instruction from April to October. Three courses each of six weeks' duration are usually given in Butter and Soft Cheese making.

The Fee for the course is £3. Board and Lodging are provided in the Hostel at Garforth for female students for the period of six weeks for the sum of £5.

Single Demonstrations on Butter-making are given at Centres in the East and West Ridings, during the winter months.

Field Experiments

The University undertakes the laying out and supervision of Field Experiments to illustrate the principles of Agricultural and Horticultural practice.

Reports on these experiments may be had on application to the Professor of Agriculture.

Instruction in Horticulture in Schools in the East and West Ridings

The University supervises the instruction in Horticulture given in Gardens connected with various Evening Schools in the East and West Ridings.

Teachers' Saturday Training Course in Horticulture

A course of Horticulture and Experimental Plant Physiology will be conducted on Saturdays at the University and the Manor Farm, Garforth, commencing on September 14, 1912, and concluding about the end of the following May. The class is for qualified teachers intending to teach the subject of Horticulture. The mornings will be given to the discussion of the principal horticultural processes and their actual practice in the garden, and the afternoons to Botany.

Special fee for the course, £1 12s. 6d.

Instruction in Farriery

Instruction in Horse Shoeing has been provided for and takes the form of Practical Demonstrations in the making of shoes and the shoeing of horses in smithies easily accessible to apprentice smiths in different localities. The work is so arranged that the apprentices attend one afternoon or evening in each week during the period the Instructor is in attendance. The Classes are preceded by a public Lecture on the Foot of the Horse and the Principles of Horse Shoeing, and at the conclusion of the Lecture those smiths who intend to join the Practical Class are asked to give in their names.

TIME TABLE OF INTERMEDIATE ARTS DAY LECTURE COURSES

	9.30—10.30.	10.30—11.30.	11.30—12.30.	2—3.	3—4.	4—5.
MONDAY	Greek. Latin.	English Literature. Zoology.	French Int. 1. Chemistry.	Mathematics.	German. Physics.	French Int. 2.
TUESDAY.. ..	Greek. Botany.	Latin Comp. Geology.	Ancient History.	..	French Int. 3.*	..
WEDNESDAY ..	Latin.	English Literature.	Greek. French Int. 1. Chemistry.	..	..	French Int. 2.
THURSDAY ..	Greek. Latin Comp. Botany.	German. Geology.	Ancient History.	German.	..	..
FRIDAY	Latin†	English Literature. Zoology.	French Int. 1. Chemistry.	Mathematics.	German. Physics.	French Int. 2.
SATURDAY ..	..	Geology.	..	..	..	..

The times for other Classes to be arranged with Students. * First Term. † First and Second Terms.

TIME TABLE OF FINAL ARTS COURSES

MONDAY	Greek.* German. English Hist. †	English Literature.	Latin. * English Hist. †	French.	..	Latin. † Education. *
TUESDAY.. ..	Grk.† Rom. Hist.† Education.†	European Hist.*† Education. ‡	Latin Comp. * † Const. Hist.*	French.	French Literature (A).	..
WEDNESDAY ..	Greek.* German. English Hist. †	English Literature	Latin. * †	..	..	..
THURSDAY ..	Greek. † Roman History. † Education. †	European Hist.*† Education. ‡	Const. Hist.*	Education ‡	3.15—4.45. Education Criticism Lessons.	..
FRIDAY	Greek. * † German. Greek Hist. †	English Literature.	Latin. * Greek Hist.†	French.	Greek Comp. †	Greek. * Latin. † Education. *
SATURDAY ..	Education. †	..	..	..	..	..

* First Year. † Second Year. ‡ Third Year.
The times for other Classes to be arranged with Students.

	9.30—10.30.	10.30—11.30.	11.30—12.30.
MONDAY.	Greek Int. Greek F1. Latin Int. German F. History F5. Math. I, II & F3. Chemistry { F1. H2 *a*. H3 *b c*. Botany F1. Engineering II A. Elec. Engrg. I a. Text IV (2nd year). Agric. 4, 8, 12.	Greek H. English Int. and F1 French S1. German H. Final Law I. Physics F1. Zoology Int. 10.30-12.30 Zool. S1 *b*. 10.30-12.30. Bot. S1 *a*. and S3, Engineering VI. Text. VI (2nd year) *a b*. Leather I. Mining. Agric. 3, 9 A.	Greek S2. Latin F1 and H. French Int. 1. History H3 and H5. Final Law Mathematics F2. Chemistry Int. 12. Chem. H1 *a b*. Zoology F1. Geology S1 *a b*. Text. IV (2nd year). Agric. 6.
TUESDAY.	Greek Int. Greek F2. French H. History F4 *b c*. Education F2 A. Chem. F2 and H4. Botany Int. Engineering IV. Mechanics. Text. IV (1st year). Tinct. Chem. I *a* and II *b*. Leather II. Agric. 1, 4, 8. 9-10 Agric. 10.	Greek H. Latin Int. (Comp). French S2 *a b*. German S6 *a b*. History F1 and F6. Education F3 A. Geology Int. Engrg. VII A. Text. VI. (1st yr.) *a b*. Leather III. Agric. 2 A, 3.	Latin F1 and F2 (Comp.). History Int., F2 and H1. Mathematics F1. 12. Chemistry F3. Zoology S1. Elect. Eng. II & III. Text. IV. (1st year) Agric. 2, 5, 7. 12-1 Agric. 13.
WEDNESDAY.	Greek F1. Latin Int. German F. History F5. Math. I, II and F3. Chemistry { F1. H2 *a*. H3 *b c*. Botany F1. Engineering II A. Elec. Engrg. I a. 9.30-12.30. Textile X (3rd year). Agric. 1, 4, 8. 9-10 Agric. 11.	English Int. and F1. German H. Physics F2. Botany S1 *a*. Engineering VI. 11-1 Botany S2. Leather I. Leather V *c*. Text. X (1st year). Mining. Agric. 2 *b*, 3, 9 B. 10-11 Agric. 12.	Greek Int. Greek S2. Latin F1 and F2. French Int. i. History H3 and H5. Mathematics F2. Chemistry Int. 12. Chem. H1 *a b*. Zool. F1 and S1 *b*. Botany S3. Geology H3. Geology S1 *a b*. Agric. 5.

a—1st Term. *b*—2nd Term. *c*—3rd Term.

2—3.	3—4.	4—5.
English H1. French F1. German S1. Inter. Law I. Math. Int. Geology F1. Engrg. II B *a b*. Elect. Eng. I.	German Int. Inter. Law 3. Physics Int.	Latin F2. French Int. 2 and H. German S2. Education F1. Inter. Law 2. Engineering I. Engrg. II C *a c*. Tinct. Chem. V *b*. Text. I (1st year) *a b*.
English H1. French F1. Final Law 3. 2-4. Botany S2. 2-5. Agric. 13.	French Int. 3, *a*. French F2. Accountancy.	German S3 *a b*. Accountancy. Geology S3 *b c*. Engineering III. Text. II (2nd yr.) *a b*. Tinct. Chem. III *a b*. Tinct. Chem. IV *c*. Agric. 9 A.
Engrg. II B *a b*. 2-4. Text. X (3rd year.) Coal Mining. 2-5. Agric. 13.	Law S1. 3-5. Botany S2.	French Int. 2

Classes not marked meet throughout the Session.
The times for other Classes to be arranged with Students.

	9.30—10.30.	10.30—11.30.	11.30—12.30.
THURSDAY.	Greek Int. Greek F2. Latin Int. (Comp.) French H. Hist. F4 *b c.* Education F2 B. Chemistry F2. Botany Int. Engineering IV. Mechanics. Text. VI. (1st. yr.) *a b.* 9.30-12.30. Text X (3rd year). Tinc. Chem. I *a* & II *b* Leather II. Agric. 1, 4, 8. 9-10 Agric. 11.	Greek H. German Int. History F1 and F6. Education F3 A. 10.30-12.30. Zool. S2. Geology Int. Engrg. VII A. 10.30-12.30. Text. IV (1st year). Leather III. Agric. 2 A, 3.	History Int. 1, F2 and H1. Mathematics F1. 12. Chemistry F3. Elect. Eng. II & III. Text. X (2nd year) Agric. 5. 12-1 Agric. 13.
FRIDAY.	Greek F1. Greek F2. Latin Int. *a b.* French S1. German F. Math. I, II & F3. Chemistry { F1. H2 *a.* H3 *b c.* 9.30-11.30. Zool. S1 *b* and Botany F1. 9.30-11.30. Bot. S2. Engineering II A. Elec. Engrg. I a. Text. VII *a b.* Agric. 12.	Greek H. Latin F1. English Int. and F1. German H. History H6. Final Law I. Physics F1. Zoology Int. Engineering VI. 10.30-12.30. Text. IV (2nd year). Leather I. Mining. Agric. 3.	Greek S2. Latin F1 and H. French Int. 1. History F3. Final Law 2. Mathematics F2. Chemistry Int. 12. Chem. H1 *a b.* Zoology F1. Geology H3. Geology S1 *a b.* Elec. Engrg. IV. Agric. 5.
SATURDAY.	Greek S1. Latin H. Education F2 A. Chemistry F2. 9.30-11.30. Zool. S2. 9.30-12.30. Bot. S3. 9.30-12. Bot. S4. Engineering VIII *a.* 9.30-12. Mining Agric. 2.	Greek H (Comp.). Latin H (Comp.). 10.15-12.15. French S3 and S4. 10.30-12.30. German S7 and S8. 10-12. Zool S3. Geology Int. Engineering IV. and VII B Engineering VIII B. Leather IV.	Greek S2 (Comp.). 12. Chemistry F3. Engineering III. Agric. 6.

a—1st Term. *b*—2nd Term. *c*—3rd Term.

2—3.	3—4.	4—5.
German Int. Education F3 B. Engineering IIB *a b.* 2-4. Text. X (3rd year). 2-5 Agric. 13.	3.15-4.45. Education F1, F2, F3. (Criticism).	Inter. Law 2. Engineering III. Elect. Eng. I. Text. I (2nd yr.) *a b.* Tinct. Chem. III *a b.* Tinct. Chem. IV *c.*
English H1. French F1. German S1. Final Law 3. Math. Int. Geology F1. Elect. Eng. I. 2-5. Leather V *a b.* Agric. 4, 5.	Greek F2 (Comp.) German Int. Law S1. Physics Int.	Greek F1. (Comp.) Latin F2. French Int. 2. German S2. Education F1. Engineering I. Text. II (1st year) *a b.*

Classes not marked meet throughout the Session.
The times for other Classes to be arranged with Students.

Course for the First Examination in Medicine

Time Table

	9.30—10.30.	10.30—11.30.	11.30—12.30.	2—3.	3—4.	4—5.
Mon.	Chem. Int. *a*	Zool. Int. *a*	Phys. Int. *a*	Chemical Laboratory, 2—5		
Tue.	Practical 9.30—11.30	Zoology	..	Practical Botany, *(bc)*		2—5.
Wed.	Chem. Int. *a*	Practical 10.30—12	Botany, .30 (*bc*)	..	..	..
Thu.	Practical 9.30—11.30	Zoology	Phys. Int. *a*	Chemical Laboratory, 2—5.		
Fri.	Chem. Int. *a*	Zool. Int. *a*	Phys. Int. *a*	Chemical Laboratory, 2—4.		
Sat.	Physical	Laboratory,	9.30—12.30	..	..	..

bc, 2nd and 3rd terms.

This course will meet the requirements of students preparing for the First examination in Medicine (M.B., Ch.B.), or Parts I and II of the First examination in Dental Surgery (B.Ch.D.) of the University of Leeds. It includes lectures in Chemistry, Physics, Biology (Zoology and Botany), with the requisite attendance in the Chemical, Physical and Biological laboratories.

Students preparing for the Conjoint Board Examinations (L.R.C.P. and M.R.C.S.) will attend the above-mentioned classes in Physics, Chemistry and Biology.

Composition fee for the course (including registration and library and Union fees) £27.

Students preparing for the Preliminary examination in Science for the Diploma in Dental Surgery, will attend classes in Physics and Chemistry, as above. Fee for six months only (including registration and library and Union fees), £15.

THE SCHOOL OF MEDICINE

Session 1912-1913

UNIVERSITY TERMS

The University session or academic year in the School of Medicine is divided into three terms. The first term begins Tuesday, October 1, 1912, and ends Saturday, December 21, 1912; the second term begins Tuesday, January 7, 1913, and ends Wednesday, March 19, 1913; the third term begins Tuesday, April 15, 1913, and ends Saturday, June 28, 1913.

ADMISSION OF STUDENTS

The Academic Sub-Dean will enter students at the School of Medicine for courses of instruction from 12 (noon) to 1 p.m., on September 30 and October 1, 1912; and on April 15 and 16, 1913. The Fees due must be paid at the same time to the Accountant, who will be present to receive them. The Composition Fee or the first instalment is payable at the commencement of the third term of the first year at the University.

The Sub-Dean is generally in his office in the School of Medicine from 12 (noon) to 1 p.m. daily, and can be seen at other times by appointment. Enquiries about medical studies should be made to him.

Applications to attend the instruction on Infectious Diseases at the Leeds City Hospitals, and to attend instruction in Vaccination, must be lodged with the Academic Sub-Dean in the first week of each term.

Enquiries relating to hospital attendance should be addressed to the Clinical Sub-Dean, between the hours of 12.30 p.m. and 1.30 p.m.

Every student is required on entering the School to sign the following declaration:

I, the undersigned, being a student in the School of Medicine of the University of Leeds, hereby undertake to comply with all rules and regulations of the University, and to conduct myself on all

occasions in an orderly manner. I fully understand that no allowance whatever will be made, and that I have no claim upon the Council of the University in respect of any fees paid by or due from me, in case such fees are forfeited by any irregularity or misconduct on my part.

Students pursuing the first year's course of study are admitted at College Road according to the arrangements published on page 125.

ENTRANCE EXAMINATIONS

1. For students preparing for the Degrees of M.B. Ch.B. in the University of Leeds.

All students who intend to present themselves as candidates for the degrees of M.B. and Ch.B., in the University of Leeds are required, before entering upon their degree course, to have passed the Matriculation examination (Faculty of Medicine) of the Universities of Manchester, Liverpool, Leeds, and Sheffield, or some examination recognised by the Joint Matriculation Board of those Universities as exempting from the Matriculation examination.

The Matriculation examination (Faculty of Medicine) is held at each University in July and September. Candidates presenting themselves for this examination are required to satisfy the Examiners in :

1. English Language and Literature
2. English History
3. Mathematics
4. Latin
5. *Two* of the following, *one* of which must be a language :
    - i. Greek
    - ii. French
    - iii. German
    - iv. Some other modern language approved by the Board
    - v. *Either* Mechanics *or* Physics
    - vi. Chemistry
    - vii. Geography (Physical, Political, and Commercial)
    - viii. Natural History (Plants and Animals).

Candidates who have passed the Matriculation examination in *six* subjects, but have not included *both* Latin *and* either Greek or a modern language, will be deemed to have passed the Matriculation examination (Faculty of Medicine), provided they satisfy the examiners in the subject omitted.

Candidates for entrance to the Faculty of Medicine who have already obtained the certificate of having satisfied the examiners in English subjects, Mathematics, Latin, and another language, will be deemed to have passed the Matriculation examination (Faculty of Medicine), provided they satisfy the examiners in one other subject in the Matriculation examination.

The conditions of exemption from the Matriculation examination will be found fully set forth in the Matriculation Syllabus which is issued free, and is obtainable from the Secretary, the Joint Matriculation Board, 24, Dover Street, Manchester.

The holder of a certificate who desires exemption must submit the certificate to the Secretary for verification of the subjects.

The fee charged for registering an external Certificate is £2.

The Joint Board will grant exemption from the Matriculation examination to graduates of any University of the United Kingdom, provided Latin has formed part of one of the degree examinations.

Provided that all the subjects required by the General Medical Council have been included, the Board is prepared to accept certificates of having passed the London Matriculation examination.

The Joint Board will exercise its discretionary power of granting exemption to applicants holding certificates of having passed examinations of a standard at least equal to those above mentioned.

2. For other Students

Students who intend to pursue the study of Medicine without becoming candidates for the degrees of M.B. and Ch.B. in the University of Leeds are admitted to the Leeds School of Medicine on presenting certificates of having passed one of the preliminary examinations recognised by the General Medical Council. The Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield issues such a certificate to candidates who have satisfied the examiners at the Matriculation examination (see above) in English subjects, Mathematics, Latin, and another language, although they may not have passed the examination. This certificate does not entitle the candidates to proceed to degrees in any of the Universities.

Candidates for the Medical degrees of the University of London must satisfy the Matriculation requirements of that University before beginning a course of study in the Leeds School of Medicine.

FEES

All fees are payable in advance to the Accountant. Cheques should be made payable to "The University of Leeds," and crossed "Beckett & Co."

1. and 2. Registration and Library, and Union Fees

As in the other Faculties. See pages 130 and 131.

3. Lecture and Laboratory Fees

The general regulations are the same as in the other Faculties (see page 131).

The fees for separate lectures will be found under Courses in Medicine.

The fees payable for laboratory and for practical work are at the uniform rate of £3 per half day of three hours a week each session.

4. Fees for Research Students

Persons desirous of pursuing original Research will be admitted on the conditions specified on page 133.

5. Composition Fees

The following are the composition fees for students preparing for University degrees in Medicine:

(*a*) For the complete course qualifying for the First examination of the University, or the Preliminary Scientific (M.B.) examination of the University of London, the fee is £27, inclusive of Registration and Library and Union fees.

(*b*) For students preparing for University degrees, who have already taken the course of instruction for the First examination of the University, or the Preliminary Scientific (M.B.) examination of the University of London, the fee is £115 2s. 6d. if paid in one sum on entrance, or £37 12s. on entrance, £37 12s. in the following April, £22 in the following January, and £22 at the end of a further twelve months. This entitles to attendance upon one course of the subjects in Sections I and II, and the practice of the Infirmary. Students usually begin their work in the School of Medicine in the third term of the first year, viz., in April. The privilege extends over *eight years* only from the date of the first instalment.

(*c*) For students preparing for University degrees, who have passed the Second examination, the fee is £90 16s. 6d., and entitles to attendance upon one course of the subjects in Section II and the practice of the Infirmary. The privilege extends over *six* years only.

SECTION I.

Descriptive Anatomy, Junior and Senior Sections.
Use of Dissecting Room with tutorial instruction for two sessions.
Physiology, general and advanced courses.
Practical Physiology and Histology.
Materia Medica.
Practical Pharmacy.

SECTION II.

Pharmacology and Therapeutics.
Pathology and Bacteriology.
Practical Pathology.
Medicine.
Do. a second course.
Surgery.
Practical Surgery.
Obstetrics.
Gynæcology.
Intern Maternity
Forensic Medicine.
Practical Toxicology.
Mental Diseases.
Ophthalmology.
Public Health.
Applied Anatomy.
Infectious Diseases
Vaccination

Additional courses of lectures and practical or tutorial classes which may be rendered necessary by failure to pass any examination, or by the refusal of the Board of the Faculty of Medicine to certify satisfactory attendance on any course, will be charged for as the Board may direct.

6. Examination Fees

No fee will entitle to admittance to more than *one* examination.

For the First examination for the degrees of M.B. and Ch.B., £5; and for each subsequent examination, £2.

For the Second examination for the degrees of M.B. and Ch.B., £5; and for each subsequent examination, £2.

For the Final examination for the degrees of M.B. and Ch.B., £5; and for each subsequent examination, £2.

For the examination for the degree of Ch.M., £5; and for each subsequent examination, £2.

For the examination for the diploma in Public Health, £5 5s. for each part, and for each subsequent examination in the same part, £3 3s.

For the examination for the diploma in Psychological Medicine, £5 5s., and for any subsequent examination in each part, £1 11s. 6d.

On application for the degree of M.D., £5.

7. Degree Fees

On conferment of the degree of Ch.M. or M.D., £5.

REGULATIONS FOR STUDENTS

1. All students are required to enrol their names at the Dean's office at the beginning of the first and third terms. Students who from any unavoidable cause are prevented from personally attending at that time must communicate with the Dean by letter.

2. Should a student change his residence during the session, he must inform the Academic Sub-Dean of the change of his address without delay.

3. Regular, punctual, and orderly attendance at lectures, demonstrations, and class-examinations is required of every student, in order to obtain certificates of attendance.

In the case of persistent neglect of work, repeated failure at professional examinations, or unreasonable delay in presenting himself for such examinations, a student may be required to withdraw from the University.

4. In case of illness or other unavoidable cause of non-attendance at any lecture, demonstration, or class examination, a written explanation accompanied, when necessary, by a medical certificate, must be sent to the lecturer, with as little delay as possible, otherwise excuses for absence cannot be accepted. Hospital work is not counted as an excuse for non-attendance upon lectures excepting in the case of the week's casualty dressership and for actual attendance upon cases of midwifery, all of which must be duly certified. Consequently students must not take any resident hospital appointments which involve absence from lectures or classes in the School, unless they have previously informed, and obtained the permission of, the Dean.

5. Prizes will be granted only when the work and conduct of the student are satisfactory, and certificates or prizes may be refused on the ground of unsatisfactory conduct.

6. Smoking is allowed only in the Students' Common Room, the Refectory after 1 p.m., and under certain restrictions in the Dissecting Room.

7. Students will be required to make good, to the satisfaction of the Council, any loss, wilful damage or injury they may occasion to the property of the University.

8. Students in the School of Medicine are amenable to the discipline and general regulations of the University as well as to the rules made by the Board of the Faculty of Medicine. Violation of these regulations and rules renders a student liable to immediate dismissal, and to the forfeiture of all fees, certificates, and privileges as a student of the University.

Lockers

Lockers are provided for the safe keeping of coats, books, &c. The rent is 2s. 6d. per annum, commencing at the 1st or 3rd terms, with a deposit of 1s., which will be returned when the key is given up, if the locker is undamaged.

Residence

See particulars of Hall of Residence (page 145), and Registered Lodging and Boarding Houses (page 144).

Refectory

A well-appointed Refectory, which is open daily, excepting Saturdays, has been provided in the School of Medicine. It is under the combined management of the Board of the Faculty of Medicine and of the Students' Representative Council. Luncheon is served from 12 (noon) to 2 p.m. Tea, coffee, and light refreshments may be obtained until 5 p.m.

Dinners for each separate term may be compounded for by special arrangement.

LIBRARY

Honorary Librarian: Professor GRÜNBAUM
Assistant Librarian: H. C. ATKINSON

The Library contains a valuable collection of books, composed of the united libraries of the School of Medicine and of the Leeds and West Riding Medico-Chirurgical Society, and is being continually increased. The Library of the Old Infirmary, rich in medical classics, became the property of the School of Medicine in 1865.

The Library is supplied with most of the modern works of importance, and the chief English and foreign periodicals.

Rules

1. The Library is open to students daily, between the hours of 9 a.m. and 5 p.m., except on Saturdays, when it will be closed at 1 p.m. During these hours, books can be obtained for use in the Library on application to the Assistant Librarian.

2. Students wishing to borrow books for home use are allowed to do so under the following regulations:—

(*a*) Every student wishing to take books away from the Library shall deposit half-a-guinea as caution money; this sum, or the balance of it remaining, shall be refunded to the depositor on the return of his Library card.

(*b*) The student will, on payment of the deposit, receive a Library card with his name upon it. This card must always be

presented to the Assistant Librarian or his substitute whenever the student desires to borrow a book. The name of the book and date of issue will be entered upon the card, which will then be placed on the shelf in the place of the book borrowed. The card will be given back to the student when the book is returned.

(*c*) Books borrowed for home use must be returned to the Library within two weeks from the date of issue. One volume only can be borrowed at a time. A fine of 2d. a day is incurred for every day that it has been detained beyond the time allowed.

(*d*) No periodical for the current year may be removed from the Library.

(*e*) In case of loss of or damage to any book, the loss or damage must be made good by the borrower.

(*f*) Every book must be returned to the Library at the end of the winter and summer sessions respectively.

NOTE.—Practitioners residing in Leeds or its neighbourhood may be admitted to the use of the Library upon certain conditions, and upon the payment of a subscription.

MUSEUMS

The MUSEUM OF PATHOLOGY contains, in addition to preparations illustrating the ordinary pathological processes, many rare specimens, some of historical interest. It draws largely for its supply from the General Infirmary, as well as from other institutions in the City. A collection of microscope sections from specimens in the Museum is available for the use of students on application.

A complete type collection of MATERIA MEDICA specimens is also placed here for the convenience of students.

The ANATOMY MUSEUM AND BONE ROOM adjoins the Dissecting Room, and has been fitted up, under the direction of the Professor of Anatomy, with a valuable collection of specimens specially arranged for study, which are also used in illustration of the lectures on Anatomy. Amongst them are a complete set of bones marked with the muscular attachments, and mounted in revolving cases ; and several series of wax models, illustrating the development of the fœtus.

DEGREES IN MEDICINE AND SURGERY

The Degrees in Medicine and Surgery shall be :

Ordinance

Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.)
Doctor of Medicine (M.D.)
Master of Surgery (Ch.M.).

Degrees of Bachelor of Medicine and Bachelor of Surgery

1. Candidates for the degrees of Bachelor of Medicine and of Surgery are required to present certificates showing that they will have attained the age of twenty-one years on the day of graduation, and that they have attended courses of instruction approved by the University extending over not less than five years, two of such years at least having been passed in the University, at least one year being subsequent to the date of passing the First examination.

Regulations

During the first four years, a year of medical study must include attendance upon at least *two* of the prescribed courses of lectures or laboratory work, or one such course and hospital practice, in each term, if that year is to count as part of the degree course. In the fifth year clinical work will suffice. The attendance must be given at the University or at a college, medical school, or hospital recognised by the University.

Ordinance

2. Candidates for the degrees of Bachelor of Medicine and of Surgery are required to satisfy the Examiners in the several subjects of the following examinations, entitled respectively :

The Matriculation examination,[1] or such other examination as may have been recognised by the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield in its stead ; the First examination ; the Second examination ; the Final examination.

1 For particulars of the Matriculation examination, see page 468.

Except as provided below, candidates must present themselves and pass in all the subjects of any part of an examination at the same examination. But candidates who have failed (*a*) in Chemistry or Physics at the First examination for the degrees of M.B. and Ch.B., or (*b*) in Anatomy or Physiology at the Second examination for the degrees of M.B. and Ch.B., or (*c*) in any subject of Part I of the Final examination for the degrees of M.B. and Ch.B., or (*d*) in any subjects of Part II and III of the Final examination for the degrees of M.B. and Ch.B. may be exempted from re-examination in such part of the examination as the combined Examination Committee may determine. Provided that this exemption shall not be allowed except at the examination next following that at which such candidates have failed when presenting all the subjects. Regulations

First Examination

3. The First examination shall consist of two parts : Ordinance

PART I. Physics
Chemistry.
PART II. Biology.

4. Candidates, before presenting themselves for the First examination, are required to furnish certificates of having attended courses of instruction in accordance with the Regulations of the University, and to have passed the Matriculation examination.

5. Candidates who have passed the Intermediate examination for the degree of Bachelor of Science in Chemistry, Physics, Zoology, and Botany, will, on payment of the required additional fee, be regarded as having passed the First examination for the degrees of Bachelor of Medicine and Bachelor of Surgery.

6. The names of candidates who have satisfied the Examiners in either part of the First examination shall be published in alphabetical order.

Candidates for the First examination are required to furnish certificates of having attended approved courses of instruction at the University or at an institution recognised for this purpose by the University; or of having Regulations

attended, at some other institution, courses of instruction which shall be accepted by the University as equivalent.

The courses of instruction shall be as follows:

1. Chemistry, Inorganic and Organic: lectures and laboratory work: at least one year.
2. Physics: lectures and laboratory work: at least one year.
3. Biology (Zoology and Botany): lectures and laboratory work: at least one year.

The examination will include laboratory work in the three subjects. Candidates may pass in each part separately.

This examination is held twice in each session. In 1912-13 it will begin on or about Thursday, June 12th, 1913, and Monday, September 8th, 1913. The last date of entry and payment of fees will be SATURDAY, MARCH 1st and SATURDAY, AUGUST 30th.

Second Examination

Ordinance 7. The Second examination shall consist of two parts

PART I. Anatomy
Physiology.

PART II. Pharmacy.

8. Candidates, before presenting themselves for the Second examination, are required to furnish certificates of having attended courses of instruction in accordance with the Regulations of the University, and to have passed the First examination.

9. The names of candidates who have satisfied the Examiners in either part of the Second examination shall be published in alphabetical order.

Regulations Candidates for the Second examination are required to have passed the First examination, and to have attended complete courses of instruction, approved by the University, in Anatomy and in Physiology during four terms; in Materia Medica and in Pharmacy for one term. The certificates must shew (1) that dissection has been practised during

five terms at least[1]; (2) that laboratory instruction, approved by the University, has been received in Physiology; (3) that practical instruction, approved by the University, has been received in Materia Medica and Pharmacy.

Subjects of examination

PART I.

Anatomy. Candidates may, at the discretion of the Examiners, be required to perform actual dissection.

Physiology includes laboratory work in Physiological Chemistry, Histology, and Experimental work.

PART II.

Practical Pharmacy. Candidates will be required to recognise drugs, and to compound medicines.

Candidates may pass in each part separately.

Candidates who fail to satisfy the Examiners in Part I or Part II must before being readmitted to examination produce evidence of having pursued such further study as may have been required by the Examiners.

N.B.—This examination is held twice in each session. In 1912-13 it will begin on Thursday, December 12th, and Thursday, June 19th. The latest dates of entry and payment of fees will be SATURDAY, NOVEMBER 23rd and SATURDAY, JUNE 7th, respectively.

Final Examination

10. The Final examination shall consist of three parts: Ordinance

PART I. Pathology and Bacteriology

This may be taken at the end of the 10th term.

PART II. Forensic Medicine
Public Health.

PART III. Medicine
Surgery
Obstetrics and Gynæcology
Pharmacology and Therapeutics.

Parts II. and III. may be taken at the end of the 15th term, either separately or together.

[1] Work in the vacations is counted as one term, if satisfactory.

11. Candidates, before presenting themselves for any part of the Final examination, are required to have passed the Second examination, and to furnish certificates of having attended courses of instruction, in accordance with the Regulations of the University.

12. The names of candidates who have satisfied the Examiners in the first part of the Final examination shall be published in alphabetical order.

13. The names of candidates who have satisfied the Examiners in all the subjects of the Final examination, and are recommended for degrees, shall be published as follows:

1. Those awarded First Class Honours
2. Those awarded Second Class Honours
3. Those who have satisfied the Examiners.

The names shall be in alphabetical order in each case.

Certificates of attendance

Regulations Candidates, before presenting themselves for any part of the Final examination, are required to have passed the Second examination, and to have completed the tenth term of medical study. Candidates, before presenting themselves for the second or third part of the Final examination, are required to have passed the first part of the Final examination and to have completed the fifth year of medical study. Candidates must furnish certificates of having attended courses of instruction, approved by the University, in the University, or in a medical school recognised for this purpose by the University, in the subjects in which they offer themselves for examination.

Candidates are required to furnish certificates as follows:

A. Of having attended courses of instruction, approved by the University, in the University or in a medical school or hospital recognised for this purpose by the University, in the following subjects:

1. Pharmacology and Therapeutics, one term.

2. Pathology and Bacteriology, three terms.
   The certificate in Pathology and Bacteriology must in all cases testify that the candidate has attended a course of laboratory instruction in these subjects, approved by the University.
3. Forensic Medicine, one term.
   The certificate in Forensic Medicine must in all cases testify that the candidate has attended a course of practical instruction in Toxicology, approved by the University.
4. Public Health, one term.
5. Obstetrics and Gynæcology, two terms.
   The certificate in Obstetrics and Gynæcology must in all cases testify that the candidate has attended a course of practical instruction approved by the University, in the use of obstetrical and gynæcological instruments.
6. Surgery, three terms; Practical Surgery, two terms; Ophthalmology, one term.
7. Medicine, four terms.
   The certificate in Medicine must in all cases testify that the candidate has attended, during one term in each case, courses of instruction approved by the University in (*a*) Mental Diseases; (*b*) Infectious Diseases.

B. In respect of Hospital work.

1. In Medicine and Surgery, of having attended the medical and surgical practice of a hospital or hospitals, approved by the University, during at least two and one-half years, of which years two at least must be subsequent to the date of passing the Second examination, except when exemption has been granted by the Senate, after report from the Board of the Faculty of Medicine. Clinical Medicine, two years of clinical lectures. Clinical Surgery, two years of clinical lectures.
2. In Pathology and Morbid Anatomy, of having attended during at least twelve months demonstrations in the post-mortem room of a hospital, including practical instruction.
3. In Obstetrics, (*a*) of having attended during not less than one month the indoor practice of a lying-in hospital or the lying-in wards of a general hospital approved by the University, and (*b*) of having personally conducted not less

than twenty cases of labour, subsequently to having acted as surgical dresser and clinical clerk.

The certificate must in all cases (*a*) testify that such attendance has been given under the direct supervision of a medical officer of the hospital, and (*b*) regarding the personal conduct of cases of labour, be signed by a member of the staff of a hospital or a maternity charity.

4. In Gynæcology, of having, during at least three months, received in either a general or a special hospital, approved by the University, such clinical instruction in the diseases peculiar to women as shall be approved by the University.

5. Of having received clinical instruction in diseases of the eye, ear, throat, and skin.

6. Of having received instruction in the administration of anæsthetics.

7. Of having acquired proficiency in vaccination.

8. Of having acted as a surgical dresser for six months, as a clinical clerk for six months, and as a clerk for three months in the post-mortem room of a hospital recognised by the University.

N.B.—This examination is held twice in each session. In 1912-13 it will begin on Thursday, December 12th, and Thursday, June 19th. The latest dates of entry and of payment of fees will be SATURDAY, NOVEMBER 23rd and SATURDAY, JUNE 7th, respectively.

Detailed subjects of examination

PHARMACOLOGY AND THERAPEUTICS.

PATHOLOGY AND BACTERIOLOGY.

Candidates will be examined practically on Bacteriology, Pathological Anatomy, Histology, and Chemistry.

FORENSIC MEDICINE AND TOXICOLOGY AND PUBLIC HEALTH.

Candidates will be required to conduct a qualitative analysis of poisonous substances selected from the following list:

CLASS I. (In simple solution) Carbolic Acid, Alcohol, Chloroform, Chloral Hydrate, Strychnine, Brucine, Morphine, Meconic Acid.

CLASS II. (In combination with various organic substances) Mineral Acids, Oxalic Acid, Hydrocyanic Acid and the Cyanides, Caustic Alkalies, Phosphorus, Compounds of arsenic, antimony, mercury, lead, barium, zinc, copper, and silver.

They may also be required to determine the character of stains and stained fabrics, microscopically and chemically, and to recognise poisonous articles of the materia medica.

OBSTETRICS AND GYNÆCOLOGY: SYSTEMATIC, CLINICAL AND PRACTICAL.

Candidates will be required to show their practical acquaintance with obstetrical and gynæcological manipulations and instruments by the use of the phantom or otherwise, and will also be examined on museum preparations.

Candidates, in order to pass, must satisfy the Examiners in the clinical part of the examination.

SURGERY: SYSTEMATIC, CLINICAL, AND PRACTICAL.

Candidates will be examined on the use of surgical instruments and apparatus, and on museum preparations; they may also be required to perform operations on the dead body.

Candidates, in order to pass, must satisfy the Examiners in the clinical part of the examination.

MEDICINE: SYSTEMATIC AND CLINICAL, INCLUDING MENTAL DISEASES AND DISEASES OF CHILDREN.

Candidates, in order to pass, must satisfy the Examiners in the clinical part of the examination.

In determining the award of Honours account will be taken of the results of the Second examination.

In the paper on Medicine, passages of French and German relating to medicine will be included for translation into English. The marks obtained for such translation will be taken into account in determining the award of Honours, but not in determining the passing or rejection of any candidate.

Candidates who fail to satisfy the Examiners in any subject of the examination must, before being re-admitted to examination, produce evidence of having pursued such further study as may have been required by the examiners.

Degree of Doctor of Medicine

1. No candidate shall be admitted to the degree of Doctor of Medicine unless he has previously received the degrees of Bachelor of Medicine and Bachelor of Surgery, and at least one year has elapsed since he passed the examination for those degrees. Ordinance

2. Candidates for the degree of Doctor of Medicine are required to present a dissertation, and, if the dissertation be accepted, to pass an examination. The dissertation, of which the subject must previously have received the approval of the Board of the Faculty of Medicine, must embody the results of personal observations or original research, either in some department of medicine or of some science directly related to medicine, provided always that original work, published in scientific journals or in the Proceedings of learned societies, or separately, shall be admissible in lieu of or in addition to a dissertation specially written for the degree. Candidates will be required to write a short extempore essay on some topic connected with medicine, and to answer questions on the history of medicine. They will also be examined orally on the dissertation or other work submitted. Any candidate may be exempted from a part or the whole of the examination if the Board of the Faculty so decide. No candidate will be admitted to the degree unless his application, after report from the Board of the Faculty of Medicine, shall have been accepted by the Senate.

3. The names of candidates who have been approved for the degree of Doctor of Medicine shall be published in alphabetical order.

Regulation

Candidates for the degree of Doctor of Medicine are required to furnish three copies (printed or type-written) of the dissertation or published work which they desire to submit, together with any drawings or specimens which may be necessary for their illustration. These copies shall be sent in to the Clerk to the Senate and will be retained by the University.

Degree of Master of Surgery

Ordinance

1. No candidate shall be admitted to the degree of Master of Surgery unless he has previously received the degrees of Bachelor of Medicine and Bachelor of Surgery, and at least one year has elapsed since he passed the examination for those degrees.

2. Every candidate, before presenting himself for the examination for the degree of Master of Surgery, is required to have

graduated as Bachelor of Medicine and Bachelor of Surgery, and to furnish certificates of attendance in accordance with the Regulations of the University.

3. *Subjects of Examination*:
   Surgical Anatomy
   Surgery
   Operative Surgery
   Clinical Surgery
   Ophthalmology
   Pathology and Bacteriology.

4. The names of candidates who have satisfied the Examiners shall be published in alphabetical order.

Regulations

Candidates, before admission to the examination for the degree of Master of Surgery, are required to furnish certificates which shall be deemed satisfactory by the University that they, since taking the degree of Bachelor of Medicine and of Surgery, have held, for not less than six months, a Surgical appointment in a public hospital or other public institution affording full opportunity for the study of Practical Surgery.

Candidates proposing to present themselves for this examination are required to give notice, in writing, to the Clerk to the Senate and pay the fee on or before June 1st.

Candidates for the degree of Master of Surgery are also required to furnish certificates:

1. Of having attended a special course of instruction on Operative Surgery, approved by the University, and of having personally practised the principal surgical operations on the dead body.
2. Of having attended a systematic course of instruction, including practical work, approved by the University, on Bacteriology.
3. Of having attended a course on Ophthalmology, and of having received instruction in Ophthalmic Surgery approved by the University.

Courses in Medicine

I. COURSES HELD IN THE UNIVERSITY BUILDINGS, COLLEGE ROAD

PHYSICS

Professor BRAGG and Demonstrators.

The course designed to meet the wants of candidates for the First examination of the University of Leeds or the First Examination for Medical Degrees of the University of London, will consist of experimental lectures on Monday, Thursday and Friday at 11.30 a.m., throughout the session.

Subjects: The elements of electricity, magnetism, sound, light, heat, and the properties of matter.

The Physical laboratory is open daily. A special course of Practical Physics for Medical students will be held on Saturday mornings, from 9.30 a.m. to 12.30 p.m., throughout the session.

CHEMISTRY

Professor SMITHELLS, Professor COHEN and Demonstrators.

I. Special Medical Course

During the session on Monday, Wednesday and Friday, at 9.30 a.m., and on Friday at 4 p.m.

II. Practical Chemistry

During the session, on Monday, from 2 to 5 p.m.; on Thursday from 2 to 5 p.m.; and on Friday, from 2 to 4 p.m.

III. Organic Chemistry

During the session, at 12 (noon) on Tuesday, Thursday and Saturday.

IV. Practical Organic Chemistry

During the third term, 4 hours per week.

(*Classes III and IV are suitable for the examination in Organic Chemistry for the London M.B.*)

V. Sanitary Chemistry

For practitioners who are preparing for a diploma or degree in Public Health. During the third term, on Tuesday and Thursday from 2 to 5 p.m. The hours are subject to re-arrangement.

N.B.—For students who wish to take additional practical work of whatever kind, the Chemical Laboratory is open daily from October to June inclusive.

BIOLOGY

Professor GARSTANG, Professor PRIESTLEY
and Demonstrators

Medical Students preparing for the First examination of the University of Leeds, or other licensing body, and Dental Degree students, take the full courses specified on pages 300 and 303.

Lectures in Zoology on Monday and Friday at 10.30 a.m. Practical work in the Zoological laboratory on Tuesday and Thursday mornings throughout the session; in the Botanical laboratory on Tuesday afternoon and Wednesday morning, during the second and third terms only.

Each student will be required to provide himself with a microscope (suitable also for his subsequent studies), a dissecting case, a biological drawing book, and some simple instruments for microscopic work.

II. COURSES HELD IN THE SCHOOL OF MEDICINE

ANATOMY

Professor JAMIESON

and Demonstrators

I. Systematic and Descriptive Anatomy

Monday, Wednesday, Thursday, and Saturday at 9.15 a.m.

The general course of lectures begins in the month of July after the First examination and extends over three terms, the vacation term and the following first and second terms. For students who cannot begin their anatomical studies till the winter, special arrangements are made to enable them to follow the lectures with profit.

The advanced course of instruction consists of meetings which are held in the 3rd and 1st terms following on the general course.

Systematic tutorial classes are held in connection with the above courses, and attendance on these is obligatory.

Medical students are required to attend both courses before being signed for one full course of anatomy.

II. Practical Anatomy

The dissecting room is open daily from 9 a.m. till 5 p.m., (Saturday until 12.30 p.m.), the work of the students being constantly supervised by the Demonstrators, who attend daily. Tutorial classes and examinations are held daily on recent dissections and on preparations from the anatomical museum; and special instruction is given to all students who are about to present themselves for examination, particularly to those preparing for the higher examinations, such as University degrees and the Primary F.R.C.S., Eng.

Only those students are admitted into the Dissecting-room who have entered for the Anatomy course, or who have paid the fee for the use of the room.

Fees	£	s.	d.
Descriptive Anatomy :—			
General Course	7	7	0
Advanced Course	3	3	0
Use of Dissecting-room, with tutorial instruction, during attendance on the anatomical course, covering five terms	7	7	0
Use of Dissecting-room, with tutorial instruction, for every three months or portion of three months during the two years subsequent to the above period	2	2	0
Use of Dissecting-room, with tutorial instruction under all other circumstances, for three months, £3 3s. ; for six months	5	5	0

III. Applied Anatomy

The class meets on Monday and Thursday at noon, during the first and third terms, in the Anatomy Theatre. It is intended for senior students and for qualified practitioners. It deals with the application of anatomical facts to medicine and surgery, and is fully illustrated by dissections, diagrams, and the living model.

Fee, £2 2s.

PHYSIOLOGY AND HISTOLOGY

Professor BIRCH Mr. ILLOYD

I. General Course

This course of lectures treats of Physiology generally, and is illustrated by experiments. Monday, Tuesday, Wednesday, Thursday, and Friday, at 11.45 a.m., during the first and second terms, and during the third term on Monday, Wednesday and Friday, at 9.30 a.m.

Fee, £8 8s.

II. Microscopical Demonstrations

are held at 11 a.m. every Saturday throughout the session, and are open to all students attending courses of Physiology.

III. Practical Physiology

A. Practical Histology.—During the third term, on Monday, Wednesday, and Friday, 10.30 a.m. to 12.45 p.m.

Students are required to provide themselves with the following: (1) A microscope of good construction, which must be submitted to the approval of the Professor before the commencement of the class as no one will be permitted to work with an inefficient instrument. The Professor will be glad to assist students in the choice of an instrument. (2) Some accessories (such as scissors, forceps, needles in handles, slides and cover glasses, etc.), a list of which can be had on application.

B. Chemical Physiology.—During the second term, on Monday, Wednesday, and Friday, for two hours in the afternoon.

C. Experimental Physiology.—During the first term, on Monday, Wednesday, and Friday, for two hours in the afternoon.

Fees for *A*, £6 6s.; for *B* and *C*, £4 4s.

IV. Practical Physiology for Dental Students

A three months' course for Dental Students preparing for the Diploma in Dental Surgery, which will include Histology, Dental Microscopy, and the elements of Chemical Physiology.

V. Physiological Demonstrations and Catechetical Classes

These classes are held regularly during the session at such times as are found convenient.

VI. Recapitulatory Class

Short laboratory courses for the repetition of laboratory work are formed in the second and third terms, and will meet twice a week, usually in the morning.

Fee, £2 2s.

The Physiological Laboratories

These laboratories are open daily for research. Special instruction is arranged for those preparing for Honours courses and Higher examinations (F.R.C.S. Eng, &c.).

PATHOLOGY AND BACTERIOLOGY

Professor GRÜNBAUM
Dr. COPLANS Mr. ADAMSON
Dr. VEALE Mr. COLLINSON

I. General Pathology

This course will be given in the second term on Tuesday, Wednesday and Friday at 12 (noon).

Fee, £4 4s.

II. Practical Pathology and Bacteriology

Tuesday, Wednesday, and Friday, from 12 (noon) to 1.30 p.m. during the third and first terms. In this class practical instruction with intercalated lectures is given in Morbid Histology, Bacteriology and Pathological Chemistry. Students will make and mount preparations for microscopical examination and will make bacteriological investigations required for diagnosis.

Each student must be provided with a good microscope, having an oil immersion lens and a condenser, and with the usual accessories, or he will not be permitted to attend the class.

Fee, £5 5s.

III. Tutorial Classes in Medical, Surgical and General Pathology

will be held by Dr. Veale, Mr. Collinson and Mr Adamson as may be arranged from time to time.

IV. Clinical Pathology

A post-graduate practical class in this subject will be held during the months of October to December, on Wednesday at 4 p.m.

Fee, £3 3s.

V. Bacteriology for the Diploma in Public Health

This course will be held in the second term. It will include practical instruction in the pathology of those diseases of animals which are communicable to man. Instruction is also given in agricultural and other technical Bacteriology.

Fee, £5 5s.

The Laboratories of Pathology and Bacteriology

are open daily for research work. The fees are on the same scale as in the other laboratories of the University.

In this department the various bacteriological and pathological investigations required by county and municipal authorities and by private practitioners are carried out.

PRINCIPLES AND PRACTICE OF MEDICINE

Professor GRIFFITH Dr. WATSON

Monday, Wednesday, and Thursday, at 9 a.m., during the second and third terms and third term of following year.

The course is divided into the following sections:

Diseases of the nervous system.
Diseases of the organs of circulation.
Diseases of the organs of respiration.
Diseases of the digestive and blood-forming organs.
Diseases of the kidneys.
Infectious and contagious diseases, fevers, diphtheria, syphilis, hydrophobia, &c.
Parasites.
Diseases of the skin.
Diseases of special trades.
Diseases and Feeding of Infants.

Fee, £6 6s.

CLINICAL MEDICINE

Professor BARRS

A course of lectures chiefly Clinical is given in the first term at 9.15 a.m. on Wednesday. These lectures are based upon cases at the time in the wards, but may be given either at the Infirmary, or at the School of Medicine. Attendance upon them is required as part of the course of instruction in Medicine, and they do not take the place of the ordinary Clinical lectures given by the physicians at the Infirmary.

SURGERY

Professor KNAGGS Mr. COUPLAND

Tuesday and Saturday, at 9 a.m., during the second and third terms.

The course comprises the following subjects :

The process of repair.

Inflammation ; suppuration ; ulceration.

The constitutional effects of injury; shock, fever, delirium, &c.

Injuries and wounds, including special injuries of head, spine, throat, chest, and abdomen.

Special fractures and dislocations.

Surgical diseases ; gangrene ; erysipelas ; septicæmia ; pyæmia ; tetanus.

Tumours ; tubercle ; venereal diseases.

Surgical diseases of special parts :—skin, lymphatic system, vascular system, nervous system, bones, joints, &c.

Deformities. Plastic and orthopædic surgery.

Abdominal surgery, including hernia.

Diseases of the urinary and generative organs.

Fee, £6 6s.

CLINICAL SURGERY

Professor SIR BERKELEY MOYNIHAN

A course of lectures chiefly Clinical is given in the first term at 9.15 a.m. on Tuesday. These lectures are based upon cases at the time in the wards, but may be given either at the Infirmary or at the School of Medicine. Attendance upon them is required as part of the course of instruction in Surgery, and they do not take the place of the ordinary Clinical lectures given by the surgeons at the Infirmary.

PRACTICAL SURGERY

Mr. THOMPSON

Monday and Thursday at 12 noon, during the first and second terms.

In this are comprised :

Part I—Second Term.

1. A course of bandaging and application of splints and other appliances.

2. Demonstrations and descriptions of instruments and surgical appliances used in diagnosis or treatment.

3. The application of anatomical knowledge to the investigation of surgical diseases.

4. Methods of reducing dislocations, setting fractures and dressing wounds.

Part II—First Term.

5. A course of operations performed on the dead body before the class, the members of which will be required to operate.

Fee, £4 4s.

OPERATIVE SURGERY

Mr. J. F. Dobson

Classes will be formed for the performance of operations on the dead body, under the superintendence of the lecturer at times to be arranged. As all the important operations will be done by the students, every opportunity will be given for gaining practical experience in this branch of surgery.

Fee, £12 12s. divided in equal shares among a class of not more than four students.

OBSTETRICS

Professor Hellier Dr. Oldfield

Monday, Wednesday and Friday, at 9 a.m. during the second term.

Outline of the history of Obstetrics.

The female pelvis and organs of reproduction. Menstruation, Ovulation, Fertilization, Implantation.

Pregnancy—normal and abnormal. Diseases of pregnancy. Abortion.

The fœtus, membranes and placenta. Diseases of the same.

Labour — normal and abnormal. Mechanism and management.

Pelvic deformity.

Obstetric instruments and obstetric operations.

The puerperal state and its pathology.

The new-born child and its management.

Relation of child-bearing to diseases of the body generally.

The lectures will be illustrated by diagrams, models, lantern slides and museum specimens.

The various presentations will be demonstrated on the Phantom, and practical instruction given in the use of obstetrical instruments.

Tutorial classes are also held from time to time for students preparing for their final examinations.

The necessary facilities for clinical instruction in Obstetrics are given by the Maternity department of the Infirmary, the Hospital for Women and Children, and the Leeds Maternity Hospital.

Every student is required to take a month's clerkship in the extern. maternity department of the Infirmary and to attend not less than 20 labours.

This must be preceded by at least one month's attendance on intern maternity practice at the above-named Hospitals.

Fee, £5 5s.; together with Gynæcology, £6 6s.

GYNÆCOLOGY

Dr. CROFT Dr. OLDFIELD

Tuesday, Friday and Saturday, at 9 a.m. in the third term.

The course comprises:—

The structure and functions of the female reproductive organs in relation to pathology and treatment.

A general account of the causation and prevention of gynæcological disease.

The methods and appliances employed in diagnosis.

The relation of gynæcological disease to the neuroses and other general diseases.

A systematic account of the various diseases peculiar to women; their pathology, diagnosis, and treatment.

Fee, £3 3s.; together with Obstetrics, £6 6s.

PHARMACOLOGY AND THERAPEUTICS.

Professor CAMPBELL

Monday, Wednesday and Friday, at 4 p.m. during the second term.

The course will include consideration of (*a*) the general principles of the treatment of disease; (*b*) the physiological and therapeutical action of drugs and the mode of their administration; (*c*) the use of remedial measures other than drugs, including heat, cold, massage, electricity, climatic and dietetic treatment.

Fee, £3 3s.

MATERIA MEDICA AND PHARMACY.

Professor CAMPBELL Mr. J. H. GOUGH

In the month of July at hours to be arranged.

Subjects:

Materia Medica: Sources, preparation, physical characters, pharmacopœial combinations, tests, doses, and general uses of the principal drugs.

Practical Pharmacy: General pharmaceutical processes; prescriptions; weights and measures; the compounding of a large series of typical prescriptions, including mixtures, pills, powders, emulsions, tinctures, lotions, inhalations, plasters, ointments, &c. The best methods of dispensing the principal drugs. Incompatibility.

The first hour is given to demonstrations and tutorial teaching in Materia Medica, the remaining time being devoted to Practical Pharmacy.

Fees: Materia Medica, £4 4s.; Practical Pharmacy, £3 3s.

PUBLIC HEALTH

Professor CAMERON

Wednesday and Saturday, at 9 a.m., during the first term.

Comparison of rates of mortality in town and country. Epidemic and endemic diseases and their prevention. Isolation hospitals. Disinfection and disinfectants. Influence of occupation on health. Factory and workshop legislation.

Meaning to be attached to death rates. How they are affected by constitution of the population in regard to age and sex.

Registration of births. Certificates of causes of death, for burial, for cremation.

Notification of infectious diseases.

The dwelling: site, subsoil, aspect, structure, lighting, ventilation, drainage, overcrowding.

Public and private water supplies, their dangers.

Disposal of refuse, including sewage.

Visits to works, &c.

Fee, £3 3s.

N.B. For candidates for degrees or diplomas in Public Health, this course will be supplemented by additional lectures dealing more fully with vital statistics (including the estimation of populations and other calculations of death rates); the registration and following up of infectious cases; the examination of dwellings; water supplies; refuse destructors; disinfecting stations; the general management of a health department.

FORENSIC MEDICINE & TOXICOLOGY

Professor EURICH

Dr. STEDMAN

1. Forensic Medicine

Tuesday, Wednesday, Thursday, and Friday at 4 p.m. during the first term.

The qualifications, duties, and responsibilities of medical witnesses.

Questions concerning age, sex, identity, insanity and life insurance.

Death :—Real and apparent death ; date of death ; causes of sudden and violent death ; post-mortem examinations.

Death by wounds ; by lightning, burns, cold and starvation ; by drowning, hanging, strangling and suffocation.

Rape ; pregnancy ; delivery ; the legitimacy of children ; abortion ; infanticide.

Toxicology :—general considerations respecting poisoning ; toxicological processes and the evidence of poisoning ; symptoms of special poisons ; treatment and analysis.

Fee, £5 5s.

II. Practical Toxicology

The class meets on Thursday and Friday from 3 to 5 p.m. during one month of the first term. Students receive practical instruction in the methods of detecting the more common poisons, including prussic acid and the cyanides, carbolic acid, oxalic acid, and the oxalates, arsenic and metallic poisons, mineral acids, caustic alkalies, alcohol, chloral and chloroform, alkaloids, &c.

Fee, £2 5s., including the use of apparatus.

OPHTHALMOLOGY AND OTOLOGY.

Mr. Secker Walker Mr. Constable Hayes

Tuesday, Friday and Saturday at 9 a.m., during the third term.

Subjects :

Ophthalmology : Surgical anatomy of the eye, theory of the ophthalmoscope, retinoscopy ; emmetropia, hypermetropia, myopia, astigmatism ; theory of accommodation ; diseases of the conjunctiva and cornea, of the iris, ciliary body and choroid ; cataract ; glaucoma ; diseases of the retina and optic nerve ; functional diseases of the eye ; affections of the ocular muscles and lacrymal apparatus ; diseases of the orbit and eyelids.

Otology : Diseases of the external ear ; diseases of the middle ear, their connection with naso-pharyngeal disorders ; disease in the mastoid process, its extension to the cranial cavity ; diseases of the internal ear.

Fee, £3 3s.

MENTAL DISEASES

Professor BOLTON

Systematic lectures are given at the School of Medicine on Thursday and Friday at 4 p.m., and clinical lectures and demonstrations at the West Riding Asylum, on Tuesday, at 3.30 p.m., during the third term.

The systematic lectures will include (*a*) the mode of development, histological structure, and functions of the cerebral cortex; (*b*) the elements of psychology; (*c*) the pathology, symptoms, medico-legal relations and treatment of mental disease.

The clinical course will embrace:

Illustrations of the various forms of mental disease.

Instruction in the method of examining insane persons.

Practical demonstrations on the moral and therapeutic treatment of the insane; compulsory feeding, &c.

Filling up certificates of insanity.

Class examinations.

The pathological aspects of insanity will be freely illustrated by lantern slides, morbid specimens and microscopic preparations from the museum of the Asylum.

Fee, £3 3s.

HOSPITAL PRACTICE

1. While for the Leeds M.B. degree two and one-half years' hospital practice are required, for certain degrees three years' hospital practice is necessary, and *one* of these should be taken before the Second examination has been passed. Students intending to take such degrees should enter their names upon the Infirmary Register at *the beginning of the third year of their studies in medicine.* Failure to do this will prevent them from completing the necessary attendance by the time when they would normally present themselves for the Final examination. For the degree of the University of Leeds students enter their names at the beginning of the eighth term.

2. In order to be entered upon the Infirmary register students must first interview the Clinical Sub-Dean

(Dr. Telling) at 29, Park Square, from whom advice can be obtained in arranging their work at the Infirmary.

3. The attention of students is directed to the necessity for carefully arranging, beforehand, the time at which they propose attending at the Fever hospital, as during the period of such attendance they are excluded from the surgical, ophthalmic and gynæcological wards and cannot act as maternity clerks.

Full information as to clinical instruction and appointments offered to students is contained in the prospectus of the School of Medicine.

Leeds General Infirmary

The medical and surgical practice required by medical students is taken at this institution, which offers abundant opportunities for clinical study. Situated in the centre of a densely populated manufacturing and mining district, and drawing patients also from a wide surrounding area, its wards present an ample field for the study of diseases and injuries. The concentration of medical, surgical, gynæcological, ophthalmic, aural and children's diseases in one hospital leads to much economy in time and labour to the student.

The nature of the work done in the Leeds Infirmary makes the clerkships and dresserships of great value, and the resident appointments involve so much practical work and personal responsibility as to give the holders a very varied and valuable experience.

Leeds Public Dispensary.

About 45,000 medical and surgical cases are treated annually, partly as out-patients, and partly at their own homes. There are one senior and four junior resident medical officers, and to each of the latter a separate district of the city is assigned.

The practice of the Dispensary is open to any student on application to one of the honorary staff.

Leeds City Fever and Small Pox Hospitals

Students are admitted at the Leeds City Hospitals (Medical Superintendent, Mr. A. E. Pearson) on having obtained sanction from the Dean of the Faculty of Medicine, subject to such regulations as may be made from time to time by the Leeds City Council.

Students must abide by the rules laid down as to disinfection and other matters, and must satisfy the Corporation authorities that they are sufficiently protected against small pox by vaccination.

Courses lasting two months are held in each term on three afternoons in each week.

At the Small Pox hospital a minimum period of one week's residence may be required with payment in advance of 12s. a week for board and lodging.

The hospitals are not open to students during April, August, and September. Clinical lectures and demonstrations on infectious diseases will be given by the Medical Superintendent of the hospitals, and the attendance of students at these lectures and on the practice must be completed during the term for which they enter.

Those desirous of attending the practice outside the ordinary classes or clinical instruction, and not requiring a certificate of their attendance, must apply for permission to the Medical Officer of Health of the City of Leeds, Dr. J. S. Cameron, at his office in 41, Park Square, between the hours of 10 and 11 a.m.

Fee for the three months' course, £2 2s.

Hospital for Women and Children.

The gynæcological wards contain 45 beds and the children's ward 6 cots. The maternity department contains 5 beds for cases of delivery, of which a large portion are abnormal. During the year 1911, 112 deliveries were dealt with. A large number of cases of diseases associated with pregnancy are also treated in the hospital. Students appointed as *Maternity Clerks* are required to attend the

midwifery practice of the hospital in accordance with the University regulations. Two resident *House Surgeons*, who must be legally qualified, are appointed every six months, with a salary at the rate of £50 per annum with board. Two *Anæsthetists*, who must be legally qualified, are appointed annually. Each receives an honorarium of £20 per annum. Honorary *Clinical Assistants* are also appointed by the Honorary Staff. These appointments are specially valuable to those wishing to do post graduate work in gynæcology and diseases of children.

Leeds Maternity Hospital.

The practice of the Maternity Hospital (33 beds), 42, Hyde Terrace, is available for the instruction of students, subject to regulations laid down by the Hon. Medical Officers.

West Riding Lunatic Asylum, Wakefield.

This institution, which accommodates 2,023 patients, offers unusual advantages to those who desire to make themselves conversant with the treatment and management of the insane. A hospital containing 330 beds has been provided for the treatment of acute insanity, and a separate home for 70 imbecile and idiot children has been lately opened. Clinical lectures and demonstrations are given at the Asylum by Professor J. Shaw Bolton, Medical Director of the Asylum.

Instruction in Vaccination

This instruction is given under the control of the Local Government Board at the General Infirmary at Leeds, on Thursdays at 3 p.m., by Mr. A. T. Bacon, Instructor in Vaccination. Classes begin in October, February, and May. Each class consists of seven meetings, six of which must be attended, four of them consecutively.

Application to be made to the Academic Sub-Dean. Not more than ten students can be admitted to any one class.

Fee, £1 11s. 6d.

DIPLOMA IN PUBLIC HEALTH

The examination is held twice in each year, in June and December, under the following Regulations

Regulations.

1. The examination is in two parts, and is written, oral, and practical.

2. Candidates, before entering for the first part of the examination, must have held for not less than twelve months a registrable qualification in Medicine, Surgery, and Midwifery, and must present satisfactory certificates,

i. Of having attended an approved course of instruction in Public Health in the University, or in a college or medical school recognised for this purpose by the University; or of having attended, at some other institution, courses of instruction which shall be accepted by the University as equivalent.

ii. Of having attended, after obtaining a registrable qualification, during at least six months practical instruction in laboratories approved by the University, the courses including Chemistry as applied to Public Health, Bacteriology, and the Pathology of those diseases of animals which are communicable from animals to man. Three months at least must be spent in attendance on courses in the University.

Candidates before entering the second part of the examination must present certificates,

iii. Of having, after obtaining a registrable qualification, attended during not less than three months the clinical and administrative practice of a hospital for infectious diseases approved by the University.

iv. Of having, after obtaining a registrable qualification, during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under

ii), been diligently engaged in acquiring a knowledge of the duties, routine and special, of Public Health administration under the supervision of (*a*) the medical officer of health of a county, or of a single sanitary district having a population not less than 50,000, or (*b*) a medical officer of health devoting his whole time to Public Health work, or (*c*) a medical officer of health who is also a teacher in the Department of Public Health of a recognised medical school, or (*d*) a sanitary staff officer of the Royal Army Medical Corps having charge of an Army Corps, district or command, recognised for the purpose by the General Medical Council, *or*
of having attended during three months as required above, and during three months after obtaining a registrable qualification, having attended a course or courses of instruction, approved by the University, in subjects bearing on Public Health Administration.

3. Candidates may present themselves for Parts I and II separately or at the same time, provided that no candidate be allowed to pass in Part II unless he has already passed in Part I. No candidate's name will be published until he has satisfied the Examiners in both parts of the examination.

4. The fee for each part is £5 5s., and must be paid at least fourteen days before the commencement of the examination. For any subsequent examination in the same part the fee will be £3 3s.

Every candidate who has passed both parts of the examination, and who is legally registered, will receive a diploma in Public Health.

Medical Practitioners registered or entitled to be registered on or before January 1, 1890, may be exempted from producing the above required certificates of study.

N.B.—In the current session the examination will begin on Thursday, December 12th, 1912, and on Thursday, June 19th, 1913. Notice must be given and fees paid not later than SATURDAY, NOVEMBER 23rd and SATURDAY, JUNE 7th respectively.

Subjects of Examination

Part I

1. Chemistry as applied to Public Health:

   Chemistry, with special reference to the examination of air and water. Methods of qualitative and quantitative analysis.

2. Physics as applied to Public Health:

   Elements of Heat, with special reference to warming, ventilation, and meteorology. Meteorological instruments and their use.

3. Ætiology of Disease:

   Pathology of epidemic and endemic diseases, including diseases of animals communicable to man. Influence of unwholesome food, air, water, occupation, dwelling, climate, season, soil.

4. Practical Pathology and Bacteriology:

   Practical Bacteriology, detection and cultivation of vegetable parasites, bacteriological analysis of air and water. Recognition of parasites and of the lesions which they produce in man. Recognition of diseased meat.

5. Microscopy as applied to Public Health:

   Foods, their adulterations, contaminations, and parasites. Air and water, their microscopical impurities.

Part II

1. Engineering as applied to Public Health:

   Water supply. Drainage, sewerage, and disposal of refuse. Construction of dwellings, schools, hospitals, including their warming and ventilation. Geological data referring to the above. Interpretation of plans.

2. Sanitary Law and Administration:

   Domestic and general sanitation of houses, villages, and towns. Regulation of offensive, dangerous, or unhealthy trades and occupations. The prevention and control of epidemic disease by isolation, disinfection, vaccination, and other methods. Statutes and bye-laws relating to Public Health. The control of the food supply.

3. Vital Statistics.

4. Sanitary Reporting:

   The candidate will be required to visit and report upon the sanitary condition of some locality assigned to him by the Examiners.

COURSES OF INSTRUCTION FOR CANDIDATES PREPARING FOR DIPLOMA IN PUBLIC HEALTH

The following courses of instruction are arranged to prepare for the University diploma, and for those of other examining bodies:

1. Public Health. (See page 497).

2. Sanitary Chemistry. In the Chemical laboratory, College Road. (See page 297).

3. Bacteriology. At the School of Medicine during the second term on Tuesday and Thursday at 2.30 p.m. (See page 491).

Each student must be provided with a microscope approved by the Professor. The microscope must have an immersion lens and a condenser.

Fee, £5 5s.

4. Attendance at a Hospital for Infectious Diseases. A special course, including instruction in administration, is given in the Leeds City Hospitals in accordance with the requirements of the General Medical Council. Times of attendance to be arranged.

Fee, £5 5s.

5. Practical Work in Sanitation. With the sanction of the Sanitary Authority of Leeds, the Medical Officer of Health arranges courses of six months' instruction in out-door and office sanitary work. Fee for the course, payable in advance to Dr. Spottiswoode Cameron, at his office, 41, Park Square, between 10 and 11 a.m., £10 10s.

The University entrance fee of £1 1s. is charged to those who have not previously been students of the University, unless a sessional fee of 7s. is paid for each class attended.

DIPLOMA IN PSYCHOLOGICAL MEDICINE

Regulations

1. The [1]examination is in two parts, and is written, oral and practical.

2. Candidates, before entering for the first part of the examination must produce evidence

(A) 1. Of being graduates in Medicine of at least one year's standing.

2. Of having attended approved courses of instruction on the subjects of examination during six months at least after graduation.

3. Of having acted as Clinical Clerk or Assistant Medical Officer in an Asylum, recognised for this purpose, for a period of at least six months.

4. Of having attended a course of systematic instruction on the normal and morbid anatomy of the brain for a period of six months in the recognised laboratories of the University.

(2, 3 and 4 may be taken concurrently, and as evidence of (4) must be produced a laboratory note book record of practical work which has been regularly inspected and signed by a recognised teacher.)

or (B) 1. Of having acted as Assistant Medical Officer in an Asylum of not less than 500 beds for a period of at least two years.

2. Of having attended a course of systematic instruction on the normal and morbid anatomy and histology of the brain for a period of six months in the recognised laboratories of the University.

(As evidence of this must be produced a laboratory note book record of practical work which has been regularly inspected and signed by a recognised teacher.)

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[1] In the current session it will begin on Thursday, December 12th, 1912, and on Thursday, June 19th, 1913. Notice must be given and fees paid not later than November 23rd and June 7th, respectively.

3. In addition to the laboratory work under (2), or in lieu of three months thereof, candidates may submit a dissertation which must embody the results of personal observations or original research in relation to psychological medicine, provided always that original work, published in scientific journals, or in the proceedings of learned societies, or separately, shall be admissible in lieu of or in addition to a dissertation specially written for the diploma.

Subjects of Examination

PART I.

(i.) The Development, Anatomy, Histology and Physiology of the Brain (Human and Comparative).

(ii.) The Morbid Anatomy and Morbid Histology of the Brain from both theoretical and practical aspects.

PART II.

(iii.) Psychology, with especial reference to the symptomatology of Mental Disease.

(iv.) Clinical Psychiatry, Asylum Administration, and the Medico-Legal aspects of Insanity.

Candidates, in order to pass, must satisfy the examiners in the clinical part of the examination.

Candidates may present themselves for Parts I and II separately or at the same time, provided that no candidate be allowed to pass in Part II. unless he has already passed in Part I. No candidate's name will be published until he has satisfied the Examiners in both parts of the examination.

The fee for the examination is £5 5s., and must be paid at least fourteen days before the commencement of the examination. For any subsequent examination the fee in each part will be £1 11s. 6d.

Every candidate who has passed both parts of the examination and is legally qualified and registered, will receive a diploma in Psychological Medicine.

DEGREES IN DENTAL SURGERY

1. The degrees in Dental Surgery shall be : Ordinance

Bachelor of Dental Surgery (B.Ch.D.)

Master of Dental Surgery (M.Ch.D.)

Degree of Bachelor of Dental Surgery

2. All candidates for the degree of Bachelor of Dental Surgery shall be required to have passed the Matriculation examination, to have pursued thereafter approved courses of study for not less than five academic years, two of such years at least having been passed in the University subsequently to the date of passing Parts I and II of the First examination, and to have completed such period of pupilage or hospital attendance, or both, as may be prescribed by the Regulations of the University. No candidate shall be admitted to the degree who has not attained the age of twenty-one years on the day of graduation.

3. All candidates shall be required to have passed the following examinations : The First examination, the Second examination, the Final examination.

4. Each examination shall include practical work in the subjects offered.

5. All candidates shall be required, before presenting themselves for examination, to furnish to the Registrar certificates testifying that they have attended the prescribed courses of instruction in accordance with the Regulations of the University in each of the subjects which they offer, and that they have fulfilled the other requirements of the Ordinance and Regulations in respect of such examination.

In each examination the names of candidates who have satisfied the Examiners shall be published in alphabetical order. Regulation

First Examination

Ordinance 6. The First examination shall consist of three parts:

PART I. Physics
Chemistry.
PART II. Biology.
PART III Dental Mechanics
Dental Metallurgy.

7. Candidates shall be allowed to pass in each part separately.

8. Candidates who have passed the Intermediate examination for the degree of Bachelor of Science, and have in that examination satisfied the Examiners in Chemistry, in Physics, or in Biology, shall, on payment of the difference between the fees required for the two examinations, be regarded as having satisfied the requirements of Parts I and II of the First examination for the degree of Bachelor of Dental Surgery, in those subjects in which they have passed.

9. Candidates shall be required, before presenting themselves for Parts I and II of this examination, to have passed the Matriculation examination, and to have attended courses of instruction in accordance with the Regulations of the University.

10. Candidates shall be required, before presenting themselves for Part III of this examination, to have completed two years from Matriculation, and to have attended courses of instruction in accordance with the Regulations of the University.

Regulations Candidates for the First examination are required to furnish certificates of having attended approved courses of instruction at the University or at an institution recognised for this purpose by the University; or of having attended, at some other institution, courses of instruction which shall be accepted by the University as equivalent.

The courses of instruction shall be as follows:—

1. Chemistry, Inorganic and Organic; lectures and laboratory work: at least one year.

2. Physics: lectures and laboratory work: at least one year.
3. Biology (Zoology and Botany): lectures and laboratory work: at least one year.

The examination will include laboratory work in the three subjects. Candidates may pass in each Part separately.

Every candidate for Part III of the First examination shall be required to have spent two years in the Prosthetic Department of a recognised Dental or General Hospital, or in pupilage to a qualified and registered dental surgeon, and to have attended, during at least one year, courses of lectures and practical instruction approved by the University, in the subjects of the examination, namely: Dental Mechanics (including electrical appliances used in Dentistry): lectures and laboratory work. Dental Metallurgy: lectures and laboratory work

The First examination shall be held twice in each calendar year.

Second Examination

11. The subjects of the Second examination shall be: Ordinance

Anatomy
Physiology
Dental Anatomy and Physiology
Dental Materia Medica.

12. Candidates shall be required, before presenting themselves for the Second examination, to have passed the First examination not less than one year previously, and to have attended courses of instruction in accordance with the Regulations of the University.

Candidates for the Second examination shall be required to have attended courses of instruction approved by the University, as follows: Anatomy lectures, two terms; Practical Anatomy and demonstrations, including the dissection of the head and neck, three terms; Dental Anatomy and Physiology, one term; Dental Microscopy, one term; Physiology lectures, two terms; Physiological Regulations

Laboratory, one term; Practical Histology, one term; Dental Materia Medica, one term.

The Second examination shall be held twice in each calendar year.

Final Examination.

Ordinance

13. The subjects of the Final examination shall be:

Dental Surgery
Dental Pathology and Bacteriology
Operative Dental Surgery
Medicine and Surgery.

14. Candidates shall be required, before presenting themselves for the Final examination, to have passed the First examination not less than two years previously, to have passed the Second examination not less than six months previously, and to have attended courses of instruction in accordance with the Regulations of the University.

Regulations

Candidates for the Final examination shall be required to have attended courses of study, approved by the University, as follows: Surgery lectures, two terms; Special Surgery of the Mouth, six lectures; Medicine lectures, two terms; Dental Surgery and Pathology lectures, two terms; Operative Dental Surgery lectures, one term; Demonstrations on Anæsthetics, two terms; Dental Bacteriology, lectures and practical work, one term; Dental Clinical Lectures, two terms.

Candidates shall be required to present certificates of two years Medical, Surgical and Dental practice at hospitals recognised by the University. These certificates must show that practical instruction has been received in Medicine, Surgery, and the administration of Anæsthetics. Every candidate shall be required to have acted as clerk and as dresser, for three months in each case, in a hospital recognised by the University.

The Final examination shall be held twice in each calendar year.

DIPLOMA IN DENTAL SURGERY

Regulations

Candidates for the diploma in Dental Surgery (L.D.S.) are required to present certificates showing that they have attended courses of instruction, approved by the University, extending over not less than four years, two of which must have been spent in the University after passing the Preliminary Examination in Science.

Candidates are required to satisfy the Examiners in the several subjects of the following examinations :

A Preliminary examination in Arts ; a Preliminary examination in Science ; the First Professional examination ; and the Final examination.

Preliminary Examination in Arts

The requirements of the Preliminary examination in Arts shall be fulfilled by passing an examination recognised for this purpose by the General Medical Council.[1]

Preliminary Examination in Science

The Preliminary examination in Science shall be held twice yearly. Its subjects shall be :

Chemistry
Physics.

Candidates are required to have attended courses of instruction at the University as follows : Chemistry, lectures and laboratory, two terms ; Physics, lectures and laboratory, two terms ; *or* to present evidence of having given adequate attendance, at some other institution, upon courses of instruction which shall be accepted by the University as equivalent to the above courses.

N.B.—This examination will begin on or about Thursday, June 12th, and Tuesday, September 9th, 1913. The latest dates of entry and of payment of fees will be SATURDAY, JUNE 7th and SATURDAY, AUGUST 30th respectively.

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1 The subjects are the same as for the Matriculation Examination except that under (5) only *one* subject, Greek *or* a modern language is required.

First Professional Examination

The subjects of the First Professional examination are:

Dental Metallurgy
Dental Mechanics.

Candidates are required to have passed the Preliminary examination in Science not less than six months previously, and to have attended courses of instruction, recognised by the University, in the subjects of the examination, according to the syllabus of the Royal College of Surgeons. They are also required to give evidence of having been engaged for two years in pupilage.

N.B.—The First Professional and Final examinations will begin on or about Thursday, December 12th, 1912, and Thursday, June 19th, 1913. The latest dates of entry will be SATURDAY, NOVEMBER 23rd and SATURDAY, JUNE 7th respectively.

Final Examination

The Final examination shall consist of two parts:

PART I. Anatomy
Physiology
Dental Anatomy and Physiology

PART II. Surgery
Dental Surgery, Pathology and Bacteriology
Operative Dental Surgery (Practical)
Dental Materia Medica and Therapeutics.

Candidates must pass in Part I before being examined in Part II, and may pass the two Parts separately. The examination in Part II shall be held immediately after that in Part I, so that the two Parts may be passed, if desired, in immediate succession.

Candidates, before presenting themselves for examination in Part I, are required to have passed the First Professional examination not less than one year previously, and to have attended courses of instruction recognised by the University, as follows: Anatomy lectures, two terms; Practical Anatomy, three terms; Physiology lectures, two terms; Practical

Physiology, one term; Dental Anatomy and Physiology lectures, two terms; Practical Dental Histology, one term; Surgery lectures, two terms.

Candidates before presenting themselves for examination in Part II, must have passed in Part I, and must produce evidence of having (1) completed four years from the beginning of their pupilage; (2) completed two years Medical and Surgical practice at hospitals recognised by the University; (3) completed two years' Dental Hospital practice; (4) attended courses of instruction recognised by the University, as follows: Medicine, one term; Dental Surgery Therapeutics and Pathology lectures, two terms; Dental Bacteriology lectures, one term; Dental Materia Medica, one term; Operative Dental Surgery lectures, one term; Six Special Anæsthetic demonstrations; Special Surgery of the Month, six lectures; Surgery Lectures, two terms; Dental Clinical Lectures, two terms. The certificates of Medical and Surgical practice must show that practical instruction has been received in Medicine and Surgery, and in the administration of Anæsthetics.

Fees for Dental Classes

The fees for lectures and practical work in Dentistry are as follows: Dental Surgery and Pathology, 6 guineas; Operative Dental Surgery, 4 guineas; Dental Anatomy and Physiology, 6 guineas; Dental Mechanics, lectures 3 guineas and practical work 3 guineas; Dental Metallurgy, lectures 3 guineas and practical work 3 guineas; Dental Microscopy, 3 guineas; Dental Bacteriology, 2 guineas; Dental Materia Medica, 2 guineas.

Composition Fees

For the degree in Dental Surgery the composition fees are as follows:

(*a*) Fee covering all the requisite courses is 65 guineas, payable in two instalments of 45 and 20 guineas respectively, or £65 if paid in one sum.

(*b*) Fee for the courses, excluding Parts I and II of the First examination, £55.

(*c*) Fee for the courses for the Second and Final examinations, £48.

For the diploma in Dental Surgery the composition fees are as follows:

(*a*) Fee covering all the requisite courses is 60 guineas, payable in two instalments of 40 and 20 guineas respectively or £60 if paid in one sum.

(*b*) Fee for the courses for the First Professional and Final examinations, £52.

(*c*) Fee for the courses for the Final examination (Parts I and II), £45.

Fees for Dental Examinations

For the First examination for the degree of B.Ch.D., £5; and for each subsequent examination, £2.

For the Second examination for the degree of B.Ch.D., £4; and for each subsequent examination, £2.

For the Final examination for the degree of B.Ch.D., £4; and for each subsequent examination, £2.

For the Preliminary examination in Science for the diploma of L.D.S., £2; and for each subsequent examination, £1.

For the First Professional examination for the diploma of L.D.S., £2; and for each subsequent examination, £1.

For Part I of the Final examination for the diploma of L.D.S., £3; and for each subsequent examination £1.

For Part II of the Final examination for the diploma of L.D.S., £3; and for each subsequent examination, £1.

Degree Fees

For conferment of degree or diploma, £5.

Courses in Dental Surgery

1. COURSES HELD IN THE UNIVERSITY BUILDINGS, COLLEGE ROAD

The courses arranged in Physics, Chemistry, and Biology will be found under Courses in Medicine.

2. COURSES HELD IN THE SCHOOL OF MEDICINE

The courses arranged in Anatomy, Physiology and Histology, Pathology and Bacteriology, Principles and Practice of Medicine, and Surgery, will be found under Courses in Medicine.

DENTAL SURGERY AND THERAPEUTICS

Mr. PLUMLEY

Thursday at 12 during the first and second terms.

Condition of the jaws and teeth at birth.

Relation of the teeth to the bone and adjacent structures.

Temporary dentition: infantile disorders dependent thereon.

Permanent dentition.

Malocclusion: diagnosis and treatment.

Dental irregularities: classification as to size, form, and number.

Abnormal teeth: syphilitic, hypoplastic, supernumerary, geminated, dilacerated, deflected.

Dental Caries: etiology, prophylactic and remedial treatment.

Erosion: etiology and treatment. Atrition.

Pathological conditions of the tooth pulp: acute and chronic inflammation, ulceration, gangrene, polypus intrinsic calcification, degeneration.

Injuries to the teeth: fracture, dislocation, treatment by replantation and implantation, transplantation.

Periodontitis, acute and chronic. Exostosis, pyorrhœa alveolaris.

Alveolar abscess: etiology, pathology, and treatment.

Salivary calculus.

Neuralgia and odontalgia.

Lesions due to dental causes: nervous, muscular, trophic.

Injuries and diseases of the maxillæ: fractures, necrosis, pathology and treatment.

Diseases of temporo maxillary articulation: operative and mechanical treatment.

Diseases of the antrum: cysts and empyema, mechanical appliances for drainage.

Cleft palate and oral deformities: treatment by obturators, and vela.

Diseases of the gums: acute and chronic inflammation, hypertrophy, polypus, papilloma, stomatitis.

Morbid growths: Innocent. Cystic. Malignant. Odontomes.

OPERATIVE DENTAL SURGERY

Mr. S. H. Hey

Wednesday, at 4 p m., during the third term.

The surgery: its fittings and hygiene.

Instruments and surgical cleanliness.

Treatment of patients: time and pain-saving methods.

Uses of electric current in dental therapeutics.

Case recording.

Scaling and oral hygiene.

Prophylaxis and treatment of dental caries.

Rubber dam and other means of controlling saliva

Separating and separators.

Principles of cavity preparation.

Filling materials: characteristics and manipulation.

Special preparation of cavities for and filling with : gold and tin, cements, gutta percha, amalgam, and porcelain inlays, and the treatment of fillings with respect to contour.

Treatment of the dental pulp : its conservation and devitalization, gradual and immediate.

Root fillings.

Treatment of septic roots and alveolar abscesses.

Extractions and the casualties liable to occur.

Fractures of the jaws and their treatment.

Crowning : mechanical principles, root preparation for, construction and fixing of banded crowns and flush crowns.

Repair of crowns.

Cleft palate : obturators and treatment.

DENTAL ANATOMY AND PHYSIOLOGY

Mr. Alan Forty

Thursday at 4 p.m. during the first and second terms.

Human Anatomy

Morphology of the teeth.

The teeth as dermal appendages.

The dental tissues : Enamel, dentine, secondary dentine, cementum, tooth pulp, alveolo dental membrane, gum.

Nasmyth's membrane.

Development of the teeth.

Calcification of the dental tissues.

Development and growth of the maxillæ and mandible.

Eruption : attachment and absorption.

Comparative Anatomy.

The homologies of the teeth.

The attachment of the teeth.

Plici-dentine, vaso-dentine, osteo-dentine.

The evolution and characteristics of the mammalian dentition.

Notation of the teeth, or dental formulæ.

The development and characteristics (*in outline only*) of the teeth of vertebrata.

Pisces, Amphibia, Reptilia, Aves (Extinct).

Mammalia, Prototheria and Monotremata.

Metatheria and Marsupialia, Eutheria, Edentata, Sirenia, Cetacea, Ungulata, Rodentia, Carnivora, Insectivora, Chiroptera, Primates.

Practical Physiology and Dental Microscopy

A three months' course for dental students preparing for the Diploma in Dental Surgery, which will include Histology, Dental Microscopy, and the elements of Chemical Physiology.

DENTAL MECHANICS

Mr. Rippon

Tuesday at 4 p.m. during the third and first terms.

Making impression trays.

Obtaining impressions of the mouth in plaster of Paris, composition, gutta-percha, bees' wax.

Making and preparation of models for vulcanite and plate work.

Methods of obtaining the correct bite.

Use of articulators.

Mounting porcelain teeth.

Making bands and clasps.

Making wire for bands and springs.

Use of the various flasks for vulcanizing.

Casting metal dies and counter dies.

Swaging of gold and other metal plates.

Soldering: solders, their composition and qualities.

Making crowns: all gold, gold and porcelain, all porcelain, etc.

Bridge work, removeable and fixed.

Gum section work.

Continuous gum work.

Inlay work, gold and porcelain.

Making of regulating appliances.

The mechanical treatment of cleft palate.

The mechanical treatment of fractured jaws.

The use of the various work-room materials.

DENTAL METALLURGY[1]

Mr. Lowson

Monday and Friday at 11 a.m. during the first half of the third term (lectures).

Thursday at 2 p.m. during the first term (practical).

Physical and Chemical Properties of the metals: gold, platinum, palladium, silver, tin, antimony, mercury, lead, bismuth, zinc, cadmium, copper, aluminium, iron, nickel.

Alloys: Preparation, composition and properties.

Amalgams: Preparation and properties.

Solders: Composition and uses.

Description of blowpipes, furnaces, muffles, and their uses.

Fluxes: Purification of scrap and sweep.

Methods of testing metals and alloys. Essay of gold and silver.

Dental cements and their preparation.

N.B. The lectures will be supplemented by practical work in the laboratory.

MATERIA MEDICA

Professor Campbell Mr. J. H. Gough

In July at hours to be arranged.

The course includes the sources, preparation, physical characters, pharmacopœial combinations, tests, doses and general uses of the principal official drugs.

After each lecture a tutorial class is held in which the students are exercised in the actual recognition of the most important drugs.

1 These lectures will be given at College Road.

EVENING COURSES

Advanced Technological Courses are held in the following departments of the University:

Civil and Mechanical Engineering
Electrical Engineering
Coal Mining
Textile Industries
Tinctorial Chemistry and Dyeing
Leather Industries
Geology.

Students who have reached 22 years of age may be admitted at the discretion of the Head of the Department concerned, without examination.

So far as Leeds students are concerned the instruction given in the Evening Courses in the University is co-ordinated with the City Scheme for evening instruction in Technology, and Leeds students who are under 22 years of age will be required to produce certificates of satisfactory attendance at these preparatory City Evening Classes, or failing that, to pass an Entrance examination, or give other evidence of adequate preparation.

Those intending students who have previously been in attendance at the Central Technical School (or at other Technical Evening Schools of the City) should enrol for the University course by calling at the Central Technical School any evening (except Saturday) in the week preceding the opening of the Evening Class Session. Certificates will be given to such students, if qualified, admitting them to the University without Entrance examination on payment of the prescribed fee.

Students resident in the administrative area of the West Riding County Council, who are under 22 years of age, will be required to produce certificates of satisfactory attendance at

Technical Schools aided by the County Council, or, failing that, to pass an Entrance examination, or give other evidence of adequate preparation.

Students resident in the West Riding must make application, prior to September 1st, to the Education Department, County Hall, Wakefield, for authorisation of enrolment for the University course desired, giving full particulars of the Technical School or Schools at which they have been in attendance, the courses of instruction there followed, and examination successes gained. If qualified as hereinafter shewn, a student making such application will be furnished with a certificate authorising his enrolment for the University course, on payment of the usual fees, without sitting for the Entrance examination.

In the case of students who are under 22 years of age, other than those holding certificates from the City of Leeds and the West Riding, an entrance test will be required unless certificates of satisfactory attendance at preparatory classes are produced, or other satisfactory evidence of sufficient preliminary training is afforded.

The opening date for the Evening Class Session will be Tuesday, September 17th, 1912. The first term ends on Friday, December 20th, 1912. The second term begins on Monday, January 6th, 1913, and ends on Wednesday, March 19th, 1913. For dates of the Mining session see page 13.

The fee for the whole, or any part of a group course, is 10s. 6d., payable to the Registrar in advance.

THE ENGINEERING DEPARTMENTS

For each of the Engineering departments, Evening Class students resident in the City of Leeds who are under 22 years of age must produce certificates of satisfactory attendance at Leeds Municipal Evening Courses in Mathematics, Mechanics, and Machine Drawing for four sessions, or must

be able to furnish evidence that they have taken similar work elsewhere in a Technical Institution of a corresponding standard.

For students who cannot satisfy these tests an Entrance examination will be held in the subject which they propose to take in the University, also in Elementary Mathematics, including Algebra up to quadratic equations, Logarithms, Trigonometry up to the solution of triangles, and Geometry equivalent to Euclid, books I. and II.

West Riding students who are under 22 years of age desiring to enrol for evening group courses in any of the Engineering departments of the University, must produce evidence of satisfactory attendance and work at group courses of at least the 4th year grade in local Technical Schools, embracing at least the subjects of Mathematics, Mechanics, and Machine Drawing; or evidence that they have satisfactorily taken similar work elsewhere of a corresponding standard. Such students will, nevertheless, in accordance with the arrangements entered into between the University and the Education Authorities of the City of Leeds and the West Riding respectively, be required to attend at the Central Technical School, Leeds, for such portions of the further course of instruction desired as are shewn below to be conducted at the Technical School.

West Riding students who are under 22 years of age desiring to enrol for less than the complete evening group course indicated in the University Prospectus may receive authorisation for enrolment at the University on application to the Education Department, County Hall, Wakefield, before September 1st.

Students who have reached 22 years of age may be admitted at the discretion of the Head of the Department, without examination.

Students are strongly recommended to take up one of the group courses authorised by the Leeds City Council or the West Riding County Council before enrolling at the University.

The courses of the Leeds City Council are set out below.

West Riding students will usually commence attendance in connection with the Fifth or Sixth Year of these group courses.

CIVIL AND MECHANICAL ENGINEERING

Professor GOODMAN Mr. GILCHRIST
Mr. THOMSON Mr. DUNCAN

The evening courses are arranged to cover the work required for the examination for Associate membership of the Institution of Civil Engineers.

Enrolment of Students

Students enrolling at the Central Technical School must attend at the University on Tuesday, September 17th, or Wednesday, September 18th, at 7.30 p.m., to bring their exemption certificates.

All others who intend to become evening students must also attend at the same time in order to confer with the Head of the Department as to their training, eligibility and proposed courses of instruction, and to produce any certificates obtained either from the Board of Education or from other educational authorities.

The examinations for those who do not hold exempting certificates will be held as follows, the standard in all cases being that of the "Lower Examination," or former second stage, of the Board of Education:

Thursday, September 19th, at 7.30 p.m., Electrical Engineering.
Friday, September 20th, at 7.30 p.m., Mathematics.
Monday, September 23rd, at 7.30 p.m., Strength of Materials and Structures.
Tuesday, September 24th, at 7.30 p.m., Laboratory Courses.
Wednesday, September 25th, at 7.30 p.m., Heat Engines.

After these dates students will not be admitted unless under very exceptional circumstances.

Course a. (Mechanics.)

Year.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
Third ..		Machine Drawing. *or* on Thursday.		Mechanics, Theoretical and Practical. *or* on Tuesday.	Practical Mathematics. *or* on Wednesday.
Fourth .		Machine Drawing.	Practical Mathematics (*or* on Friday).		Applied and Practical Mechanics. *or* on Monday.
Fifth ..	Applied and Practical Mechanics.			Machine Construction. [*or* Machine Tuesday, and Mathematics	Machine Design. Drawing on Practical on Wednesday.]
Sixth .	Applied Mechanics Graphic Statics.	Testing of Materials. (University)		Machine Construction.	Machine Design.

Classes not marked "University" are taken at the Central Technical School (Leeds Institute). For particulars of these classes intending students should see the Handbook of Technical Education, which may be obtained at the City Education Department. Particulars of classes in the Third, Fourth and Fifth Year Courses, which are available in Technical Schools within the West Riding, may be obtained from the Education Department, County Hall, Wakefield.

Course b. (Prime Movers.)

Year.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
Third ..		Machine Drawing. *or* on Thursday.		Mechanics, Theoretical and Practical. *or* on Tuesday	Practical Mathematics. *or* on Wednesday.
Fourth .		Machine Drawing.	Practical Mathematics and Heat for Engineers.	Heat Engines. Stage I.	
Fifth ..		Heat Engines Laboratory Elementary. (University.)	Practical Mathematics.	Machine Construction. Heat Engines.	
Sixth ..		Heat Engines Laboratory Advanced. (University.)	Theory of Heat Engines, Steam Turbines. (University.)	Structures or Strength of Materials. (University.)	*or* Machine Design.

Classes not marked "University" are taken at the Central Technical School (Leeds Institute). For particulars of these classes intending students should see the Handbook of Technical Education, which may be obtained at the City Education Department. Particulars of classes in the Third, Fourth and Fifth Year Courses, which are available in Technical Schools within the West Riding, may be obtained from the Education Department, County Hall, Wakefield.

Course c. (Hydraulics).

Year.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
Third ..		Machine Drawing. (*or* on Thursday.)		Mechanics, Theoretical and Practical. (*or* on Tuesday.)	Practical Mathematics. (*or* on Wednesday.)
Fourth .		Machine Drawing.	Practical Mathematics (*or* on Friday).		Applied and Practical Mechanics. (*or* on Monday.)
Fifth ..	Applied and Practical Mechanics.			Machine Construction. [*or* Machine Tuesday and Mathematics o	Machine Design. Drawing on Practical n Wednesday.
Sixth ..	Applied Mechanics. Graphic Statics.	Engineering Laboratory Hydraulics. (University.)	Hydraulics Lecture. (University.)	Structures or Strength of Materials. (University.)	*or* Machine Design.

Classes not marked "University" are taken at the Central Technical School (Leeds Institute). For particulars of these classes intending students should see the Handbook of Technical Education, which may be obtained at the City Education Department. Particulars of classes in the Third, Fourth and Fifth Year Courses, which are available in Technical Schools within the West Riding, may be obtained from the Education Department, County Hall, Wakefield.

Engineering Laboratory

Mr. Mr. Duncan, and Mr. Thomson

N.B.—Only those students who have attended or are attending the corresponding Lecture Courses will be admitted to the Laboratory classes.

Courses of instruction will be given in the Engineering Laboratory, on Tuesdays, from 7.30 to 9.30 p.m., as follows:

Course A. Testing of Materials

The testing of iron, steel, alloys, &c., in tension, torsion, compression, bending, and shearing. This work is done on:

1. A 100-ton Buckton testing machine, fitted with an autographic recorder.
2. An Olsen machine of 50,000 lbs. capacity.
3. A Denison machine of 5,000 lbs. capacity.
4. Special appliances for torsion testing.
5. A Denison machine for testing the hardness of metals.

Course B. Steam, Gas, and Oil Engines
Elementary Course.

Indicating.—The high and low pressure cylinders of the 30 h.p. Fowler steam engine, and the 70 h.p. Willans' engine; Green's steam driven boiler pump: air pump of the Fowler engine; Campbell oil engine; petrol engine (by manograph); air compressor.

The mechanical efficiency of the above-mentioned plant is obtained by dynamometer brakes or other suitable apparatus.

Testing.—Simple steam engine and boiler trials; efficiency test of a Pulsometer steam pump. Trials on the oil engine, petrol engine, and De Laval steam turbine.

Advanced Course.

Complete compound engine trials with saturated and superheated steam; complete boiler trials; measurement of the flow of steam through nozzles; analysis of furnace gases and exhaust gases from the oil engine.

Course C. Hydraulics

Experiments on the flow of water over weirs and through orifices, the friction of water in pipes, the resistance of valves and obstructions, the pressure of jets on surfaces, the bursting strength of pipes, &c., by a Berry's high pressure test pump.

Tests of a Pelton wheel; a Gilkes' turbine, fitted with a Kent Venturi water meter; a 6″ × 4″ Green reciprocating pump; a Hett centrifugal pump.

A student attending laboratory classes will be held responsible for the apparatus with which he is working, and will be required to make good any damage.

Hydraulics

Mr. Thomson

Wednesdays, 7.30 to 8.30 p.m.

Pressure due to head; total pressure on immersed surfaces; centre of pressure; flow of water through orifices, over notches and weirs; time required to empty tanks through orifices and sluices.

Bernouilli's stream line law ; Venturi water meter.

Losses of head due to sudden contractions and enlargements in pipes and channels ; friction of water in pipes and channels ; pressure of jets on flat and curved surfaces ; turbines and water wheels.

Steam Turbines

Mr.

Wednesdays, from 7.30 to 8.30 p.m.

An *Elementary* course of descriptive lectures for students and others engaged in the construction and management of turbines.

Principles governing the design of steam turbines ; shape of the blades required for impulse and reaction turbines ; description of turbines with notes on construction and manufacture ; the de Laval, Curtis, Rateau, Zoelly, Riedler-Stumpf, and Parson's turbines ; steam consumption of turbines ; considerations of horse power and efficiency ; effects of superheat and vacuum ; questions of cost, weight, and dimensions of turbine units ; arrangement of governors ; steam, exhaust, and overload valves ; lubrication of turbines ; oil cooling devices ; condensers and augmentor condensers ; foundations for turbines ; whirling of shafts and critical speeds ; exhaust steam turbines ; heat accumulators ; mixed pressure turbines ; variable speed turbines ; marine turbines ; turbo-pumps and turbo-blowers ; torsion meters and their use ; the flow of steam through orifices and nozzles.

Books recommended:

FOSTER'S "Steam Turbines" (Scientific Publishing Co., 10s. 6d. net).
MORROW'S "Steam Turbine Design" (Edward Arnold, 16/- net).

The Theory of Heat Engines

Mr.

Wednesdays, from 8.30 to 9.30 p.m.

Properties of steam, work done during isothermal and adiabatic expansion of gases, the ideal steam engine with and without clearance or compression ; methods of measuring the dryness of steam before and after entering the cylinder, initial condensation, leakage past valves and pistons ; compound steam engines, combining the diagrams from a compound engine, losses in actual engines ; lagging and

jacketing of cylinders, super-heating; performance of steam engines; the Rankine cycle, Entropy-temperature diagrams.

A certain number of evenings will be devoted entirely to tutorial work.

No student will be admitted to this course unless he has done one session's work of the standard of the "Lower Examination" or former second stage of Heat Engines, Board of Education Syllabus.

Book recommended:

RIPPER'S Steam Engine Theory and Practice (Longmans, 9s.)

Structural Engineering

MR. GILCHRIST

Thursdays, from 7.30 to 8.30 p.m.

Typical Structures.—Bridges, roofs, cranes, skeleton or framed buildings, walls and dams.

Elements of Structures.—The plate web girder; methods of design with numerical examples. Arrangement of plate girders in bridges, buildings, &c. Lattice girders; types of girders and methods of calculation. Design of the flange and web members, and their joints and connections.

Continuous Girders.—Simple cases of two and three spans.

Masonry.—Properties of stone, brick, cement, concrete, &c. Principles of design of masonry structures. Reinforced concrete; beams and columns.

Advanced Class in Theory of Structures

Mr. GILCHRIST

If a sufficient number of students present themselves, an advanced course will be arranged, the course to consist of the complete study of some special branch, such as the theory of continuous girders, arches, &c.

The special subject, evening and hour of meeting will be arranged with the class.

The Strength and Elasticity of Materials

Mr. THOMSON

Thursdays, from 8.30 to 9.30 p.m.

Tensile compressive and shear stresses, modulus of elasticity, coefficient of rigidity.

Beams: Bending moments, modulus of the section, moment of inertia, shear on beams, deflection of beams, built in beams. Plate springs.

Torsion: Polar modulus of the section, for circular, square, and other sections. Spring of shafts, combined torsion and bending. Helical springs.

Columns: Euler and Gordon theories. Effect of end holding. Columns loaded eccentrically.

Book recommended:

GOODMAN'S "Mechanics Applied to Engineering" (Longmans, 9s. net).

ELECTRICAL ENGINEERING

Mr. PARR Mr. FRENCH

To meet the requirements of those who are engaged during the day, but have spare time at their disposal in the evening, there is an advanced evening course of instruction in electrical engineering. This consists of two advanced lectures (experimentally illustrated when possible) on Thursdays, beginning September 26th, from 7.15 to 8.15 p.m., and from 8.30 to 9.30 p.m., on Alternating (single- and polyphase) Current Practice. The advanced laboratory course of practical work is specially arranged with the view of assisting students in understanding the lecture work. All the work will have special reference to the electro-technological examinations of the City and Guilds of London Institute, and will practically cover the ground for Grade II Alternating Currents and the First Paper of the Final Grade of those examinations, and meet the requirements of those desirous of taking a certificate in either of the above Grades (see the City and Guilds programme).

All who intend to become evening students must attend at the University on Tuesday, September 17th, or Wednesday, September 18th, between 7.30 and 8.30 p.m., in order to confer with the Head of the Department as to their training, eligibility and proposed courses of instruction, and to produce any certificates obtained either from the Board of Education or from other educational authorities.

Dates of Entrance Examination

The Entrance Examination for those who do not hold exempting certificates will be as follows, the standard in

all cases being that of the second stage of the Board of Education:

Thursday, September 19th, at 7.30 p.m., Electrical Engineering.

Friday, September 20th, at 7.30 p.m., Mathematics.

After these dates students will not be admitted unless under very exceptional circumstances.

Course d.

(For Electrical Engineers).

Year.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
Third .	Mechanics, Practical and Theoretical.		Practical Mathematics, I.	Electricity and Magnetism (Practical and Theoretical) I.	
Fourth.	Electricity and Magnetism (Practical and Theoretical) II.	Practical Mathematics, II. Mechanical Drawing.		Electrical Engineering, I. (Practical and Theoretical)	
Fifth ..	Electrical Engineering, II. O.G. (Lecture and Drawing). Direct Current Work.	Electricity and Magnetism, Advanced III. Practical Mathematics, III.	Electrical Engineering Testing, II.		
Sixth ..		Electricity and Magnetism, III. (Optional) Practical Mathematics, III. (Optional).	Electrical Engineering Testing, III. Alternating Current Work (University).	Electrical Engineering, III. O.G. Alternating Current Work (University).	

Classes not marked "University" are taken at the Central Technical School (Leeds Institute). For particulars of these classes intending students should see the Handbook of Technical Education, which may be obtained at the City Education Department. Particulars of classes in the Third, Fourth, and Fifth Year Courses which are available in Technical Schools within the West Riding, may be obtained from the Education Department, County Hall, Wakefield.

Laboratory Course

The course of advanced practical work in the electrical engineering laboratories in connection with lecture courses consists of about 26 attendances on Wednesdays, from 7 to 9-30 p.m., commencing September 25th, at 7 p m. The course will embrace the following advanced practical work :—

Calibration of commercial ammeters, voltmeters, watt-meters and electricity supply meters, measurement of magnetic leakage in dynamos; of self-induction; of C.P. and efficiency of glow and arc lamps; efficiency of secondary cells, dynamos, and motors by well known commercial methods, and also of motor generator sets, rectifiers, and alternators; efficiency of high and low tension transformers; output and efficiency of mono-, two- and three-phase rotatory converters; insulation resistance of electric light mains and cables by works method and a Silvertown portable testing set; testing of continuous and alternating current (single-phase and polyphase) electro-motors; permeability and hysteresis of iron used in dynamos and transformers; calibration of high tension instruments; standardising ammeters by copper and silver voltameters; characteristic curves of series, shunt, and compound wound dynamos and alternators; measurement of the "true power" in single- two- and three-phase alternating current circuits. B.H.P. and efficiency of a General Electric Co.'s 500 volt 25 H.P. tramway motor, &c.

For the laboratory course, students must get Parr's Advanced Electrical Engineering Testing (Chapman & Hall, 9s. net).

Practical Work

The importance of carefully entering up the results of tests as soon after performing them as possible, cannot be too strongly urged. For this purpose, evening students who take Laboratory work must provide themselves with a good and suitable note book, preferably the one which the University supplies, and leave it, with all their experimental work fully written in up to date, for perusal and correction at definite and stated times, which will be arranged at the commencement of the course.

MINING

Mr. BOWEN Mr. MORGANS

Students who have reached 22 years of age may be admitted at the discretion of the Head of the Department without examination.

Evening students resident in the City of Leeds, who are under 22 years of age, will be required to produce certificates of satisfactory attendance at the preparatory evening courses of the Leeds City Council for at least two sessions, or to have given satisfactory attendance at the West Riding Mining Course for at least two years, or to give evidence of possessing equivalent knowledge in the subjects of Mathematics, Mechanics and English.

Students resident in the West Riding Administrative Area, who are under 22 years of age, desiring to enrol for Evening Classes in the Mining department, will be required to produce evidence of satisfactory attendance at courses of at least the 4th year grade in a Technical School or Class within the Riding, if available ; or evidence that they have taken a similar course in a Technical School elsewhere of a standard equivalent to the "Lower Examination" or former second stage, of the Board of Education, or, if no such course is available, evidence of attendance for at least two sessions at an Evening School, for a course equivalent to the preliminary Technical (Industrial) course as set forth in the Handbook of the West Riding Education Committee.

Date of Entrance Examination

For students who cannot satisfy these tests an Entrance examination will be held on Monday, September 30th, 1912, at 3 p.m.

Four Years' Coal Mining Course

This course is intended for miners and sub-officials who are occupied in or about collieries, and can only attend for one afternoon per week, but desire to qualify themselves for Managers' Certificates under the C.M.R. Act, and particularly for those who have attended complete courses of instruction in Mining at one of the local centres appointed by the West Riding County Council, or have attended the preparatory evening courses of the Leeds City Council.

The course extends over four years. The first, third and fourth year students attend on Mondays, beginning on October 7th, from 3 to 7 p.m; the second year students on Tuesdays during the same hours, beginning on October 8th. Students must call at the University office on either October 7th or 8th, between 2 and 3 p.m. to register their names and take out their class tickets. The instruction in Engineering, Electrical Engineering, and Geology will be given in the respective departments, the remaining subjects in the Mining department. In the class on Mathematics the subject will be dealt with entirely from the mining point of view, the examples being taken from mining practice. Students will be given mining data in the examples set, and will be required to copy these out into an indexed pocket-book to form a nucleus for the observations which they subsequently make as a result of their own experience. A similar mode of treatment will be adopted for the Chemistry course, the properties of matter and chemical change being illustrated as far as possible from ordinary examples to be met with at a coal mine. In addition to the course of Surveying drawing, a course of practical work in the use of surveying instruments is given during the third term. Lectures will be given in connection with the two Surveying courses as they become necessary to explain the work in hand.

The session in the Mining Department will be as follows:

Monday, October 7th to Tuesday, December 17th, 1912.
Monday, January 13th to Tuesday, March 18th, 1913.
Monday, April 28th to Tuesday, June 24th, 1913.

Syllabus

First Year	*Second Year*	*Third Year*
Mathematics	Mining	Mining
Engineering	Chemistry of Coal Mining	Electricity
Engineering Laboratory	Surveying	Electrical Engineering Laboratory
Mining	Geology	

Fourth Year

Mining
Electricity
Electrical Engineering Laboratory.

First Year Time Table

	3 to 4.	4 to 5.	5.30 to 7.
1st Term. Mon.	Mathematics.	Engineering.	Engineering Laboratory.
2nd Term. Mon.	Mining.	Mathematics.	Engineering Laboratory.
3rd Term. Mon.	Mining.	Engineering.	Engineering Laboratory.

Second Year Time Table

	3 to 4.	4 to 5.	5.30 to 7.
1st Term. Tue.	Mining.	Chemistry of Coal Mining.	Surveying, Drawing, and Calculations.
2nd Term. Tue.	Mining.	Geology.	Geological Laby.
3rd Term. Tue.	Mining	Geology.	Practical Surveying.

Third Year Time Table

	3 to 4.	4 to 5.	5.30 to 7.
Monday	Electricity.	Mining	Electrical Engineering Laboratory.

Fourth Year Time Table

	3 to 4.	4 to 5.	5.30 to 7.
Monday	Electricity.	Mining.	Electrical Engineering Laboratory.

TEXTILE INDUSTRIES

Professor BEAUMONT Mr. HOLLIS
Mr. YEWDALL Mr. LAW Mr. FARLEY
Mr. HOLLOWAY

For entrance into the Textile Evening Classes candidates under 22 years of age must show adequate knowledge in the following subjects: English, Mathematics of the standard of the former first Stage of the Board of Education examinations, Freehand or Machine Drawing of the standard of the former first Stage of the Board of Education examinations. They may, at the discretion of the Head of the department, be required to take an Entrance examination, which will be held on Tuesday, September 17th, at 7.30 p.m.

Students who have reached 22 years of age may be admitted at the discretion of the Head of the Department without examination.

Students resident in the administrative area of the West Riding, and under 22 years of age, desiring to enrol for evening classes in the Textile Department must give evidence of satisfactory attendance and work at group courses of at least the 4th year grade in a Technical School in the West Riding, if available, or evidence of having taken similar work in a Technical Institution elsewhere; if such courses are not available, evidence should be given of attendance for at least two sessions at an evening school for a course equivalent to the Preliminary Technical (Industrial) course as set forth in the Handbook of the West Riding Education Committee, or evidence of adequate knowledge in the following subjects: English, Mathematics of the standard of the former first Stage of the Board of Education's examinations, and Freehand Drawing or Machine Drawing of the standard of the former first Stage of the Board of Education's examination.

Woollen Yarn Manufacture

First Year:

Lectures, Thursdays, from 7.15 to 8.15 p.m.

Recording Experiments and Testing, Thursdays, 8.15 to 9.15 p.m.

Sketching Machine Details, alternate Wednesdays, 7.15 to 9.15 p.m.

SUBJECTS.—*Materials:* Their character, qualities, uses and relative values. Processes through which the materials are passed until ready for the cards.

Machinery: Particulars of machines for dusting, steeping, scouring, drying, carbonising and burring wool; also for the manufacture of mungo and shoddy: garnetting hard waste, and for teazing, blending, and oiling fibrous materials.

Calculations: Relating to materials and machinery.

NOTE.—Students pursuing this course may take also a class in Mechanics, theoretical and practical, on Monday evenings, at the Central Technical School (Leeds Institute).

Second Year:

Lectures, Thursdays, from 8.15 to 9.15 p.m.

Sketching Machine Details, Tuesdays, 7.15 to 9.15 p.m.

Recording Experiments and Testing, Thursdays, 7.15 to 8.15 p.m.

Experimental Spinning, Fridays, 7 to 9.30 p.m.

SUBJECTS.—*Processes:* For converting the blended materials in yarn.

Machinery: The different types of feeding mechanism, of scribbling and carding engines, condensers, of card clothing for various parts of the machines, and the variation for treating different materials, of spinning machines on the intermittent (self-actor mule), or continuous systems.

Calculations: On speeds and output, and also on results.

Worsted Yarn Manufacture

First Year:

Lectures, Fridays, from 7.15 to 8.15 p.m.

Recording Experiments and Testing, Fridays, from 8.15 to 9.15 p.m.

Sketching Machine Details, alternate Wednesdays, from 7.15 to 9.15 p.m.

SUBJECTS.—Principles underlying the construction of a typical worsted thread; the influence of materials on the character of a thread.

Processes: Preparing long and medium wools by gilling; preparing medium and short wools by carding, backwashing, combing, and finishing.

Machinery: Gill boxes; carding engines; backwashers; combing machines on various principles, &c.

Calculations: Relating to speeds, drafts, weights, &c.

For particulars of raw materials and the preliminary processes up to and including drying, students are advised to take the First Year Course in Woollen Yarn Manufacture.

NOTE.—Students pursuing this course may take also a class in Mechanics, theoretical and practical, on Monday evenings, at the Central Technical School (Leeds Institute).

Second Year:

Lectures, Fridays, from 8.15 to 9.15 p.m.

Recording Experiments and Testing, Fridays, from 7.15 to 8.15 p.m.

Sketching Machine Details, Tuesdays, from 7.15 to 9 15 p.m.

Experimental Spinning, Mondays, from 7 to 9.30 p.m.

SUBJECTS.—*Materials:* Tops, their qualities, defects, and values.

Processes: Re-combing; mixing; drawing; spinning; doubling; twisting and yarn finishing.

Machinery: The different types of drawing, spinning, doubling, and twisting frames, with particulars of setting and manipulation.

Calculations: On speeds, drafts, doublings, twists, weights and production.

Designing and Weaving

First Year:

Lectures, alternate Tuesdays, from 7.15 to 9.15 p.m.

Pattern Analysis, alternate Fridays, 7.15 to 9.15 p.m.

Design Practice and Calculations, alternate Fridays, 7.15 to 9.15 p.m.

Sketching Machine Details, alternate Tuesdays, 7.15 to 9.15 p.m.

SUBJECTS.—Designing: Principles of cloth construction, plan making, drafting, materials, yarns and settings, simple patterns due to arrangement of coloured threads.

Calculations: For woollen, worsted, cotton and union yarn, and fabrics.

Machinery: Hand looms:—treadle loom, single and double action witch machines; Power looms: the tappet loom; shedding, picking, beating-up, letting-off the warp and setting-up the cloth.

NOTE.—Students taking this course may take also a class in Mechanics, theoretical and practical, on Thursday evenings, at the Central Technical School (Leeds Institute).

Second Year:

Lectures on Designing and Weaving, Wednesdays, from 7.15 to 8.15 p.m.

Lectures on Colouring, Wednesdays, 8.15 to 9.15 p.m.

Pattern Analysis, alternate Mondays, 7.15 to 9.15 p.m.

Design Practice and Calculations, alternate Mondays, 7.15 to 9.15 p.m.

Sketching Machine Details, alternate Tuesdays, 7.15 to 9.15 p.m.

Experimental Weaving, alternate Tuesdays, 7 to 9.30 p.m.

SUBJECTS.—*Designing*: Combinations of weaves to form stripe, check, diagonal, and other patterns; also backed, imitation backed, and simple compound fabrics.

Machinery: The principal makes of power looms for woollen and worsted fabrics.

Calculations: On setting and costing fabrics, speeds of looms.

Colouring: Theories of colouring, qualities of colours, harmony and contrast, various styles of patterns produced by colours in solid colour threads, twists, marls and mixtures.

Third Year:

Lectures on Designing, Mondays, from 7.15 to 8.15 p.m.

Lectures on Colouring, Mondays, 8.15 to 9.15 p.m.

Pattern Analysis and Calculations, alternate Wednesdays, from 7.15 to 9.15 p.m.

Experimental Weaving, alternate Wednesdays, 7 to 9.30 p.m.

Experimental Weaving, Thursdays, 7 to 9.30 p.m.

SUBJECTS.—*Designing*: The principles of designing compound fabrics, including double and treble-make cloths, vestings, matelasses, rugs, shawls, velvets, gauzes, and plushes.

Colouring: Application of colour to compound cloths.

Machinery: Shuttle box motions and pattern chain making, the Jacquard or harness loom.

The looms for the use of Third Year students are mounted to weave backed and double-make textures for trouserings, suitings and mantlings, also for Jacquard patterns in dress fabrics, vestings, rugs and shawls.

Students may devote themselves to any special branch of manufacture in which they are principally interested, and every facility is afforded them in original work.

DYEING

Professor GREEN

Mr. FRANK Mr. WOODHEAD

The courses of instruction will consist of Lectures and Laboratory Work and are intended to meet the requirements of practical men, foremen dyers, and apprentices, as well as

for students intending to take the City and Guilds examinations in dyeing. When possible students should also attend a class in Organic Chemistry at the Central Technical School or elsewhere.

Students who have reached 22 years of age may be admitted at the discretion of the Head of the Department without examination.

Students resident in the City of Leeds who are under 22 years of age, will be required to produce certificates of satisfactory attendance at the Central Technical School upon the third year's work of the group course arranged for students of Dyeing, or failing that, to pass an entrance examination, or give other evidence of adequate preparation.

Students resident in the Administrative Area of the West Riding, who are under 22 years of age, are required to produce certificates of satisfactory attendance at courses up to at least the 4th year's grade (including Organic Chemistry) in a Technical School aided by the County Council, or to furnish evidence that they have taken work elsewhere to a corresponding standard.

Other students under 22 years of age must give evidence of possessing equivalent knowledge in the subject of Chemistry, or may be required to pass an entrance examination which will be held at a date to be fixed by the Head of the Department.

Lecture Course

A course of twenty-six lectures on the Technology of the Textile Fibres, Dyeing and Dyeing Materials will be given on Mondays from 7 to 8 p.m., beginning on September 23rd, 1912.

(*a*) *Textile Fibres.*—Wool, mohair, silk and artificial silks, cotton, ramie, linen, jute and hemp. Properties of the various fibres, identification and estimation in mixtures. Scouring, bleaching, weighting of silks, chlorination of wool, carbonising, mercerising, methods of treatment to resist dyeing and to increase dyeing properties, mordants, mordanting assistants, detection and remedying of faults in textiles, shoddy and its recognition, &c.

(*b*) *Dyeing.*—Colour, fading of colours, matching of shades, machinery used in dyeing, application to different fibres of the various classes of dyestuffs, basic, acid, salt, mordant, acid mordant, vat, sulphide dyes, logwood, fustic, indigo, turkey red, para red, aniline black and cutch. Shoddy and union dyeing, testing and detection of dyes on the fibre. Relative fastness to milling, washing, light, cross-dyeing, carbonising, stoveing, &c.

Experimental Dyeing Course

This class is held on Mondays, between 8 and 10 p.m. beginning on September 23rd, 1912. It is intended for apprentice and foremen dyers, or others engaged in practical work during the day, and will also be found useful for all those who in their daily business handle dyed materials or who are otherwise interested in the dyeing industry. No previous knowledge of dyeing is demanded from those attending.

First Year.—Students in this class will make systematic dyeing trials on wool with the different groups of natural and artificial dyestuffs and study the effect of different assistants and mordants.

Second Year.—The work will comprise dyeing trials upon cotton unions and shoddy, shade matching (using a Dalite-lamp), valuation of dyestuffs, analysis of dyers' materials and the identification of dyestuffs on the fibre.

Special courses are arranged for students desiring to investigate any particular branch of work.

LEATHER INDUSTRIES

Professor PROCTER

Dr. STIASNY Mr. BRUMWELL

Evening Class students resident in the City of Leeds, who are under 22 years of age, must produce certificates of satisfactory attendance at the third year's work of the group course arranged for students of Leather Industries.

Students resident in the Administrative Area of the West Riding, who are under 22 years of age, desiring to enrol at the University for evening courses in Leather Industries, are required to furnish evidence of satisfactory attendance at courses of at least the 4th year's grade (including Organic Chemistry) in a Technical School aided by the County Council, or evidence that they have taken similar work elsewhere of a corresponding standard.

Other students must give evidence of possessing equivalent knowledge in the subject of Chemistry, or may be required to pass an Entrance examination which will be held at a date to be fixed by the Head of the Department.

Students desiring to take Analytical lectures and laboratory work must have passed through Chemistry of the Fourth year course at the Central Technical School, or must have otherwise attained the necessary practical knowledge of Chemical Analysis.

†A practical class will be held from 6.45 to 9.45 p.m. in the laboratories of the Leather Department, on Tuesdays, for the analytical investigation of the various materials employed in leather manufacture.

Courses of lectures will be given on Wednesdays, from 7 to 8 p.m., by Mr. Brumwell, on †"Analytical Chemistry of Leather Manufacture," in conjunction with the Tuesday class, and by Dr. Stiasny from 8 to 9.30 p m., on "Practical Leather Manufacture" including practical demonstrations. The lectures on Leather Manufacture will include the following subjects:

The tanning and currying of heavy leathers, especially sole, harness and belting leathers; comparison of English and Continental methods; sulphur tannage; chrome and combination tannage of heavy leathers; the theory and practice of chrome and combination tannages; the practical demonstrations on dyeing of different kinds of light leather.

The opening lecture will be on Wednesday, September 25, 1912, and the practical class will begin on Tuesday, September 24, 1912.

† These classses, which are arranged by the City Education Authority, were given at the Central Technical School, but are now, for greater convenience, given at the University.

For further information on these courses application should be made to the Central Technical School for special pamphlets.

GEOLOGY

Professor KENDALL

Geology applied to Sanitary and Civil Engineering

About fifteen lectures on Mondays, at 5 p.m., beginning January 13, 1913.

SYLLABUS. Stratified rocks, their mode of origin and physical peculiarities. Forms of stratification, folds, joints, and faults.

General succession and lithological characters of the stratified rocks.

The origin and distribution of the drift deposits.

British rainfall, its measurement and variations. The destination of this water. Evaporation, discharge by rivers and percolation, how they are proportioned and upon what conditions they depend. The mode and rate of percolation of underground water. The water-bearing capacity of sandstones and limestones. How water is stored in these rocks.

The principal water-bearing strata of Britain, and the character of the supplies which they yield. Some detailed examples of the supply of water from deep wells.

The application of geological knowledge to selection of sites for bridges, roads, tunnels, puddle-trenches, sewage-farms, &c.

Fee, 10s. 6d.

EXTENSION LECTURES

I. INTRODUCTION

The University of Leeds is prepared to supplement the academic work carried on within its walls by instituting courses of Extension Lectures for those who are unable to attend the classes held in the University itself. With this end in view, it has secured the services of members of its staff who have had experience as teachers, and whose subjects are most likely to prove of interest to University Extension audiences. It has also added to its list of Extension Lecturers the names of scholars who are not members of the University staff, but who have made a special study of subjects of higher education suitable for Extension courses. The aim which the University sets before itself in providing such courses is to arouse and stimulate the interest of its audiences in what is best in art and thought and life, and to bring them into touch with the advance of science, and with some of the practical issues of modern life.

The University has placed the general control of the arrangements for Extension Lectures in the hands of a Committee, the University Extension and Tutorial Classes Committee, to the Secretary of which all letters should be addressed.

II. GENERAL ARRANGEMENTS

Before the University can undertake to provide for the delivery of a course of Lectures in any particular locality, the following steps must be taken :—

1. A Local Committee must be appointed. Such Committee may be—
   (*a*) A Committee specially appointed for this purpose ;
   (*b*) A public body, such as the Education Committee of a County or County Borough, the Education Committee of a Co-operative Society or Trades Union Council, the Committee of a Public Library or of some other organised institution.

2. A fund sufficient to cover the University charges must be guaranteed by the Local Committee.

The Honorary Secretary of the University Committee will be glad to furnish assistance in the organisation of a course in any locality, and when the above steps have been taken, he will place the Local Committee in direct communication with the Lecturer of any of the courses given below.

Arrangements can then be made with the Lecturer as to the dates and hours at which the lectures shall be delivered.

III. LECTURE COURSES

The following courses of University Extension Lectures can be provided :—

Sessional Courses ...	Twenty to twenty-four lectures.
Terminal Courses ...	Ten to twelve lectures.
Semi-terminal Courses	Not less than five lectures.
Pioneer Courses ...	Not more than four lectures.

Lectures are given either in successive or alternate weeks, usually in the first and second terms (October—March). Each lecture lasts, as a rule, about an hour, and is followed, or preceded, by a class. The holding of the class is a matter of great importance, the object being to give opportunity for a fuller discussion of the matter contained in the lectures, and to bring the lecturer into closer touch with his audience. Questions bearing on the lectures are also set by the lecturer; the written answers to such questions must be sent to the lecturer by post, and will then be corrected by him and returned at the following class. In connection with some of the lecture courses, arrangements will be made to supplement the lecture and class by excursions of an educational character.

Students will not be admitted to the certificate examinations held at the end of the course, unless they have attended at least three-fourths of the lectures and classes, and have satisfied the lecturer with their written work. (Attendance sheets are furnished to Local Secretaries by the University.) All candidates for certificate examinations must have reached the age of fifteen years.

IV. EXAMINATIONS AND CERTIFICATES

At the conclusion of a sessional or terminal course of lectures the University of Leeds shall appoint an Examiner, who shall not be the Lecturer, to examine those students who, having fulfilled the above-mentioned requirements for entrance to the examination, desire to compete for a certificate. The Secretary of the University Committee, on receiving information from the Local Committee that an examination is required, will forward to the Local Secretary full instructions for the conduct of such examination.

Students who pass the examination held on the conclusion of a sessional course shall be awarded a sessional certificate; those who pass the examination held on the conclusion of a terminal course shall be awarded a terminal certificate.

No certificate shall be awarded on a course of less than ten lectures; but, if desired, an examination may be held at the conclusion of a semi-terminal course; the examiner's report on such an examination would in all cases be submitted to the Local Committee.

Candidates may be awarded, after examination, the terminal certificate on the work of two semi-terminal courses, provided that

(i.) The courses shall have been given in educational sequence, and in successive terms of the same session;

(ii.) The candidate shall, in the intervening period, have undertaken a course of connecting study approved by the lecturer.

In all awards of certificates, weight will be given to the weekly papers as well as to the final examination.

V. MANAGEMENT OF EXAMINATIONS

1. The examination shall be held as soon as convenient after the close of the course of lectures.

2. When an examination is desired, the Local Committee shall communicate with the Secretary of the University Committee at least twenty-one days before the date proposed for the examination, and shall state (approximately) the number of candidates. A special form is issued on

which the details of the examination are to be entered. After the hour or date of the examination has been confirmed by the University Secretary, no change can be permitted without his further sanction.

3. The examination shall be conducted by means of printed papers, and shall be of three hours' duration.

4. The Local Committee are required to make arrangements for a suitable room for the examination, to appoint a qualified Supervisor or Supervisors, and to provide the necessary materials.

5. The Secretary of the Local Committee will receive from the University Secretary the examination-papers, and will be responsible for their safe custody.

The packets of papers must not be opened until the commencement of the examination, or in any other place than the examination-room.

A form (Form A) on which the names of the candidates are to be entered, and a copy of Regulations for the Conduct of Examinations, will be forwarded with the examination-papers.

6. The Supervisor (or one of the Supervisors) must be present during the whole time of examination, and will be responsible for giving out the examination-papers, for preserving silence, for securing that there shall be no copying, from books or otherwise, on the part of any of the students, for collecting the papers when the allowed time has expired, and generally for the examination being conducted in an orderly manner.

7. At the completion of the examination, the Supervisor or Local Secretary shall, without delay, send

(i.) The candidates' answers,
(ii.) Copies of the examination-paper, and
(iii.) Form A properly filled up,

by registered post, to the Honorary Secretary of the University Extension and Tutorial Classes Committee, The University, Leeds, or to some other person named by the Secretary.

8. The Examiner shall send to the University Secretary a copy of the examination list, signed by himself, together with a report on the results of the examination. The list shall include the names of all candidates who entered for the examination, whether successful or not.

9. The University Secretary will send a list of the names of successful candidates, arranged in alphabetical order, to the Secretary of the Local Committee. An asterisk will be placed opposite the names of any candidates who pass the examination with distinction.

VI. FEES

1. University Fees for Lecture Courses

The scale of charges is as follows:—

(*a*) For each pioneer lecture, or lecture in a pioneer course	3 guineas.
(*b*) For a course of 5 lectures, with class and paper work	18 ,,
For a course of 6 lectures, with class and paper work	21 ,,
For a course of 8 lectures, with class and paper work	26 ,,
For a course of 10 lectures, with class and paper work	31 ,,
For a course of 12 lectures, with class and paper work	36 ,,
For a course of 24 lectures, with class and paper work	71 ,,

Certain courses illustrated by experiments, and marked with an asterisk in the list of courses given on pp. 9-17 of this prospectus, will be charged on a higher scale.

2. Examination Fees

The fees for examination (including the cost of certificates or printed lists) are as follows:—

For the examination of 21 candidates or any lesser number	Two guineas.
For each additional candidate up to 40	Two shillings.
,, ,, ,, beyond 40	One shilling.

VII. OTHER EXPENSES

The Local Committee defrays the travelling expenses of the lecturer, together with all expenses incurred in the illustration of the lectures by means of experiments, lantern slides, etc. The Local Committee also defrays all incidental expenses, such as hire of hall, lighting, attendance, and advertising.

VIII. SYLLABUSES

The ground to be covered by the lectures, and the mode of treatment adopted, will be indicated by a Syllabus, published at the commencement of the course. The Syllabus will contain lists of books recommended, and the lecturer will give advice as to the choice of books and method of study. (See also the section on Travelling Libraries below.) Notice of the number of Syllabuses required must be sent to the Honorary Secretary as early as possible.

IX. TRAVELLING LIBRARIES

Travelling Libraries are issued by the University, in connection with courses of University Extension Lectures, under the following regulations :—

1. Each Library contains a selection of books, chosen by the lecturer as the most suitable to be studied for the course concerned.

2. Any Committee desiring the use of a Library for a course of University Extension Lectures must make application to the Honorary Secretary of the University Extension and Tutorial Classes Committee, The University, Leeds, *as early as possible before the commencement of the course.*

3. The Libraries are the property of the University, and are placed by them in the hands of the Local Committees, who are held responsible for their care, and are required to replace any volume or volumes that may be damaged or lost whilst the books are in their charge.

4. The fee for the loan of each Ordinary Library is half-a-guinea.

FELLOWSHIPS, SCHOLARSHIPS, EXHIBITIONS, BURSARIES, FREE STUDENTSHIPS, AND PRIZES

GENERAL REGULATIONS

Applicable to all Scholarships

1. No election to a Scholarship will take place unless the candidate has attained a sufficient standard of merit.

2. All Scholarships are held subject to the good behaviour of the Scholar. The Council reserves the power to determine the tenure of a Scholarship for the Scholar's irregularity in attendance at lectures, or for any other sufficient cause. A Scholar who fails in any University examination for which he prepares in the University, or who is reported unsatisfactory in the aggregate of his terminal examinations during the session, will forfeit his Scholarship, unless his retention of it be specially recommended by the Senate.

3. Scholars are required to devote the whole of their time to their studies. Except in special cases, the undertaking by a Scholar of outside work, such as teaching, or the acceptance of any post of profit outside the University will involve surrender of the Scholarship, unless such work be undertaken with the sanction of the Vice-Chancellor. The Clothworkers' Scholars and others preparing for any profession or trade, the principles of which are taught in the University, will be granted special exemption from this rule if the Senate is satisfied that an adequate cause has been shown for such exemption, and approves the arrangement proposed in each particular case.

4. The Senate reserves power to declare any Scholarship or Exhibition vacant or to reduce its value on the ground that the Scholar has previously or subsequent to his election acquired another Scholarship. In cases where students hold

Scholarships the aggregate value of which amounts to more than £75, the Senate reserves power to reduce them to this sum.

5. Scholars who are preparing for University degrees are required to present themselves for the degree examinations of the University of Leeds, and are not allowed (except by the special permission of the Senate) to present themselves for the examinations of any other University.

Applicable to Entrance Scholarships

6. Candidates for an Entrance Scholarship may be required to undergo a *vivâ voce* examination, in addition to the examination by written papers.

Applicable to Scholarships awarded at Matriculation

7. The University does not charge any fee to candidates who present themselves at the Matriculation examination *as Scholarship candidates only* and who do not require any certificate of having passed the examination for Matriculation purposes.

8. Those who are candidates for Matriculation as well as for Scholarships must conform to the Regulations of the Joint Matriculation Board as to filling up the prescribed entrance form and paying the Matriculation fee of £2.

9. In certain cases (see Regulations for the separate Scholarships), successful candidates are required to pursue degree courses in the University as a condition of the tenure of their Scholarships. Should such candidates not have paid the Matriculation fee of £2 prior to the examination they will be required to pay it before entrance at the University. On payment of it they will be entitled to Matriculation certificates.

10. Candidates who have passed, or obtained exemption from, the Matriculation examination in one year, and who are prepared to present themselves in the following year for only such Higher Papers as qualify for Scholarships, have permission to so present themselves, and are deemed eligible for such Scholarships.

ENTRANCE SCHOLARSHIPS

Tenable at Day Classes.

The latest date of Entry for Entrance Scholarships is May 1st, after which no application will be received.

The following Entrance Scholarships, tenable from October, 1913, at day classes in the University of Leeds, will be offered for competition to candidates who have not been registered students of the University, and who will be not less than 16 years of age on October 1st, 1913. Attendances on University classes or laboratories not exceeding three hours a week in any session will not be held to preclude a student from becoming a candidate for an Entrance Scholarship under this regulation.

(*a*) Awarded on Results of Matriculation Examination.

Name of Scholarship	Number Offered.	Annual value of each.	Periods for which tenable.	Departments in which tenable.
Emsley	One ..	£20	2 years	Arts, Sci., Tech, exc. Text.
Edward Baines ..	One ..	£20	2 years	Arts, Sci., Tech, exc. Text.
Charles Wheatley ..	One ..	£25	3 years	Arts.
William Summers ..	One ..	£35	3 years	Arts.
Brown	One ..	£40	2 years and renewable	Science, Tech.
Akroyd	Two ..	£40	2 years and renewable	Science, Tech.
Medical	One ..	Fees for co	mplete course.	Medicine.
Craven	One ..	£25	3 years	Tech. (Engineering.)

(*b*) Awarded by Special Examination.

William Cooke & Co.	One ..	£21	2 years	Tech. (Mining)

The Matriculation Examination.

The Matriculation Examination to which reference is made in the following Regulations is that conducted by the

Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds and Sheffield. The next Examination will be held in July, 1913.

A Syllabus of the Examination may be obtained on application to the Secretary, Joint Matriculation Board, 24, Dover Street, Oxford Road, Manchester, to whom the fee, and the entry form for the Examination duly filled up, must be sent direct before May 24th.

Candidates for entrance to the Faculties *other than the Faculty of Medicine* presenting themselves for the Matriculation examination are required to enter for and satisfy the Examiners in six subjects :—

(1) English Language and Literature

(2) English History

(3) Mathematics

(4) *Three* of the following, *one* of which must be a language :—

- (i.) Greek
- (ii.) Latin
- (iii.) French
- (iv.) German
- (v.) Some other Language approved by the Board
- (vi.) *Either* Mechanics *or* Physics
- (vii.) Chemistry
- (viii.) Geography (Physical, Political, and Commercial)
- (ix.) *Either* Natural History (Plants and Animals) *or* Botany

Alternative papers of a higher standard are set *at the July examination only* in English Literature, English History, Mathematics, Greek, Latin, French, German, Physics or Applied Mathematics, Chemistry, and *either* Natural History *or* Botany.

For students entering the Faculty of Medicine, Latin and one other language must be taken.

(a) Awarded on Results of Matriculation Examination

1. Tenable in the Faculties of Arts, Science, and Technology

Emsley Scholarship

This Scholarship was endowed in 1886 by the late Thomas Emsley, Esq., of Burley-in-Wharfedale, who bequeathed £1,000 for the purpose of founding one or more Scholarships in the Yorkshire College.

Candidates for this Scholarship must not have been previously registered students of the University, and must be under the age of nineteen years on the 30th of September following the date of examination. Attendance on University classes or laboratories not exceeding three hours per week in any session will not be held to preclude a student from becoming a candidate for this Scholarship under this regulation.

There will, as a rule, be offered one Scholarship annually, of the value of £20, tenable for two years.

The Scholar will be required to pursue a course of study prescribed for a degree in Arts, Science or Law of the University, or an alternative course in the Faculties of Arts, Science, or Technology, expressly approved by the Senate.

The Scholarship is not tenable in the Department of Textile Industries.

This Scholarship is now awarded on the results of the July Matriculation examination. *Candidates are required to take higher papers in two subjects at this examination, at their own choice.* Applications from candidates for these Scholarships on the prescribed forms which are obtainable from the Office of the University must be sent to the Clerk to the Senate not later than May 1st, after which date no application will be received.

1887	Croft, Emily	1892	Jackson, Edwin
1888	Houfton, Ernest Henry	1893	Bell, Ambrose John
1889	Hurst, Thomas Ockerby	1894	Barley, Bunten Archibald Hurd
1890	Byles, William Esdaile		
1891	Oyston, William Fletcher	1895	Corrie, William Edward

1896	Christien, Alfred Eustace	1905	Leslie, May Sybil
1897	Oddy, Annie Maude	1906	Wigglesworth, Frank
1898	Hunt, Arthur Douglas	1907	Claridge, Marjorie Muriel
1899	Robinson, Ethel Margaret	1908	Wilkinson, Eric Fitzwater
1900	Findlay, George Hindson	1909	No award
1901	Landman, Samuel	1910	Wurzal, Joseph
1902	Conyers, Hilda	1911	Richardson, Herbert
1903	Bibby, Edward Ernest	1912	Clayton-Booth, Ethel Jane
1904	Brook, Annie		Driver, Constance Jennie

Edward Baines Scholarship

The Edward Baines Scholarships, founded in 1885, are established by the University in consideration of the sum of £3,000 which was raised to commemorate the public services of the late Sir Edward Baines. One-half of the sum annually devoted to this purpose is awarded by the University in the form of a Scholarship tenable by candidates who have attended a Public Elementary School within the City of Leeds; the other half is awarded in the form of a Scholarship by the Yorkshire Union of Institutes. For full particulars of the latter Scholarship see Scholarships Prospectus.

Candidates for the Edward Baines Scholarship must not have been previously registered students of the University, and must be under the age of nineteen years on the 30th of September following the date of examination. Attendance on University classes or laboratories not exceeding three hours per week in any session will not be held to preclude a student from becoming a candidate for this Scholarship under this regulation. They must have attended a Public Elementary School in the City of Leeds, and must state the name of such School on the prescribed form of application.

There will be offered in each year one Scholarship, of the value of £20 a year, tenable for two years.

The Scholars will be required to pursue a course of study prescribed for a degree in Arts, Science or Law of the University, or an alternative course in the Faculties of Arts, Science, or Technology, expressly approved by the Senate.

The Scholarship is not tenable in the Department of Textile Industries.

This Scholarship is now awarded on the results of the July Matriculation examination. *Candidates are required to take higher papers in two subjects at this examination, at their own choice.* Applications from candidates for these Scholarships on the prescribed forms which are obtainable from the Office of the University must be sent to the Clerk to the Senate not later than May 1st, after which date no application will be received.

1886	Hutchinson, Herbert
1888	Legg, Thomas Percy
1891	Dawson, Harry Medforth
1892	Parker, George Robert
1894	Hampshire, Florence Elizabeth
1895	Warmington, Edith
1896	Scholes, Thomas Wilfrid
1897	Westerman, Ethel
1898	Stevenson, Ethel Mary
1899	Savage, Hilda
1900	McKeand, Maggie Woodrow
1901	Calam, Harold
1902	Robinson, Lilian Dorothea
1903	Wilson, Florence Grey
1904	Hargreaves, Edith
1905	Christie, John Hugh
1906	Marsh, Frank Salton
1907	Guy, Ernest
1908	Dawes, Ivy Emily
1909	Stephenson, Cyril Richard William
1910	Mawson, Constance
1911	Webster, Fred
1912	Kirkwood, Winifred

2. Tenable in the Faculty of Arts

Charles Wheatley Scholarship

This Scholarship was established by the University in 1903, in consideration of the sum of £1,500 given by the Misses Robinson of Mirfield and Mrs. Steele of Kettering, in memory of the late Charles Wheatley, Esq., of Mirfield. In case of equality of candidates, a preference is to be given to residents in Mirfield.

Candidates for this Scholarship must not have been previously registered students of the University, and must be under the age of nineteen years on the 30th of September following the date of examination. Attendance on University classes or laboratories not exceeding three hours per week in any session will not be held to preclude a student from becoming a candidate for this Scholarship under this regulation.

The Scholarship is of the annual value of £25, tenable for three years, and will be awarded as often as the funds at the disposal of the Trust admit.

The Scholar elected will be required to pursue a course of study at the University preparatory for the B.A. or LL.B. degree of the University.

This Scholarship is now awarded on the results of the July Matriculation examination. *Candidates are required to offer in this examination at least two languages, whether at the ordinary or at the higher standard, and to take higher papers in two subjects chosen from English Literature, English History, Greek, Latin, French, and German.* Applications from candidates for these Scholarships on the prescribed forms which are obtainable from the Office of the University must be sent to the Clerk to the Senate not later than May 1st, after which date no application will be received.

1904	Scholes, Katherine Louise	1910	Greenwood, Josemée Marguerite
1905	Frank, Dorothea Ethel		
1906	Batchelor, Edith	1911	No award
1908	Redfearn, Florence Mary	1912	No award
1909	Cass, Muriel		

William Summers Scholarship

This Scholarship was founded by Mr. and Mrs. Buckley, of Ryecroft Hall, Audenshaw, near Manchester, in memory of William Summers, Esq., late M.P. for Huddersfield, and for many years a member of the Court of the Victoria University.

Candidates for this Scholarship must have been resident in the Parliamentary Borough of Huddersfield during one full year previous to the 1st of June of the year in which they compete, or must have attended a public school in the said Borough for the same period.

The Scholarship is of the annual value of £35, and is tenable for three years. Any accumulations of the Scholarship Fund will be expended by the Council as it may from time to time determine in prizes or exhibitions for candidates who shall have acquitted themselves sufficiently well in the examination without having obtained the Scholarship.

The successful candidate shall be required to pursue in the University of Leeds a regular course of study in one

of the following Honours Schools: (1) Classics; (2) English Language and Literature; (3) Modern Languages and Literatures; (4) History; (5) Philosophy; or any other Honours School in the Faculty of Arts approved by the Senate. Such course shall be commenced in the October next after election to the Scholarship.

The Scholarship is awarded on the results of the July Matriculation examination. *Candidates are required to offer in this examination at least two languages, whether at the ordinary or at the higher standard, and to take higher papers in two subjects chosen from English Literature, English History, Greek, Latin, French, and German.* Applications from candidates for these Scholarships on the prescribed forms which are obtainable from the Office of the University must be sent to the Clerk to the Senate not later than May 1st, after which date no application will be received.

1905	Hirst, John Crosland	1909	No award
1906	Dearnley, Charles	1910	No award
1907	Hobson, Julia	1911	No award
1908	Carter, John Wilfrid	1912	No award

3. Tenable in the Faculties of Science and Technology

Brown Scholarships

These Scholarships were endowed in 1877 by the late Henry Brown, Esq., of Bradford and Rawdon, who bequeathed £5,000 to the Yorkshire College for the purpose of founding five or more Scholarships to be called the Brown Scholarships, for students attending the said College and receiving instruction in the various branches of those Sciences which are applicable to the Industrial Arts.

Candidates for these Scholarships must not have been previously registered students of the University, and must be under the age of nineteen years on the 30th of September following the date of examination. Attendance on University classes or laboratories not exceeding three hours per week in any session will not be held to preclude a student from becoming a candidate for this Scholarship under this regulation.

In general there will be offered in each year one or two Scholarships of £40 a year, each tenable for two years, with power of extension. Applications for extension must be sent to the Clerk to the Senate before the end of the second term.

A preference will be given, *cæteris paribus*, to candidates who have declared their intention of entering some industry, instruction in the principles of which is given in the University, or of engaging in the teaching of Science. In the case of equality of candidates, a preference will be given to residents in Bradford or natives of Bradford.

Brown Scholars will be required to pursue a course of scientific or technical study which will qualify for a degree in Science, or for a diploma of the University, or otherwise to devote themselves, in a manner approved by the Senate, to the study of one or more branches of pure or applied science taught in the University.

Brown Scholarships are not tenable by students who propose to enter, or who have already entered, on courses of study in the Faculty of Medicine, unless they are reading for the B.Sc. degree of the University of Leeds. They are now awarded on the results of the July Matriculation examination. *Candidates are required to take in this examination higher papers in two subjects, of which one must be Physics or Chemistry.* Applications from candidates for these Scholarships on the prescribed forms which are obtainable from the Office of the University must be sent to the Clerk to the Senate not later than May 1st, after which date no application will be received.

1880	Senior, William Otte
	Skirrow, Benjamin Beck
1881	Overend, Wilkinson
	Easterfield, Thomas Hill
1882	Courtice, George Robert
	Aulton
1883	Teanby, George William
	Alvey
1885	Marriner, William Wright
1886	Jennison, Francis Herbert
1887	Hartley, Thomas
1888	Mann, Harold Hart
	Parkin, Ernest
1889	Smith, James Cowlishaw
	Cobb, John William
1890	Crouch, John Peachey
	Norman, Frank Meade
	Peatfield, Albert Edward
1891	Dewhirst, Wilfrid Arthur
	Liversidge, Will
	French, James Wilson
	Duncan, John
1892	White, Arthur Lee
	Barber, John Watson
	Conyers, James Reeve
1893	Chapman, Harold Percy

1894	Dalton, John Edwin	1902	Armes, Henry Percy
1895	Leach, Elsie		Crosland, Percy Field
	Robinson, Elizabeth Clare		Lord, William Ernest
1896	Blackburn, William	1903	Hodsman, Henry James
	Broughton	1904	McGill, Ernest Arthur
	Hinchcliff, Joseph Henry	1905	Barker, Christopher James
1897	Forsyth, Christina Brand		Watson, James Arthur
	Hunt, Francis William	1906	Wood, George
1898	Hummel, Alfred Roland	1907	[1]Lee, Elsie
	Ure	1908	[2]Atkin, William Rearden
	Lodge, Harry Livingstone	1909	[1]Stocks, Herbert Holroyd
1899	Goodson, Ethel Elizabeth	1910	Seville, Robert Ockleston
	Grimshaw, Norman	1911	Lunn, Reginald William
1900	Gough, Alfred	1912	Chapman, Robert Edward
1901	Booth, Meyrick		

Akroyd Scholarships

These Scholarships, founded in 1875, are maintained by funds accruing from the Akroyd Trust, and are intended for the encouragement of the study of Natural Science.

Candidates for these Scholarships must not have been previously registered students of the University, and must be under the age of nineteen years on the 30th of September following the date of examination. Attendance on University classes or laboratories not exceeding three hours per week in any session will not be held to preclude a student from becoming a candidate for this Scholarship under this regulation.

In general there will be offered in each year one or two Scholarships of £40 a year, each tenable for two years, with power of extension. Applications for extension must be sent to the Clerk to the Senate before the end of the second term.

Women are not eligible for the Akroyd Scholarship.

Akroyd Scholars will be required to pursue such a course of study in the Faculties of Science and Technology, as shall, in the opinion of the Senate, constitute an effective preparation for a degree in Science or for a scientific calling.

Akroyd Scholarships are not tenable by students who propose to enter, or who have already entered, on a course of study in the Faculty of Medicine, unless they are reading for the B.Sc. degree of the University of Leeds.

These Scholarships are now awarded on the results of the July Matriculation examination. *Candidates are required to*

1 Renewed for a third year. 2 Renewed for a fourth year.

take in this examination higher papers in two subjects, of which one must be Physics or Chemistry. Applications from candidates for these Scholarships on the prescribed forms which are obtainable from the Office of the University must be sent to the Clerk to the Senate not later than May 1st, after which date no application will be received.

1877	Bothamley, Charles Herbert	1891	Holt, John Lupton
1878	Briggs, William		Halliwell, Edward
	Ingle, Herbert	1892	Turton, Edward
1879	Wilson, Albert Edward		Brown, James Herbert
	Atkinson, Thomas Francis	1893	Gough, William
1880	Stables, William Herbert	1894	Calvert, Harry Thornton
1881	Taylor, Arthur	1895	Groocock, Henry Lloyd
1882	Wright, Joseph		Robinson, Harold
	Allen, Harold Newman	1896	Shepherd, Arthur Burton
	Hurtley, William Holdsworth	1897	Middlemiss, James Ernest
	Wright, George Ward	1898	Livesey, Charles Edwin Leonard
1883	Dibb, John Hustwick		
	Speak, Savannah Johnson	1899	White, Herbert Leslie
1883	Tucker, Clara	1900	Scholefield, Fred
	Hick, Herbert Edward		Willey, Edward
	Wilson, Edwin	1901	Radcliffe, Norman Brooke
1884	Fry, Ernest Bickersteth		Zortman, Israel Hyman
	Moore, Ira	1902	Brown, John Duncan
	Wheelwright, Edwin Whitfield	1903	Hollins, Cecil
			Harris, Marks Solomon
	Pocklington, Henry Cabourn	1903	Horsfall, Ronald Smith
	Thompson, George Robert	1904	Davies, Hamilton
	Booth, Robert Davis		Sinson, Israel Lewis
1885	Duncan, William	1905	Jenkins, Gilbert Ramsden
	Watmough, Benjamin		Marshall, Francis
	Dains, Herbert Henry		Riley, Frank
1886	Hunt, Tom Harold	1906	[2]Dudley, Harold Ward
	Ives, James Percy		Hurst, Frank
	Sykes, Ernest	1907	[2]Rawling, Francis George
1887	Holmes, Harry Slater		[1]Varley, Gilbert
	Booth, Frederick William	1908	[2]Pearson, William
	Horrell, Ernest Charles		[2]Staveley, John
1888	Miall, Stephen	1909	[1]Rawling, Arthur
	Nicholls, Percy		[1]Taylor, Ernest
	Myers, John Ellis	1910	Douglas, Frank
	Sowry, George Herbert		Hartley, John Alfred
1889	Porter, John Fletcher	1911	Gibson, Wilfrid
	Sunderland, Arthur		Harrap, Frank Nettleton
	Acott, Richard Harry	1912	Hanby, Thomas
1889	Midgley, Harry		Mountford, Christopher Archibald
1890	Mitchell, Clifford		
	Archdeacon, William Henry		

1 Renewed for a third year. 2 Renewed for a fourth year.

4. Tenable in the Faculty of Technology

Craven Scholarship

This Scholarship was established in the year 1887, by a number of the Engineers of Leeds, in recognition of the services rendered by the late Joseph Craven, Esq., to the Mechanical Engineering trades of the district.

Candidates for this Scholarship must not have been previously registered students of the University and must be under the age of nineteen years on the 30th of September following the date of examination. Attendance on University classes or laboratories not exceeding three hours per week in any session will not be held to preclude a student from becoming a candidate for this Scholarship under this regulation.

The Scholarship will be awarded triennially to the Engineering student who, having passed the Matriculation examination of the Joint Matriculation Board, has done best in the ordinary papers in Mathematics and Mechanics. It is of the annual value of £25 and is tenable for three years, subject to the conditions as to conduct and attendance laid down in the General Regulations applicable to all Scholarships. Not less than four-fifths of the value of the Scholarship is to be spent in fees. The balance will be paid to the scholar in cash.

Candidates must have been, previous to the day of examination, resident in the City of Leeds for a period or periods amounting together in the aggregate to at least five years, and be so resident at the time they present themselves for examination. Applications from candidates for these Scholarships on the prescribed forms, which are obtainable from the Office of the University, must be sent to the Clerk to the Senate not later than May 1st, after which date no application will be received.

1888	Banks, Arthur	1905	No award
1890	Perkin, Herbert	1906	No award
1892	Hammond, Joseph Wetheril	1907	Gerard, Inglis Joseph
1894	Millard, Frederick Stanley	1908	No award
1900	Sturgeon, Robert Alexander	1909	No award
1900	Anderson, Robert	1910	No award
1901	Frazer, Edgar Hamilton	1911	No award
1903	Maddison, Wilfred Guy	1912	No award

5. Tenable in the Faculty of Medicine

Medical Scholarship

This Scholarship was instituted by the Leeds School of Medicine in 1888. It consists of free admission to the lectures and practical instruction given in the University for the M.B. course. It does not include Infirmary and Fever Hospital practice and instruction in Vaccination and Intern Maternity which are given outside the University buildings. The Scholarship will be awarded on the results of the July Matriculation examination in the Faculty of Medicine at which Latin and one other language must be taken. *Candidates will be required to take in this examination higher papers in two subjects, of which one must be Physics or Chemistry.* Applications from candidates for these Scholarships on the prescribed forms which are obtainable from the Office of the University must be sent to the Clerk to the Senate not later than May 1st, after which date no application will be received.

Candidates must be under the age of nineteen years on the 30th of September following the date of examination. They must have declared their intention, if elected, of entering the University of Leeds as students in the Faculty of Medicine.

The successful candidate will be required to enter at the University of Leeds as a student in the Faculty of Medicine, in the October immediately following the examination, to pursue, at the University of Leeds and at the General Infirmary at Leeds, the curriculum for a medical degree in the University of Leeds; and to proceed to such degree. But should the successful candidate desire to take a degree in Science or a fuller course of scientific work, before entering upon his professional studies, he shall give immediate notice of his wish to the Senate, which may, if it so determine, allow the Scholar, after passing the First M.B. examination, to postpone his attendance in the School of Medicine for one year only, during which time he shall pursue such course of study at the University as the Senate may authorise.

1889	Houfton, Ernest Henry	1902	[1]Booth, Sydney Herbert
1890	Callum, Harold Sidney Hill		[1]Rawlings, Harry Richardson
1891	Greenwood, Henry Harold	1903	Hamilton, William Douglas
1892	Towse, Walter	1904	No award
1893	Field, Richard Cullingworth	1905	Thoseby, John Norman Lonsdale
1894	Turton, Edward		
1895	Gough, William	1906	Little, Cuthbert Joseph Harwood
1896	Radcliffe, Percy Alexander Hurst	1907	Kirk, George William Lister
1897	Coupland, James Alane	1908	Knowles, Henry Rylands
1898	Middlemiss, James Ernest	1909	No award
1899	Boyle, Alan	1910	Leake, Charles Edward
1900	Edmondson, Watts	1911	Dudley, Charles William
1901	Gough, Alfred	1912	Adler, Saul

(b) Awarded by Special Examination

William Cooke & Company Scholarship

This Scholarship was instituted in 1906 by Messrs. William Cooke & Co., of Sheffield.

It is of the annual value of £21, and is tenable for two years. It is awarded biennially.

Candidates for this Scholarship must not have been previously registered students of the University, and must be under the age of nineteen years on the 30th of September following the date of the examination.

Candidates must be either (*a*) mining students articled to mining engineers, colliery managers, or colliery proprietors ; or (*b*) persons who are actually employed underground at a colliery, or who have been employed underground for a period exceeding three years.

The Scholar will be required to pursue the course of study prescribed for the diploma in Coal Mining, and to present himself, as soon as he is properly qualified, as a candidate for that diploma, and also for the Colliery Manager's First Class Certificate of competency to manage a Mine. He must attend this course regularly, and must take his examinations in the proper order and at the time laid down by the regulations of the University.

1 Scholarship divided.

The Scholarship will be awarded on the result of an examination in (1) English Composition; and (2) Mathematics (Arithmetic; Algebra, including quadratic equations; the Elementary Geometry of triangles, parallelograms, and circles, and of similar rectilinear figures), which two subjects are compulsory on all candidates; and also in one or more of (3) Mechanics; (4) Physics; and (5) Chemistry.

In 1913, the examination will be held about the middle of June. Applications from candidates for these Scholarships on the prescribed forms which are obtainable from the Office of the University must be sent to the Clerk to the Senate not later than May 1st, after which date no application will be received.

Clothworkers' Textile Free Studentships
Tenable at Evening Classes

The Worshipful Company of Clothworkers of the City of London offer twelve Free Studentships, each of the value of £2 10s., to selected students from certain Technical Schools in the West Riding who may desire to attend the advanced Evening Classes in the Department of Textile Industries in the University of Leeds. Each Free Studentship is tenable for one year.

SCHOLARSHIPS TENABLE AT THE UNIVERSITY ON THE AWARD OF PUBLIC BODIES

City and County Council Scholarships

Scholarships are offered by the Leeds City Council and the County Councils of the North, East, and West Ridings of Yorkshire, tenable at the University of Leeds in common with other institutions, in scientific and technical subjects, including Agriculture, as well as in Arts subjects. In the West Riding Exhibitions are also offered in Coal Mining, and Free Studentships tenable at the University.

In certain cases assistance is offered to students in Evening Classes.

For further information apply as follows :—

For Leeds City Council Scholarships: The Secretary, Higher Education Department, Leeds.

For West Riding Scholarships and Free Studentships: The Education Department, County Hall, Wakefield. Applicants should ask for Section X of Part II of the Handbook of the Education Committee.

For North Riding Scholarships: The Secretary, County Education Offices, County Hall, Northallerton.

For East Riding Scholarships : The Clerk, East Riding County Council, Beverley.

In all cases where there is a possibility of Scholarships being renewed, application for renewal should be made to the Clerk to the Senate not later than the end of the second term.

Assisted Studentships for Teachers

The Lords of the Committee of Council on Education pay three-fourths of the fees in the following Day classes, and one-half of those in the Evening classes, for a limited number of teachers engaged in science teaching.

Applications for this privilege must be made to the Secretary, Board of Education, South Kensington, not later than August 1st in each year.

I. Day Classes

Physics: Any of the lecture courses, not exceeding two in number; laboratory instruction for not less than half a day per week.

Chemistry: Lectures and laboratory as above.

Zoology: The lecture courses, Elementary (including practical work), and Advanced.

Botany: The lecture courses, Elementary (including practical work), Advanced, and Agricultural (including practical work).

Biology: Laboratory, not less than one day per week; course in Nature Knowledge.

Mathematics: Any of the lecture courses, not exceeding two in number.

Electrical Engineering: Lectures and Laboratory as above.

Agriculture: The lecture courses, first year (including practical work), and second year (including practical work).

Agricultural Chemistry: Any of the lecture courses, not exceeding two in number. Laboratory instruction for not less than half a day per week.

II. Evening Classes

Electrical Engineering: Any of the lecture courses, not exceeding two in number. Practical class.

FORMER SCHOLARSHIPS, NOW DISCONTINUED

Akroyd and Brown Senior Scholarships

Formerly part of the income of the Akroyd and Brown Scholarship funds was applied to the maintenance of Senior Scholarships, awarded after examination to registered students of the University, and tenable in the Faculties of Science and Technology, but the Senate resolved on May 15, 1905, to apply such income to the continuance of Scholarships originally awarded as Entrance Scholarships.

Akroyd Senior Scholars

1882	Parkin, Alfred
1883	Taylor, Arthur
1884	Wright, Joseph
1885	Speak, Savannah Johnson
1886	Wilks, Stephen Longmore Butterworth
	Wheelwright, Edwin Whitfield
	Courtice, George Robert Aulton
1887	Hastings, Hugh
1888	Stoney, William Walter
1889	Ingle, Harry
1890	Miall, Stephen
	Mann, Harold Hart
1891	Cobb, John William
1892	Archdeacon, William Henry
1893	Wise, Julian Stanton
	Welpton, William Parker
	Guthrie, Thomas
1894	Wilson, Harold Albert
	Haworth, Frederic
1895	Rigby, William
	King, Herbert
1896	Calvert, Harry Thornton
	Jowett, Albert
	Tansley, George Edward
1897	Storr, Bertram Vincent
	Cooper, Albert Henry
1898	Groocock, Henry Lloyd
1898	Shepherd, Arthur Burton
1899	Hunt, Francis William
	Gawler, Robert
1900	Grant, Charles Henry
	Thompson, John Thomas
1901	Denton, Ernest
	Gray, Arthur Lambert
1902	Raper, Henry Stanley
1903	Zortman, Israel Hyman
1904	Phillipson, Abram

Brown Senior Scholars

1880	Ingle, Herbert
	Passavant, Laura Maude
1881	Wilson, Albert Edward
	Armstrong, Wilhelmina Maria
1882	Senior, William Ottè
	Stables, William Herbert
1883	Allen, Edgar Johnson
	Ahrons, Ernest Leopold
1884	Potter, Arthur Edward
	Schmitz, Herman Emil
1885	Dibb, John Hustwick
	Hurtley, William Holdsworth
1886	Pocklington, Henry Cabourn
	Thompson, George Robert
1887	Duncan, William
	Thorp, Walter
1888	Sykes, Ernest

1889	Watson, Frank Leslie
1890	Nicholls, Percy
	Myers, John Ellis
1892	Davis, Frederick William Daniel
	Marsland, Roland
1893	Dawson, Harry Medforth
	Motley, Parker
1894	Eurich, Hermann Oskar
1895	Guthrie, Thomas
1896	Dalton, John Edwin
1897	Broadbent, Francis James
	Skirrow, Frederick William
1898	Findlay, Mary Grace
1899	Whiteley, Charles Edward
1900	Chapman, Fitzroy Tozer
	Unwin, Ernest Ewart
1901	Hummel, Alfred Roland Ure
	Stoddard, Arthur Askwith
1902	Dell, John Alexander
	Goodson, Ethel Elizabeth
1903	Calam, Harold

Leeds City Council Entrance Scholarship.

This Scholarship was founded by the Council of the Yorkshire College, in 1892, out of the sum voted by the Leeds City Council, and up to 1912 was awarded as an Entrance Scholarship tenable in the Faculties of Arts, Science and Technology. In 1912 the Council of the University, on the recommendation of the Senate and with the approval of the City Education Committee, decided that the funds should be utilised instead for the purpose of extending the courses of deserving and necessitous Leeds students in attendance at the University.

1892	Hefford, Charles Nelson
1893	Watson, Herbert Wood
1894	Cooper, Albert Henry
1895	Findlay, Mary Grace
1896	Whiteley, Charles Edward
1897	Chapman, Fitzroy Tozer
1898	Gray, Arthur Lambert
1899	Grant, Frederick Ernest
1900	Cunningham, Jean Orme
1901	Phillipson, Abram
1902	Mellor, Fred
1903	Klein, Harris
1904	Crowther, William Edmund
1905	[1]Simpkiss, Nellie
	[1]Webster, Herbert William
1906	Bannister, Albert
1907	Brodie, Morris
1908	No award
1909	Woodroffe, David
1910	Whincup, Harry Hynes

1 Scholarship divided.

SENIOR SCHOLARSHIPS

1851 Exhibition Scholarship

Since 1891 the Commissioners for the Exhibition of 1851 have placed at the disposal of the Yorkshire College, now the University of Leeds, the nomination to one Scholarship of the annual value of £150, tenable ordinarily for two years, and in rare instances for three years. The continuation each year after the first will depend upon the work done in the previous year being satisfactory to the Scientific Committee appointed by the Commissioners.

The Scholarships are intended, not to facilitate attendance on ordinary collegiate studies, but to enable students who have passed through a College curriculum and have given distinct evidence of capacity for original research, to continue the prosecution of science with the view of aiding its advance, or its application to the industries of the country.

Candidates must (*a*) be British subjects ; (*b*) be *bonâ fide* students of science of three years' standing at least in Universities or Colleges in which special attention is given to scientific study ; (*c*) either have been engaged in study at the University for a full year prior to the 1st of April following the date of application, or have been students of the University for a full year ending within twelve months prior to the 1st of April following the date of application, and, having since ceased to be students, have been engaged solely in scientific study ; (*d*) indicate high promise of capacity for advancing science or its applications by original research.

A recommendation can only be made in favour of a student who has already given proof of both ability and desire to make original investigations. In the opinion of the Commissioners the most suitable evidence that a candidate possesses these qualifications is a satisfactory account of a research already completed by him, and they will decline to confirm a recommendation unless such an account is furnished, or there is other equally distinct evidence that the qualifications of the candidate are such as are above indicated.

Applications will be received by the Clerk to the Senate of the University up to the last day of February in each year.

1891–4	Ingle, Harry
1892–4	Mann, Harold Hart
1893–6	Myers, John Ellis
1894–6	Dent, Frankland
1896–9	Dawson, Harry Medforth
1897–1900	Wilson, Harold Albert
1898–1901	Calvert, Harry Thornton
1899–1902	Skirrow, Frederick William
1900–3	Varley, William Mansergh
1901–4	Denison, Robert Beckett
1902–5	Dakin, Henry Drysdale
1903–6	Gaunt, Rufus
1904–7	Raper, Henry Stanley
1905–7	Zortman, Israel Hyman
1906–8	Armes, Henry Percy
1907–10	Hodsman, Henry James
1908–10	Cross, William Ernest
1909–11	Leslie, May Sybil
1910–12	Dudley, Harold Ward
1911–13	Powis, Frank
1912–14	Woodman, Herbert Ernest

1851 Exhibition Industrial Bursary

The Commissioners for the Exhibition of 1851 have established a scheme of Industrial Bursaries for young men who, after a course of training in a University or approved Technical College, desire to enter Engineering, Chemical or other manufacturing works. The Bursaries are intended to enable suitable applicants to tide over the period between their leaving College and obtaining remunerative employment in industry. The value of the Bursary will depend on the circumstances of the candidate, but will as a rule not exceed £100 a year.

A Bursar will be elected in the first instance for one year, but the tenure of his Bursary will ordinarily be prolonged for a second year provided that the Commissioners are satisfied with the work done by the Bursar during his first year. In special circumstances a Bursary may be renewed for a third year. The appointments to the Bursaries will be made by the Commissioners from among candidates recommended by the Authorities of certain selected Universities and Technical Schools.

N.B.—In dealing with these recommendations great weight will be given to evidence that a candidate has the practical abilities likely to lead to his advancement in manufacturing work, academic success alone being an insufficient recommendation.

The candidate must be a British subject, under the age of 25, and must have been a *bona fide* student of Science for a term of three years. He must further satisfy the Commissioners:—

(*a*) That he has obtained, or can, within one month of election, obtain a post in some Engineering or other manufacturing works approved by them.

(*b*) That he is in need of pecuniary assistance to enable him to accept such a post.

A Bursar may, if the Commissioners approve, spend part of the tenure of his Bursary in studying a special industrial process or processes in works either at home or abroad. No Bursar shall enter a firm as a premium pupil without the special consent of the Commissioners. A Bursar must submit a report of his work to the Commissioners on the expiration of each year of his Bursary.

1911 Stillwell, Samuel Thomas Cryer
1912 Rawling, Arthur

(a) SCHOLARSHIPS TENABLE ONLY BY GRADUATES OF THE UNIVERSITY

1. University Scholarships

A limited number of University Scholarships may be offered annually, and will ordinarily be awarded to students who have shown special merit in the Final examinations of the Honours Schools of the University. In the election to Scholarships, preference will ordinarily be given to students who are prepared to undertake advanced study or research. When such advanced study or research is undertaken in the University, or in some other University or learned institution, or under suitable guidance in a manner approved by the Senate, an additional maintenance grant not exceeding £50 may be made; in other cases the Scholarship will be of the value of £25.

Scholars who receive a grant additional to the £25 will be required to furnish a report of the work done by them during the tenure of the Scholarship, such report to be sent in to the Clerk to the Senate before June 1st of the year following the award of the Scholarship, in order that it may be laid before the Senate. Scholarships may be renewed for a second year when the scholar is undertaking advanced study or research.

1905 Armes, Henry Percy (Chemistry).
[1]Gunnell, Doris (Modern Languages).
[1]Holmes, Carrie (English)
Edwards, Maud Mary (Modern Languages)
Gregory, Frederick Maurice (Engineering)
1906 Hodsman, Henry James (Chemistry)
Butterworth, George William (Classics)
Holgate, Edward (Engineering)
1907 Cross, William Ernest (Chemistry)
Davies, Hamilton (Chemistry)
Fairley, Barker (Modern Languages)
Shuttleworth, Newton (Electrical Engineering)
Thorp, Hilda (Modern Languages)
Walker, Jessie (English)
1908 Blockey, John Reginald (Chemistry)
Jackson, Colin Gyrth (Chemistry)
Leslie, May Sybil (Chemistry)
Riley, Frank (Chemistry)
[1]Strange, Edward Howard (Philosophy)
1909 Dudley, Harold Ward (Chemistry)
Peel, Albert (History)
1910 Duffin, Joseph Francis (Physics)
Powis, Frank (Chemistry)
1911 Chapman, Sarah Elizabeth (Geology)
Woodman, Herbert Ernest (Chemistry)
1912 Dawson, Thomas Rayner (Chemistry)
Ogden, Herbert (Physics)

2. Gilchrist Studentship in Modern Languages

This Studentship was instituted in 1905 by the Gilchrist Educational Trust, founded by Dr. Gilchrist, who died in 1841, for "the benefit, advancement and propagation of education and learning in every part of the world, as far as circumstances permit." It is of the value of £80, is tenable for one year, and is open for graduates of either sex who have taken Honours in Modern Languages in the Final degree

1 Renewed for a second year.

examination of the University, and who are proposing to enter the profession of teaching in secondary schools. The purpose of the Studentship is to enable the holder to pursue a special course of study abroad with a view to qualifying himself (or herself) for teaching modern languages in a secondary school.

The regulations are as follows:

1. The Studentship is awarded annually by the Gilchrist Trustees.

2. Candidates must have obtained Honours in Modern Languages in the Final examination for a degree, and be recommended by the University after consultation with the Professors concerned, and after special inquiry into the suitability of the candidates for the profession of teacher in a secondary school. If possible, two names shall be submitted each year to the Trustees for their consideration. Save in exceptional circumstances, of which the Trustees shall be the sole judges, the examination must be that immediately preceding the date of application.

3. The holder of the Studentship will be required to follow a course of preparation for the profession of Modern Language teacher, and must submit his (or her) proposed course of work for the approval of the Trustees, who will take steps to satisfy themselves that the course of preparation proposed to be undertaken is suitable for the purpose in view

4. The tenure of the Studentship is for one year beginning on the date of election, and the emoluments will be paid half yearly by the University on production of evidence that the proposed course of preparation is being satisfactorily carried out.

5. The Student will be required, at the expiration of the tenure of the Studentship, to send in to the Clerk to the Senate a report to the University, setting out the course of work and preparation which has been pursued, and this report together with a covering communication from the University shall be forwarded to the Trustees.

1906 Edwards, Maud Mary
1907 Thorp, Hilda
1908 Murphy, Bertha Mary
1909 Longbottom, Nellie
1910 Hobson, Julia
1911 Carter, John Wilfrid
1912 Greenwood, Emily Maud

3. Clothworkers' Research Scholarship in Colour Chemistry and Dyeing

This Scholarship, of the value of £60 a year, tenable in the Department of Tinctorial Chemistry and Dyeing, will be awarded annually upon the results of the Final examination for the B.Sc. degree, preference being given to candidates who graduate with Honours in Applied Chemistry (Colour Chemistry and Dyeing).

The Scholarship will be awarded for one year, but may, at the discretion of the Examiners, be extended to a second year.

The Scholar will be required to devote his whole time to carrying out some special branch of research in Colour Chemistry or Dyeing.

1907 Baddiley, James
1908 [1]Woodhead, Arthur Edmund
1910 Bearder, Ernest Arthur
1911 Rowe, Frederick Maurice
1912 Johnson, William

4. Research Fellowship in Colour and Textile Chemistry

A Research Fellowship of the value of £100 per annum, instituted by the Council on the recommendation of the Textile Industries and Dyeing Committee, will be offered from time to time by the Senate upon the recommendation of the Board of Science and Technology, for the prosecution of scientific investigations in Textile and Colour Chemistry, under the direction of the Professor of Tinctorial Chemistry. Preference will be given to candidates who have graduated in the University of Leeds with Honours in Colour Chemistry.

The Fellow will be required to devote the whole of his time to the pursuit of the research in question, and (unless the results are published in the form of a communication to a scientific or technical journal) to present a report of the work to the Senate, such report to be sent in to the Clerk to the Senate before June 1st of the year following the award of the Fellowship. It will be within the power of the Senate, on the recommendation of the Board of Science and

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1 Renewed for a second year.

Technology, to renew the Fellowship to the holder of the same for a second year, instead of proceeding to a fresh election.

1912 Rowe, Frederick Maurice

(b) SCHOLARSHIPS TENABLE ONLY BY STUDENTS OF THE UNIVERSITY

1. Tenable in the Faculties of Arts, Science and Technology

Leighton Scholarships

These Scholarships were instituted in 1894 by the Trustees of the late Mrs. Isabel Leighton of Leeds.

Candidates must be registered students of the University of not less than two terms standing. They must have attended a Public Elementary school or schools in the City of Leeds for not less than three years.

Three Scholarships are ordinarily offered each year, each of the annual value of £10, and tenable for two years, subject to the reports on the student's work during the first year of tenure being satisfactory.

The Scholarships will not be awarded on any special examination, but *those students who are desirous of becoming candidates are required to send in their names to the Clerk to the Senate not later than May 1st in each year.*

In recommending candidates for appointment, the Senate will be guided by the position held by the candidates in their terminal examinations, and also by their general work and conduct. The need of the applicants for pecuniary assistance will also be taken into consideration.

The Scholarships are tenable by day students pursuing any course of study in the Faculties of Arts, Science and Technology, and may, with the consent of the Trustees, be held in conjunction with any other Scholarship.

The election will be made in the third term of the session, provided that there be suitable applicants.

1894	Gough, William
1895	Hampshire, Florence Elizabeth
1896	Shacksnovis, Reuben
1897	Porritt, Florence Mary
	Scholes, Thomas Wilfrid
1898	Gawler, Robert
1899	Crosfill, John
	Phillipson, Coleman
1900	Savage, Hilda
	Robinson, Ethel Margaret
1901	Burgess, Lillie
	Schofield, Fred
1902	Calam, Harold
	Landman, Samuel
	Stead, Frank Cawthron
1903	Appleyard, John Ernest
	Robinson, Lilian Dorothea
	Waite, Joseph Henry
1904	Carlton, George Westerdale
	Maddison, Wilfred Guy
	Thorp, George
1905	Lacy, Arthur
	Vernon, Edgar
1906	Hogan, Kathleen
1907	Everett, Percy Newton
	Marsh, Frank Salton
	Turner, Frederick William
1908	King, Norman
	Mann, Clarissa
	Powis, Frank
	Webster, Herbert William
	Wood, Louis Albert
1909	Ellis, Henry Carl Noel
	Taylor, Arthur
	Worsnop, Edgar
1910	Goldstone, Cecilia
	Lee, Harry
	Libbish, Barnet
1911	Dawson, Thomas Rayner
	Mallin, Hubert Patrick
1912	Cohen, Sam
	Hutton, Charles William
	Marshall, Herbert

Leeds City Council Scholarship

This Scholarship was founded by the Council of the University, in 1892, out of the sum voted by the Leeds City Council, and up to 1912 was awarded as an Entrance Scholarship. In 1912 the Council, on the recommendation of the Senate and with the approval of the City Education Committee, decided to utilise the money in extending the courses of Leeds students in attendance at the University, whose progress, conduct and financial circumstances are such as in the opinion of the Senate to justify such award. As in the case of the Leighton Scholarships, the need of the applicant for pecuniary assistance will be taken into consideration by the Senate, who will also be guided by the position held by candidates in their Terminal Examinations and by their general work and conduct.

Applications should be sent in to the Clerk to the Senate, not later than May 1st in each year.

2. Tenable in the Faculty of Arts

Salt Scholarship

This Schloarship was founded by the late Sir Titus Salt, Bart., in 1875.

Candidates must be scholars or registered students of the University in at least their sixth term.

The value of the Scholarship is £20 a year, and it is tenable for two years.

The Scholarship is awarded at the discretion of the Senate, with or without examination.

The Scholar elected will be required to pursue a course of study at the University preparatory for a degree in Arts of the University of Leeds. In the event of graduation at the end of the first year of tenure, the Scholar will be required to pursue a course of postgraduate study satisfactory to the Senate.

Applications from candidates for these Scholarships must be sent to the Clerk to the Senate of the University not later than May 1st.

1882	Wright, Benjamin	1901	Stevenson, Ethel Mary
1885	Barker, Arthur Henry	1903	Davis, William Hathaway
1887	Jackson, Thomas Chalice	1904	Landman, Samuel
1891	Hurst, Thomas Ockerby	1906	Gill, William Conrad
1893	Cleasby, Mabel	1908	Dean, Arthur Ernest
1895	Hornby, George Goodall	1910	Phillips, Samuel
1897	Robinson, Elizabeth Clare	1912	Pickering, Jessie
1899	Melville, Ellen Louisa		

John Rutson Scholarship

This Scholarship was founded by Mr. Henry Rutson of Northallerton, in memory of his brother Mr. John Rutson. It has been assigned to the Faculty of Arts for the encouragement of research, and the Scholar will be chosen from amongst those who have shown promise of ability to conduct such research.

The Scholarship is of the annual value of about £70 and is tenable for one year, but may be renewed for one year more.

The successful candidate shall be required to undertake advanced study or research in the University, or in some other University or learned institution, or under suitable guidance in a manner approved by the Senate.

The Scholar shall also be required to furnish a report of the work done by him or her during the term of the Scholarship, such report to be sent in to the Clerk to the Senate before June 1st of the year following the award of the Scholarship, in order that it may be laid before the Senate.

1908	[1]Hogan, Kathleen	1911	Heaton, Herbert
1910	Peel, Albert	1912	Jameson, Margaret Ethel

1 Renewed for a second year.

3. Tenable in the Faculty of Medicine

Infirmary Scholarship

This Scholarship was founded in 1888 by the Faculty of the Leeds General Infirmary. It is of the value of 40 guineas and consists of a free ticket to the clinical teaching of the Leeds Infirmary. The holder is required to enter as a student for the whole medical curriculum at the University in the session following the date of examination.

This Scholarship is now awarded, after a report from the examiners, on the results of the First M.B. examination of the University of Leeds. Candidates must send in their names to the Clinical Sub-Dean (Dr. Telling), 29, Park Square, Leeds, not later than June 1st.

1889	Fearnsides, Philip Henry	1901	Rawlings, Harry Richardson
1890	Gross, Phineas	1902	Pickles, William Norman
1891	Greenwood, Henry Harold	1903	Carlton, George Westerdale
1892	Field, Richard Cullingworth	1904	No award
1893	Dewhirst, Wilfrid Arthur	1905	No award
1894	Andrews, Joseph Dalby	1906	Fisher, John Barugh
1895	Pegler, William Vernon	1907	Sinson, Julius Barnet
1896	Matthews, Crawford Tait	1908	Metcalfe, John Clifford
1897	Middlemiss, James Ernest	1909	Sinson, Harry Abram
1898	Heald, Samuel Linley	1910	Shochet, Harry
1899	Smailes, William Herbert	1911	Holt, Herbert Mainwaring
1900	Gough, Alfred	1912	Dudley, Charles William

4. Tenable in the Faculty of Technology

Clothworkers' Scholarships

These Scholarships were founded in 1875 by the Worshipful Company of Clothworkers of the City of London, who offer three Scholarships, each of the value of £20, to students in the Department of Textile Industries. Two of these Scholarships are awarded to students of the first year on the result of the second term examinations, and one to a student of the second year on the result of the second term examinations.

Each Scholarship is tenable for one year. Students holding these Scholarships will be required to attend an Advanced Course in Textile Industries, and the Senior Class in Applied Art. These Scholarships are only tenable by students not more than twenty-four and not less than

sixteen years of age on the 1st of October following the date of examination.

Students holding Scholarships are expected to present themselves for examination (in the University) by the City and Guilds of London Technical Institute, in one of the following subjects, viz.: Textile Fabrics—Spinning and Weaving of (*a*) Wool and Worsted, (*b*) Cotton, (*c*) Linen, (*d*) Silk.

The Scholarships will be awarded on the result of the second term examinations, which in the case of the first year students will be in

(*a*) Designing and Weaving,
(*b*) Textile Colouring,
(*c*) Applied Art;

and in the case of second year students in

(*a*) Designing and Weaving,
(*b*) Textile Colouring,
(*c*) Cloth Finishing,
(*d*) Applied Art.

Regard also will be had to the general progress candidates have made in their theoretical and experimental studies.

Applications from candidates for these Scholarships must be sent to the Clerk to the Senate not later than January 31st.

1901	Grimshaw, Norman
	Wilson, Stanley Ewart Ashley
	Brigg, Lawrence Heriot
	O'Flynn, James
1902	Mellor, Cecil Smith
	Duncan, Harold
	Gaunt, Frederick William
	Munro, William Thow
1903	Smith, Lister
	Rayner, Harold Kingsbury Hodgson
	Horsham, Wilfred Robert
	Beaumont, Frank
1904	Whitworth, Abraham
	Hart, Harry Leatham
	Horsham, Wilfred Robert
	Holloway, Joseph
1905	Mills, James
	Hart, Harry Leatham
	Bradley, Jim
	Broadbent, Lees
1906	Broadbent, Lees
	Cockcroft, Ernest Edward
1906	Mills, James
	Sutcliffe, Arthur Livsey
1907	Cockcroft, Ernest Edward
	Fairburn-Hart, George Stanley
	Wilson, James Blackburn
1908	Eadie, Thomas Tait
	Pfenniger, Paul
	Wilson, James Blackburn
1909	Bradley, William
	Eadie, Thomas Tait
	Twohig, John Patrick
1910	Stevenson, William
	Turnbull, Kenneth
	Twohig, John Patrick
1911	Bonhomme, Jean Raymond
	Dircks, Hugh Douglas
	Kyle, John William
1912	Baines, Arthur Richard
	Dolphin, Thomas Charles
	Rogers, Simeon

FELLOWSHIPS

(a) University Fellowships

University Fellowships may be awarded, should the funds of the University permit, to graduates of the University within three years from the date of graduation. Such Fellowships will be of the value of £100 tenable for one year. The object of the Fellowships is the encouragement of research, and the Fellow will be required to devote the whole of the time during which he continues to hold the Fellowship to the pursuit of such research under conditions approved by the Senate. In special cases an additional grant not exceeding £20 may be made to the Fellow by a special vote of the Senate and Council to assist him in carrying out his researches. No Fellow shall be permitted to hold any paid appointment, or to undertake remunerative work without previous permission from the Senate, which shall have power in such cases to reduce the value of the Fellowship.

Fellowships will not be awarded except to candidates who have given evidence of qualifications for undertaking original work. Fellows are required to send in to the Clerk to the Senate a report of the work done by them during the tenure of the Fellowship before June 1st of the year following the award of the Fellowship, in order that it may be laid before the Senate. The Fellowships may, in exceptional instances, and with the consent of the Senate and Council, be renewed for a second year.

1905 Marshall, Joseph, B.Sc. (Chemistry).
Waterhouse, Osborn, B.A. (English).
1911 Charlton, Henry Buckley, B.A. (English).
1912 Heaton, Herbert, M.A. (History)

(b) Fellowship for Gas Research

The Fellowship, of the value of £100 per annum, will be awarded by the Senate, on the recommendation of the Board of Science and Technology, to a duly qualified candidate for the prosecution of post-graduate research in gas chemistry. Preference will be given to candidates who have signified their intention of entering the coal gas

industry, or in default of any such candidate, to a person qualifying for some other branch of fuel industry.

The award of the Fellowship will be made annually during the month of June, after due advertisement of it in the technical press and other appropriate journals. Applications for the Fellowship must be made to the Clerk to the Senate of the University on or before May 1st of each year.

It will always be within the power of the Senate, on the recommendation of the Board of Science and Technology, to renew the Fellowship to the holder of the same for a further period of a year, instead of proceeding to a fresh election.

The holder of the Fellowship shall undertake research work in the University under the direction of the Professor of Fuel and Metallurgy on some subject connected with the chemistry of gases and combustion. The selection of the subject, and the method of carrying on the work, will be left to the judgment of the Professor responsible for its direction.

The University will provide, free of charge, all reasonable accommodation and facilities required for the prosecution of the research undertaken by the holder of the Fellowship, including working space and the use of such instruments and appliances installed as part of the equipment of the Fuel and Metallurgical Department. Any *special* expenses, not exceeding £25, incurred during the prosecution of the research will be defrayed by the Institute of Gas Engineers.

A report of the research work carried out by the holder of the Fellowship shall be submitted to the Council of the Institute of Gas Engineers, as well as to the Senate of the University, on or before May 1st of each year, together with copies of any papers published in connection with the research.

1907-9 Forshaw, Arthur, M.Sc., Victoria
1909-11 Hartley, Harold, M.Sc., Victoria

PRIZES

Gladstone Memorial Prize

The Trustees of the Gladstone Liberal Memorial Fund have established Gladstone Memorial Prizes to be given in books at the Universities and University Colleges in England, Scotland, and Wales for special proficiency in History, Political Science, and Economics. An annual prize of the value of £5 has been offered to and accepted by the Council of the University, and will be awarded under the following conditions :

1. The prize will be awarded in June of each year for an Essay on some subject connected with History or Political Science or Economics, and the subjects of the Essays will be announced in the preceding June.
2. It will be open to competition among all students of Day Classes of the University who are in attendance upon University lectures for not less than four hours per week. Dissertations sent in for the degree of B.A. with Honours upon subjects connected with History, or Political Science or Economics will be regarded as competing for the Essay.
3. No student who has once obtained the prize may compete a second time.
4. No Essay in consideration of which either wholly or in part, a University Fellowship or Scholarship shall have been awarded, shall be admissible for other than honorary recognition.
5. The Essay must be sent in to the Clerk to the Senate not later than May 1st in each year.

1902	Savage, Hilda	1908	Dean, Arthur Ernest
1903	Davis, William Hathaway	1909	[1]Peel, Albert (£3)
1904	Gill, William Conrad		[1]Phillips, Samuel (£2)
1905	Butterworth, George William	1910	Pickering, Harry
1906	Findlay, Sarah Kennedy	1911	Firth, John Rupert
1907	[1]Simpkiss, Nellie		
	[1]Winter, John Edgar		

1 Prize Divided.

The Ripon English Literature Prize

The Committee formed to obtain for the University, by subscriptions, a portrait of the late Chancellor, the Marquis of Ripon, K.G., presented to the University the surplus funds, amounting to £180, for investment, with a view to providing an Annual Prize in the subject of English Literature to be called "The Ripon English Literature Prize." A Prize to the value of £6 will accordingly be awarded annually, under the following conditions.

1. The prize will be awarded in June of each year for an Essay on some subject connected with English Literature, and the subjects of the Essays will be announced in the preceding June.

2. It will be open to competition among all students of Day Classes of the University who are in attendance upon University lectures for not less than four hours per week. Dissertations sent in for the degree of B.A. with Honours upon subjects connected with English Literature will be regarded as competing for the Essay.

3. No student who has once obtained the prize may compete a second time.

4. No Essay, in consideration of which, either wholly or in part, a University Fellowship or Scholarship shall have been awarded, shall be admissible for other than honorary recognition.

5. The Essay must be sent in to the Clerk to the Senate not later than May 1st in each year.

1911 Charlton, Henry Buckley.

Leblanc Medal

The Leblanc Memorial Committee presented the Victoria University with a portion of the surplus from the fund raised in France for the erection of a statue of the distinguished

chemist, Nicholas Leblanc, the amount to be devoted to the encouragement of the study of Chemistry. On the foundation of a separate University in Leeds a share of the fund was vested in the University of Leeds.

Leblanc Medals may be awarded at the Final Examination for the Degree of B.Sc. in the Honours Schools of Colour Chemistry, Leather, and Fuel and Metallurgy to such students as are reported by the Examiners to have shown special distinction, and who are recommended jointly by the Internal Examiners in these subjects.

1891	Ingle, Harry	1908	Rhodes, Norman
1892	Mann, Harold Hart		Woodhead, Arthur Edmund
1898	Skirrow, Frederick William	1910	Bearder, Ernest Arthur
1905	Davies, Arthur Hugh		Seymour-Jones, Arnold
1907	Baddiley, James	1912	Johnson, William

Thorp Scholarship in Forensic Medicine and Hygiene

The Thorp prizes, instituted by the late Dr. Disney L. Thorp, one of the original founders of the Leeds School of Medicine, are now awarded as one annual Scholarship of about £25 to a student or graduate of the University prepared to carry out some research work in some subjects bearing upon Forensic Medicine or Public Health. For particulars, application should be made to the Dean of the Faculty of Medicine.

Prizes in Forensic Medicine

1900	Gough, William	1906	Heppenstall, Clement Hoyle
1901	Cundall, Edward	1907	Dunbar, Dean
1902	Boyle, Alan	1908	No award
1903	No award	1909	Cross, George Harold
1904	Parkinson, Alfred Howard	1910	Sinson, Julius Barnet
1905	Shacksnovis, Reuben		

Prizes in Public Health

1900	Radcliffe, Adolphus Harold	1905	Hamilton, William Douglas
1901	Braithwaite, Leonard Ralph	1906	No award
1902	Tomlin, Herbert	1907	No award
1903	Legge, James Huntly	1908	Brown, John Perrin
1904	No award	1910	Walker, John Perry

Thorp Prize Essay

A sum of fifteen pounds is offered every three years for an essay or original research on some subject connected with Forensic Medicine or Public Health. The competitors

must have attended in the University of Leeds all the courses necessary to qualify for degrees or diplomas in Medicine, and must have received their degree or diploma not more than three years before the competition. The scope and nature of the essay or research may be either physical, chemical, microscopical, physiological, clinical or statistical, but its subject must have received the approval of the Board of the Faculty of Medicine one year before the award is made. The successful essay or paper with the drawings and specimens by which it may be illustrated will become the property of the University.

Hardwick Prize in Clinical Medicine

This prize, of the value of ten pounds, is given annually on a competition which is held early in June. Candidates must have been students in the School of Medicine of the University of Leeds for not less than eight terms; they must be attending the medical practice of the Leeds Infirmary; and they must have held or be then holding the office of Clinical Clerk in that Institution.

1900	Willans, Charles Rudolph	1907	No award
1901	Saville, Edwin	1908	Mitchell, Guy Annesley Carter
1902	Coupland, James Alane		
1903	Matthews, Crawfurd Tait	1909	Thoseby, John Norman Lonsdale
1904	Tomlin, Herbert		
1905	Gough, Alfred	1910	Hooton, William Henry
1906	No award	1911	Sinson, Julius Barnet

McGill Prize in Clinical Surgery

This prize, of the value of ten pounds, is given annually on a competition which takes place in the month of May. Candidates must be students in the School of Medicine of the University of Leeds who have not at the time of the examination entered on their sixth year, and who have held at the Leeds Infirmary the following appointments:—In-patient dresser, ophthalmic dresser, in-patient medical clerk, post-mortem clerk, and gynæcological dresser.

1900	Gough, William	1907	No award
1901	Keeling, Hugh Neville	1908	Mitchell, Guy Annesley Carter
1902	Coupland, James Alane		
1903	Braithwaite, Leonard Ralph	1909	Thoseby, John Norman Lonsdale
1904	Brierley, Wilfred Edward		
1905	Gough, Alfred	1910	No award
1906	No award	1911	No award

Scattergood Prize in Obstetrics and Gynæcology

This prize, instituted in memory of the first Dean of the Medical Department, Yorkshire College, will be awarded on the result of a special examination in Obstetrics and Gynæcology to be held annually in the third term by the Professor of Obstetrics and the Lecturer on Gynæcology conjointly. The examination shall consist of a written paper, of oral examination on specimens and instruments and of clinical investigation and report on patients.

Candidates must be students of this University and must have passed their second examination or its equivalent and have attended lectures in Obstetrics and Gynæcology, and have held their gynæcological and maternity clerkships, or be holding such at the time of the examination; and they must not have entered for the examination on a previous occasion.

They may enter for this examination up to the end of their sixth year of medical study. Allowance will be made if an extra year has been taken for the primary Fellowship examination or for an Honours course, as in the case of the McGill prize.

The value of the prize, which consists of books or instruments, is five pounds.

1900	Acomb, John	1906	Heppenstall, Clement Hoyle
1901	Coates, Richard	1907	Thoseby, John Norman Lonsdale
1902	Tomlin, Herbert		
1903	Smailes, Herbert William	1908	Hooton, William Henry
1904	No award	1909	Bernstein, Isaac Barnett
1905	Hamilton, William Douglas	1910	No award

Gold Medal

A Gold Medal of the value of ten pounds, formerly presented by the Treasurer, and since 1901 by the Faculty of the Infirmary, is awarded on the collated results of the prize examinations in the following subjects:—(1) Surgery; (2) Medicine; (3) Pathology; (4) Obstetrics; (5) Forensic Medicine (Thorp Prize); (6) Clinical Medicine (Hardwick Prize; (7) Clinical Surgery (McGill Prize); (8) Gynæcology, Clinical Obstetrics and Gynæcology (Scattergood Prize); (9) Public Health (Thorp Prize); (10) Pharmacology and

Therapeutics; (11) Practical Surgery; (12) Ophthalmology; (13) Mental Diseases. To qualify for the Gold Medal the candidate must have attended all his final classes, *i.e.*, must have completed and not have exceeded his fifth year of study, and must present four prizes or their equivalent. Should a student desire to spend an additional year antecedent to the study of the subjects in Part III in preparing for a Science degree, Honours, or the Primary Fellowship of the Royal College of Surgeons of England, such time need not be counted as one of the five years. Of these prizes one must be either the Surgery or the McGill Prize, and another either the Medicine or the Hardwick Prize.

1900 Gough, William
1901 Saville, Edwin
1902 Coupland, James Alane
1903 No award
1904 No award
1905 Gough, Alfred
1906 No award
1907 No award
1908 Mitchell, Guy Annesley Carter
1909 Thoseby, John Norman Lonsdale
1910 No award

Silver Medal

The Junior Medal (Silver) is awarded upon the results of the prize examinations in the following subjects:—(1) Junior Anatomy; (2) Senior Anatomy; (3) Physiology; (4) Practical Physiology (including the experimental portion of part ii); (5) Materia Medica; that is to say, upon the subjects of the second year and the first and second terms of the third year in the "Normal Course for the M.B.Ch.B. of the University of Leeds." To qualify, the candidate must obtain two prizes or their equivalent.

1899 Coupland, James Alane
1900 Braithwaite, Leonard Ralph
1901 Boyle, Alan
1902 Gough, Alfred
1903 No award
1904 No award
1905 Hamilton, William Douglas
1906 Mitchell, Guy Annesley Carter
1907 Cross, George Harold
1908 Hooton, William Henry
1909 Robinson, William
1910 Mellis, George Pickard

Class Prizes

Book prizes and Certificates of Honour are given in the various classes in the School of Medicine at the end of each session.

FELLOWS, SCHOLARS AND EXHIBITIONERS, 1912-13

	Date of Election	
University Fellowship ...	1912	Heaton, Herbert, M.A.
Research Fellowship in Colour and Textile Chemistry	1912	Rowe, Frederick Maurice, M.Sc.
University Scholarships (*Chemistry*) ...	1912	Dawson, Thomas Rayner, B.Sc.
(*Physics*)	1912	Ogden, Herbert, B.Sc.
1851 *Exhibition Scholarship*	1911	Powis, Frank, M.Sc.
,, ...	1912	Woodman, Herbert Ernest, M.Sc.
1851 *Exhibition Industrial Bursary*	1912	Rawling, Arthur, B.Sc.
Gilchrist Studentship in Modern Languages	1912	Greenwood, Emily Maud, B.A.
Clothworkers' Research Scholarship in Colour Chemistry and Dyeing	1912	Johnson, William, B.Sc.
John Rutson Scholarship	1912	Jameson, Margaret Ethel, B.A.
Leighton Scholarship ...	1911	Dawson, Thomas Rayner
,, ...		Mallin, Hubert Patrick
,, ...	1912	Cohen, Sam
,, ...		Hutton, Charles William
,, ...		Marshall, Herbert
Salt Scholarship ...	1911	Pickering, Jessie
Infirmary Scholarship	1908	Metcalfe, John Clifford
,, ...	1909	Sinson, Harry Abram
,, ...	1910	Shochet, Harry
,, ...	1911	Holt, Harry Mainwaring
,, ...	1912	Dudley, Charles William

	Date of Election	
Clothworkers' Textile Scholarship	1912	Baines, Arthur Richards
,, ...		Dolphin, Thomas Charles
,, ...		Rogers, Simeon
Leeds City Council Scholarship	1910	Whincup, Harry Haynes
Emsley Scholarship ...	1911	Richardson, Herbert
,, ...	1912	Clayton-Booth, Ethel Jane
,, ...		Driver, Constance Jennie
Edward Baines Scholarship	1911	Webster, Fred
,, ...	1912	Kirkwood, Winifred
Charles Wheatley Scholarship	1910	Greenwood, Josemée Marguerite
Brown Scholarship ...	1909	Stocks, Herbert Holroyd
,, ...	1910	Seville, Robert Ockleston
,, ...	1911	Lunn, Reginald William
,, ...	1912	Chapman, Robert Edward
Akroyd Scholarship ...	1909	Taylor, Ernest
,, ...	1910	Douglas, Frank
,, ...		Hartley, John Alfred
,, ...	1911	Gibson, Wilfrid
,, ...		Harrap, Frank Nettleton
,, ...	1912	Hanby, Thomas
,,		Mountford, Christopher Archibald
Medical Scholarship ...	1908	Knowles, Henry Rylands
,, ...	1910	Leake, Charles Edward
,, ..	1911	Dudley, Charles William
,, ...	1912	Adler, Saul

GRADUATES OF THE UNIVERSITY OF LEEDS

(*The names of deceased graduates are printed in italics*)

Honorary Graduates

Doctor of Laws

1904 Lady Frederick Cavendish
Archbishop Maclagan
The Duke of Devonshire
The Earl of Harewood
Viscount Cross
Lord Herries
Lord Allerton
Rt. Hon. Arthur Herbert Dyke Acland
Sir Francis Sharp Powell, Bart., M.P.
Sir John Barran, Bart.
Sir Charles Hubert Hastings Parry, Bart.
Sir Alexander Campbell Mackenzie
Sir Charles Villiers Stanford
Sir Edward Elgar
Sir William Bousfield
Henry Walford Davies

1904 Rt. Hon. Charles George Milnes Gaskell
Charles Wood
1906 *Lord Wenlock*
Sir Owen Roberts
1909 The Archbishop of York
Thomas Walter Harding
1910 The Duke of Devonshire
Rt. Hon. Herbert Henry Asquith, M.P.
The Earl of Crewe, K.G.
The Marquis of Lansdowne, K.G.
Rt. Hon. James William Lowther, M.P.
Sir Hugh Bell, Bart.
General Sir William Gustavus Nicholson, G.C.B.
Alfred Hopkinson
Arthur Greenhow Lupton

Doctor of Letters

1904 Sir Albert Kaye Rollit
Alfred Austin
Andrew Martin Fairbairn
Joseph Wright
1906 The Bishop of Ripon

1906 Sir Charles Holroyd
1907 The Rev. Robert Collyer
1910 Francis John Haverfield
Arthur Sidgwick

Doctor of Science

1904 *The Earl of Rosse.*
Lord Kelvin
Lord Airedale
Sir Isaac Lowthian Bell, Bart.
Sir William Henry Broadbent, Bart.
Sir Arthur William Rücker
Tempest Anderson
Sir Jonathan Hutchinson
John Hughlings Jackson
Louis Compton Miall
Arthur William Mayo Robson
Thomas Pridgin Teale
1904 Sir Thomas Edward Thorpe
Claudius Galen Wheelhouse

1906 *Sir William Henry Perkin*
Sir Thomas Clifford Allbutt
Heinrich Caro.
Alfred Grandidier
Albin Haller
Edwin Ray Lankester
Carl Theodor Liebermann
Carl Alexander von Martius
Paul Pelseneer
Heinrich Rubens
Herbert Hall Turner
1909 Sir James Crichton-Browne
Sir Ronald Ross, K.C.B.
1910 Lord Rayleigh
Sir Clements Richard Markham, K.C.B.
Sir William Osler, Bart.

Master of Arts

1906 Thomas Percy Sykes

Graduates

Faculty of Arts (including Commerce and Law)

Master of Arts

1908 Ashburner, Frederick
1912 Bartle, Arthur
1907 Bibby, Edward Ernest
1911 Birtles, Arthur
1908 Blackburn, Elizabeth Maria
1912 Boden, Cecil Arthur
1905 Briggs, Maude (Mrs. Chapman)
1912 Brown, Ralph Noel
1908 Butterworth, George William
1911 Caldwell, Sarah Jane
1908 Chapman, Harry Garfield
1909 Cohen, Alexander
1907 Conyers, Hilda
1911 Cox, Herbert
1912 Cridland, Dorothy
1906 Davis, William Hathaway
1908 Daykin, John Bertram
1912 Dransfield, Henry Ewart Stanley
1909 Edwards, Maud Mary
1910 Fairley, Barker
1912 Fawcitt, Edwin Henry
1908 Findlay, George Hindson
1908 Findlay, Sarah Kennedy
1907 Frank, Sarah
1911 Gendall, Philip Parsons Watkins
1908 Gill, William Conrad
1911 Gittleson, John
1910 Gunnell, Doris
1907 Hand, William Thomas
1907 Hastings, Margaret
1912 Heaton, Herbert
1909 Hirst, John Crosland
1909 Hobson, Elsie Irene
1912 Hobson, Julia
1909 Hodges, Raymond John
1909 Hogan, Kathleen
1907 Holmes, Carrie
1911 Howarth, Fred
1907 *Illingworth, Maria Emma (Mrs. Schofield)*
1910 Johnson, Florence Annie
1907 Jowett, Jessie
1912 Kirk, Kathleen Hylda
1907 Kitchener, Ernest Edward
1912 Laird, Marjorie Jean
1907 Landman, Samuel
1912 Lee, Harry
1906 McKeand, Maggie Woodrow
1912 Maddock, William
1909 Mallinson, Dorothy
1911 Martin, Alice Walford
1908 Matthews, Felix Hackett
1910 Maud, Ida Marian
1907 Molland, Theodora Mary
1909 Monahan, Alexander James
1908 Moulden, John William
1910 Murphy, Bertha Mary
1907 Naylor, Nellie Noble
1907 Neville, Ethel May
1907 North, Fanny Caroline
1912 Parker, Frank
1910 Peel, Albert
1912 Phillips, Samuel
1911 Pobjoy, Harold Norman
1905 *Robinson, Ethel Margaret*
1905 Savage, Hilda
1908 Scholes, Katherine Louise
1905 Scholes, Thomas Wilfrid
1909 Simpkiss, Nellie
1907 Smith, Egerton
1906 Stables, William Herbert
1910 Strange, Edward Howard
1910 Strong, Robert
1908 TenBruggenkate, George Herbert
1912 Thornton, William George Squire
1910 Thorp, Hilda
1912 Walker, Algernon Stanley
1908 Walker, Jessie
1908 Wallace, Harry Bruce
1912 Warren, Albert Edmund
1906 White, Ethel
1907 Whitehead, Mary
1906 Wilson, Florence
1908 Wilson, Florence Grey
1905 Wilson, George William

Bachelor of Arts

1908 Abrahams, Solomon
1909 Allott, Effie Gwen
1906 Anderson, John
1912 Anderson, Mabel Maud
1909 Anderton, Louisa
1912 Anson, Jane Ridsdale
1905 Armitage, John Henry
1906 Armstrong, Lilias Eveline
1911 Arnold, Edith
1905 Atkinson, Janet
1912 Banks, John Cook
1905 Barras, Elsie Clara
1906 Bartle, Ida
1909 Batchelor, Edith
1911 Bean, William Harold
1911 Beevers, Sydney
1908 Bentley, Hannah Grimshaw
1912 Bentley, Owen
1912 Bevan, Albert Edward
1910 Billam, Bertram
1905 Bishop, Sarah Ellen
1906 Boardman, Ernest Edmund
1906 Bradley, Florence Margaret (Mrs. Rydall)
1905 Braithwaite, William Dalston
1905 Brigham, Fanny Muriel
1911 Broadley, Mary Anne
1907 Brown, Constance Mabel
1912 Brown, George Frederick
1910 Bucknall, Charles John
1905 Burgess, Lillie
1905 Burley, Leo Le Gay
1910 Butler, Gloxinia
1911 Carter, John Wilfrid
1912 Caukill, Francis
1909 Cawthron, Edwin
1905 Chard, Edith Annie
1911 Charlton, Henry Buckley
1908 Charlesworth, Alice
1910 Claridge, Marjorie Muriel
1911 Clarke, Charles Dougan
1910 Coppock, Laura
1908 Cowling, Alice Beatrice
1912 Cowling, George Herbert
1910 Croft, Alice Mary
1912 Cross, Ernest
1911 Crossland, Elsie
1905 Dalton, John Edwin
1906 Darycott, Ernest Jenkinson
1911 Dawson, Thomas Henry
1909 Dean, Arthur Ernest
1912 Dearden, Gladys May
1909 Dearnley, Charles
1905 Denby, Maurice
1905 Dickinson, Frederick Walter
1910 Dixon, Annie
1906 Dixon, Elizabeth
1905 Dobson, Constance (Mrs. Wheatley)
1907 Donaldson, Lawrence Richard Leverton
1910 Doody, Ellie
1905 Easterfield, Thomas Hill
1911 Elliott, Ruth
1905 Elliott, Spencer Hayward
1910 Ellis, Arthur Harold Carteret
1911 Ellis, Henry Carl Noel
1912 Emsley, Edith
1905 Fairbrother, Jessie
1911 Fairley, Duncan
1910 Findlay, William Gillanders
1911 Firth, John Rupert
1907 Flynn, Bridie
1905 Fox, Arthur Cunliffe
1905 Foggitt, Emma
1911 Foggitt, Ida
1908 Frank, Dorothea Ethel
1906 Gale, Florence
1912 Galpine, Dorothy
1905 Garside, Bertha
1905 Gascoigne, Evelyn May
1911 Garton, Ida Mary
1911 Gibson, George William
1908 Golding, Mary Muriel
1905 Gray, Arabella Hyde Janet Ethel
1905 Gray, Catherine Isabella (Mrs. Welpton)
1910 Gray, Isabel
1910 Greenberg, David
1907 Greening, Edward Baptist
1912 Greenwood, Emily Maud
1910 Groves, Winnifred Halliday
1910 Hale, Agnes
1910 Halliday, Wilfred Joseph
1909 Hand, Harry Aram
1912 Harding, Reginald
1905 Hepworth, Frank
1905 Hepworth, Minnie

1912 Hewson, Frank Richard Hick
1905 Hield, Esther Margaret
1911 Hinckley, Philip
1905 Hirst, Miriam
1905 Hitcham, Charlotte Elsie
1905 Holgate, Jane
1905 Holmes, Ethel (Mrs. Chapman)
1910 Hopkins, Eric Arthur
1911 Horne, Mary Osyth
1908 Horsfall, Jessy Eveline
1911 Hosking, John
1908 Howe, Grace Alice
1912 Hoyle, Harold
1910 Hudson, Harry
1905 Hudson, Margaret Ellen (Mrs. Parnaby)
1912 Huffington, Thomas
1905 Hurst, Thomas Ockerby
1910 Hyde, Francis Austin

1906 Jackson, Mabel
1906 Jackman, Elizabeth
1912 Jameson, Margaret Ethel
1912 Jenkins, Elsie Mary
1911 Johnson, Dorothy
1912 Jordan, George Jefferis

1912 Kirk, Leonard Bertram
1911 Kirtland, Dorothy Mary
1912 Kitson, Mary Ellen
1910 Klamborowski, Wilfred Stephen
1907 Langstaff, Bilton, B.Sc.
1907 Lea, George William
1909 Lee, Catherine
1912 Libbish, Barnet
1906 Lidbetter, James Staples
1906 Linforth, Edith Mary Elizabeth (Mrs. Rowe)
1905 Lister, Martha
1908 Lock, John
1909 Longbottom, Nellie
1911 Longstaff, Stella Marguerite
1905 Maccoby, Sarah Judith

1912 McKay, Annie Armstrong
1911 Major, Irene Carlotta
1911 Martin, Ismae Knox
1909 Martin, Thomas Haigh
1909 Matthews, Basil Wilfrid
1911 Mawson, Bertha
1910 Mellors, Clarissa Florence Horsley
1911 Miller, Florence Clark
1910 Miller, Henry Claude
1911 Miller, Solomon
1906 Mitchell, Margaret
1905 Mitchell, Myra
1911 Moody, Sydney
1909 Morrell, Frank
1905 Mountain, Eliza
1909 Murphy, Grace Louisa

1908 Naylor, Alice Maude
1906 Nicholson, Ethel

1910 Ostrehan, Arthur Clement Henry
1907 Outram, Edith May
1905 Owen, Florence

1911 Papworth, Harold Charles
1911 Peacey, Basil William
1908 Pearson, Eunice
1906 Perfect, Douglas
1908 Perkins, Sarah Elizabeth
1910 Phillips, Dorothy
1910 Pickering, Harry
1910 Pilling, James Arthur
1911 Pickett, Bertram Arthur
1911 Pollard, Mabel
1905 Porritt, Florence Mary (Mrs. Bennett)
1911 Potter, Hilda
1911 Pounder, Benjamin William
1907 Poynton, Lucy Ellen
1905 Precious, Julia Hopper

1910 Quarterman, John Richard

1911 Race, Ida Cunningham
1912 Radford, Conrad William Rich
1912 Raisman, Abraham
1910 Ramsden, Arthur
1905 Raven, Hilda Mary
1910 Reakes, Gilbert Spofforth
1911 Redfearn, Florence Mary
1909 Rennard, Thomas Ambler
1910 Rennie, William Heron Maxwell
1912 Reynolds, Carrie
1911 Rhodes, Arthur Wellesley
1906 Rider, Martha Hannah
1905 Ridge, William Sheldon
1905 Robinson, Lilian Dorothea
1905 Rogers, Hannah

1906 Rogers, Violetta (Mrs. Grimshaw)
1912 Sampson, Catherine Ruby
1911 Sanderson, Tom
1912 Scott, Julia Penketh
1905 Scruton, Harriett Annie
1906 Scruton, Kate Ellen
1912 Shackleton, Arthur Percival
1910 Shaw, George Lawson
1905 Sheard, Dora
1905 Sheard, Mary Beatrice
1911 Sheldon, Clara
1911 Shout, Leonard West
1905 Skinner, Mabel
1907 Southern, Alfred Collingwood
1910 Speight, Philip Henry
1912 Speight, Rose
1906 Spencer, Frances Mary Elvira
1910 Spruce, Gladys
1910 Stainsby, George William
1912 Standing, Christine
1907 Storey-Bates, William Edward
1910 Stradling, Ethel Milnes
1910 Strothard, Hubert Turner
1912 Taylor, Bertha
1910 Taylor, William Alexander
1912 Thomas, William Calvert
1911 Tomlinson, John Lansdowne
1906 Townsend, Florence Emma
1905 Turner, Harriet Marie
1912 Twitchin, Elizabeth Edwards
1911 Varley, Annie
1905 Walker, Ada
1912 Walker, Emily Ethel
1905 Walker, Julia Beatrice
1911 Wallace, Dorothy Kate
1909 Ward, Alice Rose
1906 Warnes, Sarah Catherine
1905 Waterhouse, Osborn
1905 Watson, George Alston
1907 Weatherell, Thomas Bertram
1912 Webster, Herbert
1911 West, Evangeline
1906 White, Arthur Ernest
1912 Whitley, Arthur
1910 Wilson, Muriel Margaret
1905 Wilson, Selina Ethel
1908 Winter, John Edgar
1910 Witty, John Robert
1905 Wood, Jessie Graham
1910 Worsnop, Edgar
1909 Wortz, Frederick Robert
1912 Wright, Beatrice Hilda
1911 Wright, Bertha Helen
1905 Wrigley, Isaac

Bachelor of Laws

1908 Beecroft, Philip Beilby
1907 Brayshay, Stanley, B.A.
1909 Croft, Thomas Lister
1909 Daiches, Salom
1909 Fisher, Arthur Samuel
1908 Gundill, Edward Norman
1910 Harrison, William
1911 Ineson, Donald Gordon
1910 Knowles, Geoffrey
1905 Lee, Edmund
1906 McConnell, John William
1908 Maude, Arthur Percy Lees
1911 Milner, James
1910 Morgan, Richard Felix
1905 Robson, William Newby
1906 Scott, Hubert Edward
1910 Scriven, Charles
1905 Sykes, James
1906 Wade, James Mervyn

Faculties of Science and Technology

Doctor of Science

1910 Briggs, Samuel Henry Clifford
1909 Dakin, Henry Drysdale
1907 Dawson, Harry Medforth
1907 Denison, Robert Beckett
1905 Dwerryhouse, Arthur Richard
1905 Frankland, John Naylor
1905 Ingle, Harry
1905 Mann, Harold Hart
1910 Raper, Henry Stanley
1907 Standing, Herbert Fox
1905 Varley, William Mansergh

Master of Science

1905 Agar, Herbert William
1905 Andrews, William Allen
1912 Appleyard, Alfred
1911 Ark, Harry
1912 Atkin, William Rearden
1910 Armin, Edwin Bates
1908 Ashby, William Ewart
1906 Barker, Aldred Farrer
1911 Bearder, Ernest Arthur
1905 Beaumont, Roberts
1906 Beeley, Arthur
1907 Bennett, Hugh Garner
1905 Bevan-Lewis, William
1908 Bibby, Joseph Richard
1909 Blockey, John Reginald
1906 Bothamley, Charles Herbert
1906 Brayshay, Maurice William
1912 Brier, Albert
1912 Bright, Alfred
1908 Brittain, Charles Edward, M.Sc., Vict.
1911 Brown, Thomas
1905 *Brown, Walter Henry*
1907 Calam, Harold
1905 Calvert, Harry Thornton
1906 Chapman, Thomas William
1911 Charlesworth, John Kaye
1905 Cooper, Albert Henry
1907 Cooper, William Arthur
1905 Copley, Frederick
1906 Coulson, Alfred
1911 Couper, George Augustus
1911 Das, Biraj Mohan
1907 Davies, Arthur Hugh
1905 Dent, Frankland
1911 Dixon, Frank Metcalfe
1910 Dudley, Harold Ward
1908 Dudley, James
1912 Duffin, Joseph Francis
1905 Edwards, Ernest John
1905 Findlay, Mary Grace
1912 Fort, Morris
1908 Frank, George Herbert
1905 Fry, George Cecil
1906 Gardner, Walter Myers
1910 Gaut, Robert Charles
1907 Gaunt, Rufus
1905 Gawler, Robert
1912 Gerard, Inglis Joseph
1911 Gilchrist, David
1912 Glick, Nathan Bernard
1905 Goodman, John
1907 Goodson, Ethel Elizabeth (Mrs. Osborne)
1905 Grant, Charles Henry
1905 Green, Arthur George
1911 Guy, Ernest
1910 Haigh, John Henry
1905 Hammerton, Jonas
1905 Hefford, Charles Nelson
1912 Hickson, Bernard
1911 Hill, James
1910 Hinckley, Arthur
1907 Hodsman, Henry James
1907 Horsfall, Ronald Smith
1912 Houldsworth, Hubert Stanley
1905 Hummel, John James
1910 Hurst, Frank
1908 Jackson, Colin Gyrth
1905 Jackson, Harry Percival
1909 Jenkins, Gilbert Ramsden
1907 Jordan, Albert
1905 Jowett, Albert
1912 Kench, Henry
1905 Kendall, Percy Fry
1907 King, Charles Arthur
1905 King, Herbert
1911 King, William Norman
1905 Kirby, Frederick Oscar
1909 Leslie, May Sybil
1907 Lister, Mary Florence Grace (Mrs. Appleton)
1905 Littlewood, Harry
1909 Marshall, Francis
1912 Marshall, Joseph
1908 McGill, Ernest Arthur
1912 Mellor, Fred
1910 Mitchell, John Arnold
1907 Morrison, James Alexander Shepherd
1905 Motley, Parker
1910 Mountain, Frank
1905 Norminton, Harold
1910 Omar, Abdel Mageed
1908 Outram, Nora Aline Jane
1910 Paniker, Manakath Allampatath Ramunni
1905 Parr, George Dudley Aspinall
1911 Parsons, Ernest

1911 Powis, Frank
1905 Procter, Henry Richardson
1911 Rankin, William Mann
1911 Rawling, Francis George
1907 Richardson, John Stocks
1912 Rowe, Frederick Maurice
1910 Sen, Rajendra Nath
1911 Seymour-Jones, Arnold
1908 Shuttleworth, Newton
1908 Sinson, Israel Lewis
1905 Skirrow, Frederick William
1906 Slater, John Henry
1907 Smailes, Alan
1910 Steinthal, Paul Telford
1908 Sykes, Albert Howarth
1912 Taylor, Arthur
1912 Thompson, Frederick Charles
1905 Thompson, John Thomas
1907 Thorp, George
1911 Thornton, Harold
1907 Townsend, Robert
1907 Turner, Florence Mary Beatrice (Mrs. Thomson)
1906 Unwin, Ernest Ewart
1911 Varley, Gilbert
1911 Walker, Emily Farrington
1905 Walker, Henry Secker
1910 Ward, Herbert Wainwright
1909 Webster, Herbert William
1910 Westerman, Mabel
1909 Whitaker, Herbert
1911 White, Robert George
1905 Whiteley, Charles Edward
1912 Wilson, John Harry
1911 Wood, George
1909 Woodhead, Arthur Edmund
1912 Woodman, Herbert Ernest
1905 *Wright, Charles James*

Bachelor of Science

1905 Ackroyd, John Prest
1912 Ackroyd, Louis
1909 Addison, Herbert
1911 Airey, Cecil Philip
1911 Alderson, Arthur Howard
1905 Allen, Lilian
1906 Anson, Emily
1909 Appleyard, Ada Evelyn
1905 Appleyard, John Henry Ross
1905 Armes, Henry Percy
1906 Armes, Jane Prue
1908 Armitage, Harry
1912 Armstrong, William Leslie
1909 Arnold, Joseph Sykes
1907 Baddiley, James
1908 Bailey, Annie Rosa
1910 Bainbridge, James Scott
1911 Bales, Sidney Hartley
1909 Bannister, Albert
1908 Barker, Christopher James
1905 Barlow, Percival Smith
1905 Barton, Edith Beatrice
1910 Bayley, John Henry Stewart
1909 Beckwith, Kathleen Mary
1910 Bell, Alfred Glaize
1907 Bell, Herbert Nutter
1909 Bendrey, Hilda
1912 Bennett, Percy
1912 Best, Thomas Edward
1907 Birkhead, Florence Ethel
1911 Blackburn, Clarice Lawton
1910 Bond, James Ryding
1905 Booth, Meyrick
1907 Bowes, George Robert
1905 Boyd, Simeon
1910 Boyle, Henry Kirk
1911 Brekke, Lorentz Oliver
1912 Briggs, Margery Haining
1905 Briggs, William, M.A., LL.D., Cantab.
1905 Broadhead, James Arthur
1906 Broadley, William
1907 Brook, Annie
1905 Brook, Harry
1912 Brooksbank, Ethel
1905 Bruce, Mary Walbrand (Mrs. McCrae)
1912 Bull, Walter
1905 Bulman, John Arthur
1905 Burgess, William Ernest
1908 Burras, Catherine
1912 Burton, Donald
1910 Callender, George Dougal
1907 Cameron, James Neild
1906 Carlton, George Westerdale
1909 Carter, Frederick Edward
1911 Chapman, Sarah Elizabeth
1906 Claridge, Margaret Elsie

1905 Cobb, John William
1912 Cobbold, Hazen Nevill Herbert
1910 Cockburn, Edward Colin
1910 Colbert, Thomas Henry
1911 Coldbeck, Malcolm Stanley
1909 Coope, Hilda
1906 Cooper, John George
1912 Coultas, Harold Wilberforce
1911 Courtice, George Robert Aulton
1905 Coxon, Lawrence Adams
1905 Craig, David
1905 Crawshaw, Annie
1909 Crawshaw, Nellie
1909 Crosby, Berkley Cecil
1905 Crosfill, John
1906 Crosland, Percy Field
1907 Cross, William Ernest
1912 Crowther, Fred
1906 Crowther, Herbert
1908 Crowther, Philip Townsend
1907 Crowther, William Edmund
1909 Cundall, Leonard Bertram
1905 Cunningham, Jean Orme
1911 Curtis, Horace

1907 Davies, Hamilton
1908 Davies, Henry
1905 Davies, Ivor Parry
1910 Davison, Irene Edith
1911 Davison, Florence Mary
1910 Dawson, John Barkas
1912 Dawson, Thomas Rayner
1905 Denbigh, George James
1905 Dickinson, Cyril
1906 Draper, Alick Darby
1910 Duchesne, Henry
1906 Dudley, Nora
1910 Dugdale, Norris

1910 Earle, Frank Maynard
1908 Ebbage, Edith Mabel
1906 Elliott, Bertram Warren
1905 Ellis, James John
1906 Ellis, John Newman
1905 Everett, James Herbert

1911 Farnish, John
1905 Fearnley, Lewis William Knapton
1910 Feather, Myra
1906 Field, Margaret
1910 Fielden, Harold
1905 Finn, Cornelius Philip
1907 Fletcher, Alfred Edgar
1905 Forsyth, Christina Brand
1908 Fottrell, Edward Joseph

1908 Gaunt, Louis Henry Armistead
1905 Goddard, Clara Annie
1908 Goddard, Edith Eleanor
1908 Goddard, Ethel Mary
1912 Goldstone, Cecilia
1908 Goodson, Arthur Godfrey
1905 Gomersall, Ernest Edward
1910 Gould, Percy
1910 Graham, Hugh Colborne
1905 Grant, Frederick Ernest
1905 Greenwood, Arthur
1909 Greenwood, Edward Joseph Bernal
1907 Gregg, Herbert Atkinson
1905 Gregory, Frederick Maurice
1911 Gregson, Annie
1909 Groocock, Helena
1905 Gunter, John Henry

1905 Haler, Percy James
1910 Hall, William
1911 Hamer, Ernest Fenton
1905 Hampshire, Florence Elizabeth
1906 Hansell, John Bentley
1905 Harding, Oswald Jackson
1905 Hardy, Joseph
1910 Hardisty, Victoria Lavinia
1907 Hargreaves, Edith
1905 Hartley, Percival
1908 Haworth, Richard
1912 Hayes, Robert Andrew
1905 Hefford, George Winfield
1905 Heptinstall, Richard
1910 Hewerdine, Harry
1912 Hewitt, Percy George
1912 Hey, Minnie
1905 Hield, Mary Elsie
1905 Hilary, Daisy
1905 Hirst, Henry Reginald
1905 Hobart, John William
1905 Hobley, Robert Arthur
1911 Hole, Herbert Wray
1906 Holgate, Edward
1912 Hollings, Harold

1909 Holroyd, Eleanor Mary
1912 Holroyd, Thomas Arthur
1911 Hoppenstadt, Isaac
1905 Hummel, Alfred Roland Ure
1907 Hummel, Ernest Lonsdale
1905 Hunt, Francis William
1905 Hunter, Herbert
1905 Hurtley, William Holdsworth
1905 Hutchinson, Florrie
1905 Hutton, Wilfred
1905 Ingle, Herbert
1910 Ismail, Mohammed
1905 Jackson, Arthur
1911 Jackson, Percy Gladstone
1910 Johnson, Charles Lester
1905 Johnson, John William Haigh
1912 Johnson, William
1912 Judd, Harold Arthur
1912 Kaminski, Rebecca
1905 Kay, Douglas John
1905 Kaye, Edward Percy
1911 Kendall, Percy Fry
1905 Knowles, George William, M.A., Royal Univ., Irel.
1907 Lacy, Arthur
1905 Langstaff, Bilton
1907 Law, Marion Rosalind
1910 Lee, Elsie
1911 Lishman, Arthur Vincent
1905 Livesey, Charles Edwin Leonard
1905 Lodge, Harry Livingston
1905 Lord, William Ernest
1905 Lowson, William
1907 Loyd, Jessie
1905 McCandlish, Douglas
1912 McKee, Sarah Mary
1912 McMillan, Mary McWhirter
1907 Maddison, Wilfred Guy
1911 Makinson, Nora Isabel
1905 Manasseh, Antonius Joseph
1910 Mann, Clarissa
1908 Mann, James William
1909 Margetts, Percy Alexander
1905 Marriner, William Wright
1905 Marsden, Ernest Vane
1909 Marsh, Frank Salton
1905 Marshall, Herbert
1910 Mason, George Samuel
1909 Mawson, John Halliwell
1911 Midgley, Michael Mortimer
1905 Morris, Florence Annie
1905 Morton, Dora
1910 Morton, Gordon
1905 Moss, Charles Edward
1908 Mulcahy, Julia
1905 Murphy, Harold Newton
1906 Myers, Mary Alice
1905 Nicholls, Percy
1908 Normington, May
1911 North, Neville Marriott
1905 Oddy, Annie Maude
1912 Ogden, Herbert
1905 Owen, Samuel Joseph
1905 Peacock, Arthur
1906 Pearce, Cyril Thomas
1911 Pearson, William
1912 Pearson, William
1912 Pickard, Miriam
1905 Phillipson, Abram
1908 Platts, Matthew George
1905 Pocklington, Henry Cabourn, B.A., Cantab., D.Sc., Lond.
1910 Priestley, Edmund
1912 Priestman, Kenneth Mallorie
1906 Procter, Herbert
1912 Raistrick, Harold
1907 Raistrick, John William
1912 Rawling, Arthur
1905 Rayner, Herbert Emmett
1912 Redfearn, George Richard
1912 Rhodes, Alfred Irving
1908 Rhodes, Norman
1912 Richardson, Charles Richard Sugden
1910 Richardson, Mark Alexander
1907 Rider, Charles Matthew
1908 Riley, Frank
1909 Roberts, Augustus Alphonso
1912 Robinson, Milton
1906 Ross, William Oatey
1906 Rydall, George Herbert
1905 Scholefield, Fred
1906 Schmitz, Herman Emil
1905 Scouller, Walter Daly
1905 Scruton, Harold Adams
1911 Senior, George
1905 Shacksnovis, Reuben
1905 Shorter, Sydney Alfred

1911 Simpson, Thomas Cooper
1905 Skirrow, Benjamin Beck
1908 Smith, Bracewell
1905 Smith, Henry Archbold
1905 Sowerbutts, Edith Utley
1905 Standing, Edwin Mortimer
1905 Stead, Frank Cawthron
1912 Stephenson, Cyril Richard William
1905 Stewart, Tom
1911 Stillwell, Samuel Thomas Cryer
1905 Stocks, Arthur
1905 Studley, Charles Wilcock
1907 Sutcliffe, James
1905 Taylor, Francis
1905 Thompson, George Robert
1905 Thompson, Hubert
1909 Thornton, Edwin
1910 Thornton, Harold
1905 Thorp, Samuel
1905 Thorp, Walter
1905 Tiffany, Frank
1905 Tiffany, Joseph Edgar
1910 Tillott, Harry
1910 Tingle, Robert Lacey Aubrey
1907 Tomlinson, John Arthur
1906 Tomlinson, Thomas Fowler
1907 Turner, Frederick William
1908 Tunnicliffe, Eveline Mary
1912 Vaughan, John David
1908 Vernon, Edgar
1908 Vince, Eva Mary
1905 Wagstaffe, George William
1905 Waite, Joseph Harold
1905 Walbank, Wilfrid Stephen
1912 Walker, Evelyn
1910 Walker, James
1905 Walker, Joshua
1908 Walker, Leonard
1906 Ward, Margaret Naomi (Mrs. Lasker)
1906 Warin, Phillipson
1905 Warmington, Edith (Mrs. Warmington)
1908 Watson, James Arthur
1908 Watts, Frank Maxfield
1908 West, William Ernest
1905 Whaley, James
1910 Whalley, Lewis
1912 Wharram, Charles Etherington
1910 Wheatley, Robert
1905 White, William Henry
1905 Whitehead, Pollie
1911 Whiteley, Ada
1905 Whittaker, Croyden Meredith
1909 Wilby, Arthur Edwin
1907 Wilkinson, Eltoft Wray
1912 Wilson, Ernest Percival
1905 Wilson, Frances Annie
1905 *Wise, Julian Stanton*
1912 Wood, George
1910 Wood, Louis Albert
1905 Wood, Margaret (Mrs. Priestman)
1910 Woodhead, Gertrude Ramsden
1909 Woodmansey, Arnold
1910 Woodward, Arthur
1912 Wray, John Lamport
1911 Wright, Charles
1910 Wrigley, Florence Mary
1908 Zelensky, Lily Aurelia
1905 Zortman, Israel Hyman

Faculty of Medicine

Doctor of Medicine

1906 Anderson, William Jenkins Webb
1910 Gloyne, Stephen Roodhouse
1905 Parkinson, Arthur Stanley
1905 Stoney, William Walter, M.D., Vict.
1903 Turton, Edward
1910 Vallow, Harold

Master of Surgery

1910 Gough, Alfred

Bachelor of Medicine and Bachelor of Surgery

1911 Acomb, John
1905 Bailey, Fred
1911 Bastable, Arthur Langford
1907 Bibby, James Paley
1905 Birtwhistle, Frederick Percy Hewetson
1905 Boyle, Alan
1905 Braithwaite, Leonard Ralph
1905 Brierley, Wilfred Edward
1905 Broadley, John
1911 Brown, Charles Suffield
1905 Brown, Henry
1910 Brown, John Perrin
1911 Caplan, Harry
1907 Carter, Godfrey
1906 Crawford, James Stirling
1905 Cundall, Edward
1906 Daly, Ramsay Lamy
1905 Darlow, Francis
1905 Deane, Arthur Maslen
1907 Dibb, William Land
1905 Dixon, Robert Garside
1906 Dobson, Francis George
1912 Dunbar, Leslie
1905 Eames, Charles William
1905 Fearnley, Harold
1912 Ferguson, John
1911 Fisher, John Barugh
1906 Flint, Ethelbert Rest
1909 Flint, Horace Lance
1908 Frobisher, James Hebblethwaite Martin
1905 Greaves, Frederick William Marshall
1905 Greenwood, Charles Henry
1905 Greenwood, Henry Harold
1905 Greenwood, William Osborne
1906 Hackworth, Vivian Cuthbert
1907 Hardy, Digby Wrangham
1910 Hart, Walter Sidney
1905 Hayes, Frederick William
1909 Hepworth, Sydney Milverton
1910 Hessel, William Thomas
1905 Hopton, Ralph, M.D., Lond.
1906 Hummel, John James, M.Sc.
1905 Hustler, George Herbert
1910 Ingham, Harold Norman
1905 Kellett, Alfred Featherstone
1906 Kendall, Frank Edward
1911 Keswick, John Barton Thompson
1912 Kirk, George William Lister
1905 Ladell, Robert George Macdonald
1905 Legge, James Huntly
1905 Lister, Thomas Edmund
1911 Little, Cuthbert Joseph Harwood
1906 McKane, William Oliphant
1905 Mackenzie, Alexander, M.A., Cantab.
1905 Macvean, Herbert James
1911 Macvie, George Ernest
1905 Maffin, Harry
1905 Manknell, Arthur
1905 Matthews, Crawfurd Tait
1912 Mellis, George Pickard
1908 Mitchell, Guy Annesley Carter
1905 Moorhouse, Charles Herbert
1905 Morton, Armitage
1910 Musson, John Percy
1908 Nichol, George Colin Henderson
1911 Nunneley, Francis William
1906 Radcliffe, Roland Brooke
1910 Raper, Henry Stanley
1906 Reed, Ernest William
1905 Reed, John Arthur
1911 Riley, Arthur
1911 Robinson, William
1905 Seaton, Douglas
1910 Sharpe, Claudius Galen Kaye
1909 Shaw, William
1911 Sinson, Julius Barnet
1910 Slocombe, Bernard Atkinson
1905 Smailes, William Herbert
1905 Smith, Charles Nixon
1909 Smith, Reginald Eccles
1905 Spink, Ernest William, M.D., Lond.
1905 Stansfield, Harry
1910 Stockdale, George Vincent
1905 Stott, William Atkinson
1905 Suggit, Bertram
1909 Thoseby, John Norman Lonsdale
1905 Todd, Aldred Bertram Slingsby

1905 Tomlin, Herbert
1906 Trumper, Oscar Bagster
1910 Twist, Norman Stuart
1906 Walker, Albert Latimer
1911 Walker, John Perry
1905 Walker, Melville George Leslie
1911 Walker, Thomas Lockwood
1905 Wells, George Lee
1905 Whalley, Frederick
1906 Whitehead, Thomas
1911 Wigglesworth, Frank
1905 Wilks, Stephen Longmore Butterworth, M.D., Lond.
1905 Willans, Charles Rudolph
1906 Williamson, Joshua

DIPLOMAS (UNIVERSITY OF LEEDS)

Education

1905 Barton, Edith Beatrice

1906 Conyers, Hilda
Edwards, Maud Mary
Owen, Florence
Robinson, Lilian Dorothea

1907 Claridge, Margaret Elsie
Dunlop, Marian Vaughan
Illingworth, Maria Emma
Myers, Mary Alice
Outram, Nora Aline Jane
Whitehead, Mary

1908 Flynn, Bridie
North, Fanny Caroline
Thomas, Sydney Hardisty
Walker, Jessie

1909 Bailey, Annie Rosa
Frank, Dorothea Ethel
Golding, Mary Muriel
Hirst, John Crosland
Mallinson, Dorothy
Normington, May
Simpkiss, Nellie
Zelensky, Lily Aurelia

1910 Bendrey, Hilda
Dean, Arthur Ernest
Hobson, Elsie Irene
Lawson, Leah Gardner
Maud, Ida Marian
Perham, Ethel Kate
Ward, Herbert Wainwright

1911 Butler, Gloxinia
Caldwell, Sarah Jane
Phillips, Dorothy
Wilson, Muriel Margaret

1912 Broadley, Mary Anne
Foggitt, Ida
Gregson, Annie
Hooper, Dorothy
Kirtland, Dorothy Mary
Miller, Florence Clark
Wright, Bertha Helen

Commerce

1904 Whiting, John Roland
1906 Potts, Roland Beeton
1910 Barringer, Ronald

Teachers of French

1907 Crowther, Jane Elizabeth
Woodman, Hilda

1908 Hawkes, Geoffrey
Holdsworth, Ethel
Lavington, Mabel Jessie
Lord, Mabel Alice
Poustie, Jessie
Robinson, Joseph
Spink, Gertrude Annie
Warren, Frederick

1909 Abbott, Constance Maude
Best, Winifred Jane
Cooke, Sarah Grace
Frank, Dorothea Ethel
Hollom, Edith Gertrude
Ife, Mary Eleanor
Lingard, Jonas Hartley
Walker, Theodora Minnie Hirst

1910 Abbott, Clifford Hewson
Copland, Marjorie Sempill
Cromie, Eily Kathleen

1911 Hutchinson, Herbert Stafford
Lochore, Beatrice
Riley, Sarah Annie
Storr-Best, Gertrude Morfydd
Ward, Edith
Young, Constance Evelyn

1912 Castle, Clara Jane
Edwardes, Henry Fred Edgecumbe
Irwin, Guendolen
Müllett-Ward, Annie
North, Kate Victoria
Whillier, Agnes
Wylde, Jessie Irene
Young, Arthur Button

Teachers of German

1907 Oates, Ethel Marian
1908 Ife, Mary Eleanor
1910 Boardman, Ernest Edmund
1911 Edwards, Henry Fred Edgecumbe
Lingard, Jonas Hartley
Palmer, Margaret Elizabeth
1912 Bolton, Ethel Addison
Broadley, Mary Anne
Jones, Anne Elizabeth.
Kirtland, Dorothy Mary
Taylor, Dora

Mechanical Engineering

1905 Wharton, John
1909 Tsing Ming-Poh
1911 Farnell, Maurice

Civil Engineering

1908 Bauer, Noah
1909 Hsu, Hoon Yu
1912 Foad, Mohammed
Kerr, Harold

Electrical Engineering

1904 Foulds, John Rhodes
1905 Chippindale, Isaac Murray
Hamilton, James
1906 Richardson, Thomas Brook
1909 Baldwin, Ewart Vernon
Humphreys, Percy Harry Illingworth
Peam, Ferdinand
Pedley, Francis Leonard
Sheard, Percy

Coal Mining

1904 Frazer, Edgar Hamilton
Paterson, George Stewart
Willey, Edward
1908 Holden, Athole Frederick.
1910 Kay, Stanley Burnett
Mawson, Frank
1912 Gill, Joseph

Fuel and Metallurgy

1911 Walker, James

Gas Engineering

1911 Armstrong, Percy

Textile Industries

1909 Cockcroft, Ernest Edward
Chattapadhaya, Nolini Mohan
1910 Lo Ting Yu
Meirielles, Joas Magalhaes de Azevedo
Wong, Ka Luen
Kelly, John
1912 Bonhomme, Jean Raymond
Crowley, Frederick Hugh
Dircks, Hugh Douglas
Krishna, Raj
Saruvanov, Dimitre
Turner, Ernest

Dyeing

1906 Sen, Gopal Chundra
1907 Dawson, Walter
Marchant, Ernest Norman
1908 King, Percival Edgar
1909 Sen, Rajendra Nath
1910 Bearder, Ernest Arthur
Viccajee, Sohrab Framjee
1911 Rowe, Frederick Maurice
1912 Fort, Morris
Hickson, Bernard
Holroyd, Thomas Arthur
Johnson, William

Leather Manufacture

1904 Casaburi, Vittorio
Doikawa, Saichiro
Prévôt, Jules Mathieu
1906 Feldheim, Herman Dietrich Ernst
Mende, Stephan
1907 Blyth, James Rupert
Hardie, Alexander Greenhorn
Morrison, James Alexander Shepherd
1908 Fenner, Joseph Henry
1909 Bose, Surendra Nath
Ellis, Leonard Eric Kensett
Paniker, Manakath Allampatath Ramunni
Sen, Atul Chandra
Seymour-Jones, Arnold
1910 Callender, George Dougal
Coulthard, Ernest
Ismail, Mohammed
1911 Dobson, Joseph Stanley
Rashid, Mohammed Abdur
1912 Faizuddin, Syed
Friestedt, Sven Hjalmar
Hilton, Frank
Uddin, Syed Mohammed Amin

Public Health

1906	Halliwell, Thomas Oates
1907	Scatterty, William
	Sharpe, Frederick Augustus
	Mason, Harry
1909	Carnes, William
	Crake, Herbert Milverton
1910	Greaves, Frederick William Marshall
	Ashmore, Patricius Wallace
	Hitchins, William Mayne
	Mason, John Harold
1911	Smith, Charles Nixon
	Pickles, Clifford Crawshaw
1912	Chambers, Guy Oldham
	Dick, Alexander
	Dobson, Donald Frederick

Dental Surgery

1909	Salt, Charles Frederick
	Wilson, Francis Cecil
1910	Bentley, Harold Rawbert
	McKay, George Simpson
	Howden, Ernest
1912	Rushton, Irvine

Psychological Medicine.

1912	Moyes, John Murray
	Waldron, Ethel Annie

UNIVERSITY OF LEEDS
FELLOWS, SCHOLARS, AND PRIZEMEN

(See pages 552-591.)

VICTORIA UNIVERSITY
FELLOWS, SCHOLARS, AND PRIZEMEN
(YORKSHIRE COLLEGE STUDENTS)

University Fellowships

1899	Stuart, Wilson	*Arts*
1900	Stuart, Wilson	*Arts*
1901	Whiteley, Charles Edward	*Science*

University Scholarships

1898	Stuart, Wilson	*Philosophy*
1899	Cooper, Albert Henry	*Physics*
	Dwerryhouse, Arthur Richard	*Geology*
	Varley, William Mansergh	*Physics*
1900	Braithwaite, Leonard Ralph	*Medicine*
	Denison, Robert Beckett	*Chemistry*

1902	Stelfox, Sydney Herbert	*Engineering*
	Stoddard, Arthur Askwith	*Engineering*
1903	Raper, Henry Stanley	*Chemistry*
1904[1]	Waterhouse, Osborn	*English*
	Zortman, Israel Hyman	*Physics*

Derby Scholarship

1899 Frankland, John Naylor

John Bright Scholarship

1897 Stuart, Wilson
1899 Hartley, Harold (prizeman)
1906 [1]Waterhouse, Osborn

Mercer Scholarship

1901 Dakin, Henry Drysdale

Leblanc Prize

1891 Ingle, Harry
1892 Mann, Harold Hart
1898 Skirrow, Frederick William

UNIVERSITY OF LEEDS HONOURS SCHOOLS

Classics

1906	*Class* 1	Bibby, Edward Ernest
	,,	Butterworth, George William
	Class 2	Ashburner, Frederick
	,,	Matthews, Felix Hackett
	,,	TenBruggenkate, George Herbert
1907	*Class* 2	Hodges, Raymond John
1908	*Class* 1	Hirst, John Crosland
	Class 2	Mallinson, Dorothy
1909	*Class* 2	Dearnley, Charles
1910	*Class* 2	Croft, Alice Mary
	,,	Findlay, William Gillanders
	,,	Pilling, James Arthur
	,,	Pobjoy, Harold Norman
	,,	Reakes, Gilbert Spofforth
	Class 3	Brown, Ralph Noel
1911	*Class* 2	Clarke, Charles Dougan
	,,	Parker, Frank
	,,	Walker, Algernon Stanley
1912	*Class* 1	Raisman, Abraham
	Class 3	Webster, Herbert

[1] Victoria University of Manchester.

English Language and Literature

1905	*Class* 1	Gascoigne, Evelyn May
	,,	Holmes, Carrie
	Class 2	Conyers, Hilda
1907	*Class* 1	Walker, Jessie
	Class 2	Moulden, John William
1908	*Class* 1	Hogan, Kathleen
1910	*Class* 1	Speight, Philip Henry
	Class 2	Mellors, Clarissa Florence Horsley
	,,	Pickering, Harry
	Class 3	Coppock, Laura
	,,	Strothard, Hubert Turner
1911	*Class* 1	Charlton, Henry Buckley
	,,	Fairley, Duncan
	,,	Major, Irene Carlotta
	,,	Phillips, Samuel
	Class 2	Bean, William Harold
	,,	Dawson, Thomas Henry
	,,	Foggitt, Ida
	,,	Wright, Bertha Helen
1912	*Class* 1	Cowling, George Herbert
	,,	Jameson, Margaret Ethel
	Class 2	Hoyle, Harold
	,,	Huffington, Thomas
	Class 3	Speight, Rose

Modern Languages and Literatures

1905	*Class* 1	Edwards, Maud Mary
	,,	Gunnell, Doris
1906	*Class* 2	Hastings, Margaret
	,,	Illingworth, Maria Emma
	Class 3	Whitehead, Mary
1907	*Class* 1	Fairley, Barker [1]
	,,	Thorp, Hilda [2]
1908	*Class* 1	Cohen, Alexander
	,,	Murphy, Bertha Mary
1909	*Class* 1	Longbottom, Nellie [2]
	Class 2	Cridland, Dorothy
	Class 3	Batchelor, Ethel
1910	*Class* 1	Hobson, Julia [2]
	,,	Kirk, Kathleen Hylda
	,,	Stradling, Ethel Milnes
	Class 2	Butler, Gloxinia
	,,	Claridge, Marjorie Muriel
	,,	Phillips, Dorothy
	,,	Ramsden, Arthur
	,,	Spruce, Gladys
	,,	Wilson, Muriel Margaret
	,,	Worsnop, Edgar

[1] Distinguished in French and German.
[2] Distinguished in German.

1910	*Class* 3	Groves, Winnifred Halliday
	,,	Laird, Marjorie Jean
1911	*Class* 1	Carter, John Wilfrid
	Class 2	Elliott, Ruth
	,,	Kirtland, Dorothy Mary
1912	*Class* 1	Greenwood, Emily Maud
	,,	Reynolds, Carrie
	Class 2	Jenkins, Elsie Mary
	,,	Libbish, Barnet

History

1906	*Class* 2	Wilson, Florence Grey
1907	*Class* 1	Findlay, Sarah Kennedy
	Class 2	Gill, William Conrad
1908	*Class* 1	Simpkiss, Nellie
	Class 3	Hobson, Elsie Irene
1909	*Class* 1	Dean, Arthur Ernest
	,,	Peel, Albert
	,,	Wortz, Frederick Robert
	Class 2	Cawthron, Edwin
	,,	Gendall, Philip Parsons Watkins
	,,	Morrell, Frank
	Class 3	Hand, Harry Aram
1910	*Class* 1	Birtles, Arthur
	,,	Caldwell, Sarah Jane
	Class 2	Cox, Herbert
	,,	Ellis, Arthur Harold Carteret
	,,	Taylor, William Alexander
	Class 3	Hopkins, Eric Arthur
	,,	Klamborowski, Wilfrid Stephen
	,,	Stainsby, George William
1911	*Class* 1	Firth, John Rupert
	,,	Garton, Ida Mary
	,,	Heaton, Herbert
	Class 2	Hinckley, Philip
	,,	Moody, Sydney
	,,	Tomlinson, John Lansdowne
	,,	Wallace, Dorothy Kate
	,,	Warren, Albert Edmund
	Class 3	Miller, Florence Clark
1912	*Class* 2	Anderson, Mabel Maud
	,,	Harding, Reginald
	,,	Sampson, Catherine Ruby
	,,	Standing, Christine
	,,	Taylor, Bertha
	,,	Thomas, William Calvert
	Class 3	Dearden, Gladys May
	,,	Jordan, George Jefferis

Philosophy

1908	*Class* 1	Strange, Edward Howard
1911	*Class* 2	Papworth, Harold Charles
	,,	Peacey, Basil William

Mathematics

1905	*Class* 2	Phillipson, Abram
1907	*Class* 2	Smailes, Alan
	Class 3	Ashby, William Ewart
1909	*Class* 1	Marshall, Francis
1912	*Class* 2	Hayes, Robert Andrew

Physics

1905	*Class* 1	Mellor, Fred
1907	*Class* 1	Sykes, Albert Howarth
	,,	Townsend, Robert
1908	*Class* 1	Watson, James Arthur
	Class 2	Jenkins, Gilbert Ramsden
1909	*Class* 3	Ward, Herbert Wainwright
	,,	Wood, George
1910	*Class* 1	Duffin, Joseph Francis
	Class 3	Dixon, Frank Metcalfe
1911	*Class* 1	Houldsworth, Hubert Stanley
1912	*Class* 1	Ogden, Herbert
	Class 2	Bright, Alfred
	Class 3	Pearson, William
	,,	Stephenson, Cyril Richard William

Chemistry

1905	*Class* 1	Armes, Henry Percy
	,,	Bennett, Hugh Garner
	,,	Davies, Arthur Hugh
	Class 2	Crosland, Percy Field
	Class 3	Booth, Meyrick
	,,	McCandlish, Douglas
	,,	Morrison, James Alexander Shepherd
1906	*Class* 1	Hodsman, Henry James
	Class 2	Horsfall, Ronald Smith
	,,	King, Charles Arthur
1907	*Class* 1	Cross, William Ernest
	,,	Davies, Hamilton
	Class 2	Jackson, Colin Gyrth
1908	*Class* 1	Blockey, John Reginald
	,,	Leslie, May Sybil
	,,	Riley, Frank
	Class 2	Sinson, Israel Lewis
1909	*Class* 1	Dudley, Harold Ward
	,,	Webster, Herbert William
	Class 2	Carter, Frederick Edward
	Class 3	Hurst, Frank
	,,	Thornton, Edwin
	,,	Whitaker, Herbert

1910	*Class* 1	Bainbridge, James Scott
	,,	Hill, James
	,,	Johnson, Charles Lester
	,,	Powis, Frank
	Class 2	Appleyard, Alfred
	,,	Thornton, Harold
	,,	Wheatley, Robert
	,,	Wood, Louis Albert
	Class 3	Fielden, Harold
1911	*Class* 1	Atkin, William Rearden
	,,	Glick, Nathan Bernard
	,,	Woodman, Herbert Ernest
	Class 2	Rawling, Francis George
	Class 3	Bales, Sidney Hartley
	,,	Thompson, Frederick Charles
1912	*Class* 1	Dawson, Thomas Rayner
	,,	Raistrick, Harold
	,,	Taylor, Arthur
	Class 2	Ackroyd, Louis
	Class 3	Wilson, Ernest Percival

Botany

1905	*Class* 2	Turner, Florence Mary Beatrice
1909	*Class* 2	Westerman, Mabel
1910	*Class* 2	Walker, Emily Farrington

Physiology

1905	*Class* 1	Lord, William Ernest
1907	*Class* 1	Crowther, William Edmund

Geology

1906	*Class* 1	Jordan, Albert
1909	*Class* 2	Parsons, Ernest
	Class 3	Haigh, John Henry
1910	*Class* 3	Guy, Ernest
	,,	King, William Norman
1911	*Class* 1	Chapman, Sarah Elizabeth

Engineering

1905	*Class* 1	Gregory, Frederick Maurice
	Class 3	Owen, Samuel Joseph
1906	*Class* 1	Holgate, Edward
	,,	Richardson, John Stocks
1907	*Class* 1	McGill, Ernest Arthur
1908	*Class* 1	Barker, Christopher James
1909	*Class* 1	Addison, Herbert
	,,	Mawson, John Halliwell
	,,	Omar, Abdel Mageed
1910	*Class* 1	Varley, Gilbert
	Class 2	Couper, George Augustus
	Class 3	Boyle, Henry Kirk

1911	*Class* 1	Stillwell, Samuel Thomas Cryer
	Class 3	Gerard, Inglis Joseph
1912	*Class* 1	Coultas, Harold Wilberforce
	Class 3	Richardson, Charles Richard Sugden

Electrical Engineering

1907	*Class* 1	Shuttleworth, Newton
	Class 2	Wilkinson, Eltoft Wray
1909	*Class* 1	Bannister, Albert
	Class 2	Greenwood, Edward Joseph Bernal
1912	*Class* 1	Rawling, Arthur

Mining

1909	*Class* 2	Gilchrist, David

Colour Chemistry and Dyeing.

1907	*Class* 1	Baddiley, James
	Class 2	Frank, George Herbert
1908	*Class* 1	Rhodes, Norman
	,,	Woodhead, Arthur Edmund
1910	*Class* 1	Bearder, Ernest Arthur
1911	*Class* 1	Hickson, Bernard
		Rowe, Frederick Maurice
1912	*Class* 1	Holroyd, Thomas Arthur
	,,	Johnson, William

Chemistry of Leather Manufacture

1910	*Class* 1	Seymour-Jones, Arnold
1912	*Class* 1	Atkin, William Rearden

M.B. and Ch.B.

1908	*Class* 1	Mitchell, Guy Annesley Carter
1909	*Class* 1	Thoseby, John Norman Lonsdale
	Class 2	Flint, Horace Lance
	,,	Smith, Reginald Eccles
1910	*Class* 1	Raper, Henry Stanley
	Class 2	Musson, John Percy
	,,	Slocombe, Bernard Atkinson
	,,	Stockdale, George Vincent
1911	*Class* 1	Fisher, John Barugh
	Class 2	Caplan, Harry
	,,	Robinson, William
	,,	Sinson, Julius Barnet
	,,	Walker, John Perry
1912	*Class* 1	Mellis, George Pickard
	Class 2	Dunbar, Leslie
	,,	Ferguson, John
	,,	Kirk, George William Lister

VICTORIA UNIVERSITY HONOURS SCHOOLS (YORKSHIRE COLLEGE STUDENTS)

History

1891	*Class* 2	Stables, William Herbert
	Class 3	Taylor, Frank Edward
1900	*Class* 2	Scholes, Thomas Wilfrid
1904[1]	*Class* 2	Davis, William Hathaway

English Language and Literature

1904[1]	*Class* 1	Waterhouse, Osborn
	Class 2	Denby, Maurice
	,,	Elliott, Spencer Hayward
	,,	Hepworth, Frank

Modern Languages and Literatures

1902	*Class* 2	Robinson, Ethel Margaret
	,,	Stevenson, Ethel Mary
1903	*Class* 2	Mann, William Edward Wormald
1904[1]	*Class* 1	Airey, Millicent
	Class 2	Dodgson, Sarah Alice
	Class 3	Raven, Hilda Mary

Philosophy

1898	*Class* 1	Stuart, Wilson

Mathematics

1899	*Class* 1	Frankland, John Naylor
1900	*Class* 2	Findlay, Mary Grace

Physics

1897	*Class* 2	Hammerton, Jonas
1899	*Class* 1	Cooper, Albert Henry
	,,	Varley, William Mansergh
1900	*Class* 1	Shorter, Sydney Alfred
1901	*Class* 1	Grant, Charles Henry
	Class 2	Copley, Frederick
	Class 3	Andrews, William Allen
1902	*Class* 2	Denton, Ernest
	,,	Oates, James Holroyd
	Class 3	Goodson, Ethel Elizabeth
1903	*Class* 2	Thorp, Samuel
1904[1]	*Class* 1	Phillipson, Abram

Chemistry

1891	*Class* 1	Ingle, Harry
1892	*Class* 1	Mann, Harold Hart
1893	*Class* 1	Dent, Frankland
	Class 3	Archdeacon, William Henry

[1] Victoria University of Manchester.

1895	*Class* 2	Fry, George Cecil
	,,	Guthrie, Thomas
	Class 3	Hirst, Henry Reginald
	,,	King, Herbert
1896	*Class* 1	Sugden, John Henry
	Class 2	Brittain, Charles Edward
	,,	King, Arthur
	Class 3	Watson, Herbert Wood
1897	*Class* 1	Wilson, Harold Albert
	Class 2	Harrison, William Hudson
1898	*Class* 1	Skirrow, Frederick William
	Class 2	Calvert, Harry Thornton
	,,	Storr, Bertram Vincent
1899	*Class* 2	Dobson, William Henry Noël
1900	*Class* 1	Denison, Robert Beckett
	Class 2	Shepherd, Arthur Burton
1901	*Class* 1	Dakin, Henry Drysdale
	,,	Whiteley, Charles Edward
	Class 2	Gawler, Robert
1902	*Class* 1	Briggs, Samuel Henry Clifford
	,,	Grant, Frederick Ernest
	,,	Taylor, Francis
1902	*Class* 2	Gaunt, Rufus
	,,	Norminton, Harold
	,,	Redfern, Herbert Stanley
	,,	Thompson, John Thomas
	Class 3	Coxon, Lawrence Adams
1903	*Class* 1	Raper, Henry Stanley
	,,	Scholefield, Fred
	Class 2	Ellis, James John
	Class 3	Rhodes, Edwin
1904[1]	*Class* 1	Gatecliff, John
	,,	Hartley, Percival
	,,	Marshall, Joseph
	,,	Zortman, Israel Hyman
	Class 2	Calam, Harold
	,,	Chadwick, Percival Wager
	,,	Radcliffe, Norman Brooke
	Class 3	Barton, Edith Beatrice

Geology

1898	*Class* 1	Jowett, Albert
1899	*Class* 1	Dwerryhouse, Arthur Richard

Zoology

1901	*Class* 1	Standing, Herbert Fox
1903	*Class* 2	Dell, John Alexander

Physiology

1897	*Class* 2	Forsyth, John Andrew Cairns
1901	*Class* 3	Hummel, John James

[1] Victoria University of Manchester.

Engineering

1891	*Class* 1	Nicholls, Percy
1893	*Class* 2	Davis, Frederick William Daniel
1896	*Class* 2	Hefford, Charles Nelson
1897	*Class* 2	Oddy, James
	,,	Tansley, George Edward
1898	*Class* 2	Corrie, William Edward
	Class 3	Priestman, Harold
1899	*Class* 1	Linskill, William Arthur
	Class 2	Groocock, Henry Lloyd
	Class 3	Hutton, William Austin
1900	*Class* 1	Mann, Ernest Edward
1901	*Class* 2	Ballardie, George de Caynoth
	,,	Pearson, Robert John Addison
1902	*Class* 1	Stelfox, Sydney Herbert
	,,	Stoddard, Arthur Askwith
	,,	Wetherall, Arthur
1902	*Class* 2	Cryer, Edward
	Class 3	Kirby, Frederick Oscar
1903	*Class* 3	Brayshay, Maurice William
	,,	Slater, John Henry
	,,	Tennant, Norman Scholefield

M.B. and Ch.B.

1894	*Class* 2	Seaton, Douglas
	,,	Trumper, Oscar Bagster
1895	*Class* 1	Ligertwood, Charles Edward
	Class 2	Shaw, John Vincent
	,,	Trotter, Robert Hale
1896	*Class* 2	Rowling, Samuel Thompson
1897	*Class* 2	Moorhouse, Charles Herbert
	,,	Taylor, Frank Edward
1898	*Class* 1	Trotter, Edward
	Class 2	Spong, Ambrose
	,,	Turton, Edward
1899	*Class* 2	Hime, Henry Charles Rupert
	,,	Illingworth, William Arthur
	,,	Morton, Armitage
1901	*Class* 2	Saville, Edwin
1903	*Class* 1	Braithwaite, Leonard Ralph
	Class 2	Steele, Percy Kingsley
1904	*Class* 2	[1]Boyle, Alan
	,,	Tomlin, Herbert

LL.B.

1902	*Class* 1	Sykes, James
1903	*Class* 1	Jessop, Frederick Hubert

[1] Victoria University of Manchester.

THE UNIVERSITY OF LEEDS
EXAMINATION LISTS
(*September*, 1911–*June*, 1912)

Faculty of Arts (including Commerce and Law)

M.A. Examination

Classics	Brown, Ralph Noel Parker, Frank Walker, Algernon Stanley
Latin and French	Fawcett, Edwin Henry
Latin and History	Dransfield, Henry Ewart Stanley
English Language and Literature	Phillips, Samuel Thornton, William George Squire
English Literature and History	Lee, Harry
Modern Languages and Literatures	Hobson, Julia Kirk, Kathleen Hylda Laird, Marjorie Jean
History	Boden, Cecil Arthur Heaton, Herbert Maddock, William Warren, Albert Edmund
Education	Bartle, Arthur

Examination for B.A. Degree with Honours

Classics	*Class* 1.	Raisman, Abraham
	Class 3.	Webster, Herbert
English Language and Literature	*Class* 1.	Cowling, George Herbert Jameson, Margaret Ethel
	Class 2.	Hoyle, Harold Huffington, Thomas
	Class 3.	Speight, Rose
Modern Languages and Literatures	*Class* 1.	Greenwood, Emily Maud Reynolds, Carrie
	Class 2.	Jenkins, Elsie Mary Libbish, Barnet
History	*Class* 2.	Anderson, Mabel Maud Harding, Reginald Sampson, Catherine Ruby Standing, Christine Taylor, Bertha Thomas, William Calvert
	Class 3.	Dearden, Gladys May Jordan, George Jefferis

B.A. Final Examination

Anson, Jane Ridsdale
Banks, John Cook
Bentley, Owen
Brown, George Frederick
Caukill, Francis
Cross, Ernest
Emsley, Edith
Galpine, Dorothy
Hewson, Frank Richard Hick
Kirk, Leonard Bertram
Kitson, Mary Ellen
McKay, Annie Armstrong
Radford, Conrad William Rich
Scott, Julia Penketh
Shackleton, Arthur Percival
Twitchin, Elizabeth Edwards
Walker, Emily Ethel
Whitley, Arthur
Wright, Beatrice Hilda

B.A. Intermediate Examination

September, 1911

Bowker, Benjamin
Crowther, Florence
Edmond, William Seward
Longstaff, Annie
Marshall, Herbert
Masterman, Dorothy
Maude, Edgar Ringrose
Wharton, James Henry Shields

June, 1912

Bell, Edgar
Blease, Richard Morris Stanley
Breckin, Ivy
Carré, Edward Mervin
Cawthraw, George Edward
Chadwick, Florence Maud
Coggill, Wilfrid
Cohen, Samuel
Crowther, Daisy Isabel
Cuckow, Philip Edwin
Dobson, Alan
Dykes, Janet
Head, Edward Keith
Head, Jane
Hoar, Harold Stanley
Hole, Ellen Mary
Horsley, Ernest
Hurworth, Arthur
Hutchinson, Albert
Hutton, Charles William
Jennings, Elsie Emmie
Jones, Arthur Owen
Jordan, George Douglas
Ladell, Arthur Randolph
Lund, Annie Eleanor
Morland, Leonard Mark
Nesbitt, John Christopher
Pullan, Francis Norman
Rolleston, Lancelot Charles
Sheard, Kathleen
Turney, Marianne Emmeline
Webster, Fred
Weeks, Norley Cecil
Williams, Thomas
Wright, Claude Ernest

LL.B. Intermediate Examination

Lieberman, Reuben
Turnbull, Donald

Diploma in Education

Broadley, Mary Anne
Foggitt, Ida
Gregson, Annie
Hooper, Dorothy
Kirtland, Dorothy Mary
Miller, Florence Clark
Wright, Bertha Helen

Diploma for Teachers of French

March, 1912

First Examination

Edwardes, Henry Fred Edgecumbe
Young, Arthur Button

June, 1912

First Examination

Dykes, Mary Wall
Rowe, Annie Jane
Tomlinson, Alice Marian

Second Examination (carrying Diploma)

Castle, Clara Jane
Edwardes, Henry Fred Edgecumbe
Irvin, Guendolen
Mullett-Ward, Annie
North, Kate Victoria
Whillier, Agnes
Wylde, Jessie Irene
Young, Arthur Button

Diploma for Teachers of German

June, 1912

First Examination

Lochore, Beatrice
Werquin, Charles Louis Joseph

Second Examination (carrying Diploma)

Bolton, Ethel Addison
Broadley, Mary Anne
Jones, Anne Elizabeth
Kirtland, Dorothy Mary
Taylor, Dora

Faculties of Science and Technology

M.Sc. Examination

Physics - Kench, Henry
Wilson, John Harry
Chemistry - Brier, Albert
Colour Chemistry and Dyeing - Fort, Morris

Examination for B.Sc. Degree with Honours

Mathematics - *Class* 2. Hayes, Robert Andrew
Physics - *Class* 1. Ogden, Herbert
Class 2. Bright, Alfred
Class 3. Pearson, William
Stephenson, Cyril Richard William

Chemistry	*Class* 1.	Dawson, Thomas Rayner
		Raistrick, Harold
		Taylor, Arthur
	Class 2.	Ackroyd, Louis
	Class 3.	Wilson, Ernest Percival
Civil Engineering	*Class* 1.	Coultas, Harold Wilberforce
	Class 3.	Richardson, Charles Richard Sugden
Electrical Engineering	*Class* 1.	Rawling, Arthur
Colour Chemistry and Dyeing	*Class* 1.	Holroyd, Thomas Arthur
		Johnson, William
Chemistry of Leather Manufacture	*Class* 1.	Atkin, William Rearden

Ordinary B.Sc. Final Examination

Armstrong, William Leslie
Bennett, Percy
Best, Thomas Edward
Briggs, Margery Haining
Brooksbank, Ethel
Bull, Walter
Burton, Donald
Cobbold, Hazen Nevill Herbert
Crowther, Fred
Goldstone, Cecilia
Hewitt, Percy George
Hey, Minnie
Hollings, Harold
Judd, Harold Arthur
Kaminski, Rebecca
McKee, Sarah Mary
McMillan, Mary McWhirter
Pickard, Miriam
Priestman, Kenneth Mallorie
Redfearn, George Richard
Rhodes, Alfred Irving
Robinson, Milton
Vaughan, John David
Walker, Evelyn
Wharram, Charles Etherington
Wood, George
Wray, John Lamport

B.Sc. Intermediate Examination

September, 1911

Botterill, Percival
Brooke, Harold William
Hebron, Arthur
Mallinson, Eric
Mukerjee, Kshitis Chandra
Thompson, Harold Stead
Wilkinson, Ernest
Wilson, Alexander William
Wood, Lawrence

June, 1912

Abrams, Nathan
Ainley, John Ralph
Anderson, Leonard
Berry, Benjamin Arthur
Birkinshaw, John Howard
Blair, James
Cass, Edith Annie
Clayton, Charles Flesher
Crann, Thomas William
Crawshaw, Dorothy
Cusworth, Emily Ann
Harrap, Frank Nettleton
Hayes, Harry
Henderson, William Albert
Henry, William Lilburn
Jackson, Herbert Guy
Lunn, Reginald William
McGeorge, Alexander
Marsh, William Alfred
Mathers, Ronald Cyril
Moses, Abram
Mountain, John William
Musgrave, Evelyn
Parsons, George
Rosenbaum, Joseph Louis
Saba, El Saed Mohammed
Shepherd, Reginald Vernon
Stainsby, William
Thistlethwaite, Hilda
Versey, Henry Cherry
Whalley, Fred
Wilson, Maurice Lowell

Diplomas in Applied Science

Civil Engineering	Foad, Mohammed
	Kerr, Harold
Leather Industries	Faizuddin, Syed
	Friestedt, Sven Hjalmar
	Hilton, Frank
	Uddin, Syed Mohammed Amin
Textile Industries	Bonhomme, Jean Raymond
	Crowley, Frederick Hugh
	Dircks, Hugh Douglas
	Krishna, Raj
	Sarüvanov, Dimitre
	Turner, Ernest
Coal Mining	Gill, Joseph
Dyeing	Fort, Morris
	Hickson, Bernard
	Holroyd, Thomas Arthur
	Johnson, William

Faculty of Medicine

Final M.B. and Ch.B. Examination with Honours

December, 1911

Class 2. Caplan, Harry
Robinson, William
Sinson, Julius Barnet
Walker, John Perry

June, 1912

Class 1. Mellis, George Pickard

Class 2. Dunbar, Leslie
Ferguson, John
Kirk, George William Lister

Final M.B. and Ch.B. Examination

December, 1911

Part I

Butler, Leonard Henry (*New Regulations*)
Dunbar, Leslie
Kitson, Frederick Hubert (*New Regulations*)
Menon, Kesava
Pickles, John Jagger (*New Regulations*)
Shackleton, Herbert Park
Sinson, Harry

Part II

Bastable, Arthur Langford
Keswick, John Barton Thompson
Little, Cuthbert Joseph Harwood
Macvie, George Ernest
Nunneley, Francis William
Wigglesworth, Frank

June, 1912

Part I

Hesterlow, Edward
King, William Douglas Anderson

Second M.B. and Ch.B. Examination

December, 1911

Part I

Anderton, William Dinsdale
Cohen, Sam Nathaniel
Digges La Touche, John James
Foxton, Hartas
King, Frank
Lonen, William Hubert
Robinson, Henry Whitteron
Shochet, Harry
Wilkinson, John
Wilson, Colin

June, 1912

Part I

Chadwick, Richard Henry
Clarke, Digby Arthur Pebody
Hebblethwaite, Arthur Stuart
Seville, Charles Heywood

Part II

Bamford, Jane
Franklin, Hyman
Holt, Harry Mainwaring
Ingham, William Leslie
Leake, Charles Edward
Liberman, Israel
Lonen, William Hubert
Rosencwige, Jacob
Smith, Jessie
Topham, Richard Stanley
Umanski, Augusta
Walton, Francis

First M.B. and Ch.B. Examination

September, 1911

Part I

Ingham, William Leslie

March, 1912

Part I

Bamford, Jane
Dudley, Charles William
Goss, Francis Hennessey
Knowles, Cyril Reginald
Rosencwige, Max
Silverstein, Isaac
Telling, Aubrey Leonard

June, 1912

Part II

Drury, Edward Wilson
Dudley, Charles William
Goss, Francis Hennessey
Ingham, William Leslie
Knowles, Cyril Reginald
Liberman, Israel
Nightingale, Florence Annie
Rosencwige, Max
Silverstein, Isaac

First B.Ch.D. Examination

Part I

March, 1912

Baxter, Gerald Richard

Part II

June, 1912

Baxter, Gerald Richard

Diploma in Public Health (D.P.H.)

December, 1911

Pickles, Clifford Crawshaw

June, 1912

Chambers, Guy Oldham
Dick, Alexander
Dobson, Donald Frederick

Diploma in Dental Surgery (L.D.S.)

First Professional Examination

December, 1911

Gill, John Edgar

June, 1912

Clubb, Douglas Bailey

Final Examination

June, 1912

Part II (*carrying Diploma*)

Rushton, Irvine

Diploma in Psychological Medicine

June, 1912

Part I

Moyes, John Murray
Waldron, Ethel Annie

Part II (*carrying Diploma*)

Moyes, John Murray
Waldron, Ethel Annie

REGISTERED STUDENTS

Session 1911-12.

Faculties of Arts (including Commerce and Law), Science and Technology

The names of deceased students are printed in italics.
(m)—Signifies also in attendance in the Faculty of Medicine.

Abrams, Nathan
Abrams, Sam
Ackroyd, John Henry
Ackroyd, Louis
Adair, Annie
Ainley, Eric Edwin
Ainley, John Ralph
Allemand, Georges Michel René
Allott, Wilfrid
Ambler, John Walter
Anderson, Leonard
Anderson, Mabel Maud
Anson, Jane Ridsdale
Appleby, Thomas
Appleyard, Mary
ApThomas, Kerris
Ark, Harry, M.Sc.
Armitage, Catherine
Armitage, Winifred Bertha
Armstrong, William Leslie
Arundel, Herbert
Ashford, Faith
Aston, Marian Gladys Stewart
Atkin, William Rearden, B.Sc., *Brown Scholar*
Atkinson, Elsie May
Atkinson, George
Atkinson, Joseph Albert
Atkinson, Thomas Cyril
Auty, Clifford Marshall

Bagshaw, Eric
Bagster, Lancelot Salisbury
Baines, Arthur Richard
Bamford, Jane (*m*)
Banks, John Cook
Banks, Reginald Scaife
Banks, James
Barber, Clifford
Barber, Sydney
Barker, Edward
Barker, James Percival
Barker, Joseph
Barker, Richard Edgar
Barker, Wilfred Pease
Barrett, John Douglas
Bartle, Amy
Bastide, Ernest Percival
Bastiman, Arthur Charles
Batt, Doris
Battle, Alfred Ernest
Baxter, Gerald Richard
Beech, Frank
Bell, Edgar
Bell, John Scott
Bennett, Claude Denman
Bennett, John
Bennett, William Gordon
Bentley, Edith
Bentley, Owen
Bentley, Percy
Berry, Benjamin Arthur
Best, Thomas Edward
Bingham, Alfred Cyril
Binns, Frank Greenham
Birkinshaw, John Howard
Blackburn, Clarice Lawton, B.Sc.
Blair, James
Blenkhorn, Margaret
Blount, Jessie Campbell Mawley
Boden, Reginald Stanley
Bolkeiny, Mostafa, Mohammed el
Bollans, Thomas Henry
Bolton, Ethel Addison
Bonhomme, Jean Raymond, *Cloth-workers' Textile Scholar*
Booth, Leonard
Boothroyd, Grace Phœbe
Borochin, David
Botterill, Percival
Bottomley, Edwin Hainsworth
Botwood, Charles Anselm
Bowman, Ann
Boyle, Douglas Jackson

Brace, Clarice Ethel
Bracewell, Geoffrey Alfred
Bradley, Jonas
Braithwaite, Edward Arnold
Breckin, Ivy
Breed, Thomas Henry
Briggs, G.
Briggs, Margery Haining
Brigham, Daisy
Bright, Alfred, B.Sc.
Broadbent, Brian Lynn
Broadbent, William Alan
Broadley, Mary Anne, B.A.
Brock, Stella Caborn
Brodsky, Moses
Brooke, Gilbert Henry
Brooke, Harold William
Brooks, Eric Sydney Clifford
Brooksbank, Ethel
Brown, Cyril Graham
Brown, Ethel
Brown, George Arthur
Brown, George Frederick
Brown, George Henry
Brown, Harold Havelock
Brown, Henry Oswald
Brown, Lily (Mrs.)
Brown, Mabel
Browne, Walter Lord
Bruce, George Robert, M.B. (*m*)
Buckley, John William
Bucknall, Paul Damien
Bull, Walter
Bullough, Ernest Edwin
Burn, Reginald George
Burniston, Raymond Armison
Burrill, Harold Ruthven
Burton, Donald
Butler, Allan
Butler, Samuel Reginald
Byrne, Richard Hugh Garritt

Caine, Henry
Caldwell, Mary Constance
Calvert, Herbert
Campbell, Robert Currie
Carstairs, James Ruthven
Cartwright, Frederic Kemp
Cartwright, Walter Day
Cass, Edith Annie
Castle, Clara Jane
Castle, Leonard James
Caukill, Francis
Cawthraw, George Edward
Chadwick, Florence Maud
Chadwick, Joseph Wilfred
Chadwick, Thomas
Chambers, Guy Oldham (*m*)
Chambers, John
Chapman, Sarah Elizabeth, B.Sc., *University Scholar*
Charlton, George Armstrong
Charlton, Thomas Currie
Chester, Richard
Christie, John Hugh
Clark, Eric Stanley
Clark, Stanislaus Eustace
Clarke, Eskricke Joseph
Clarke, George Walter Scott
Claughton, Leonard Arthur
Clayton, Charles Flesher
Clayton, Mary Ethel
Clayton, Ruth Emily
Cleaver, John
Clegg, Arthur
Clubb, Douglas Bailley (*m*)
Cobbold, Hazen Nevill Herbert
Cohen, Adolph Broadfield
Cohen, Sam
Coggill, Wilfrid
Colbeck, William Henry
Colbert, Thomas Henry, B.Sc.
Collinson, James Arthur
Conyers, Fred Gofton
Cooper, William Stanley
Copland, Marjorie Sempill
Copley, Samuel
Corson, Olive
Coulin, Lyrette
Coultas, Harold Wilberforce
Cowking, Ellen Mary
Cowling, George Herbert
Cox, William
Crann, Thomas William
Cranswick, Jesse
Craven, A. H.
Craven, Thomas Ernest
Craven, Percy Charles
Crawshaw, Dorothy
Crawshaw, Harold
Crockatt, Arthur John
Croft, Alice Mary, B.A.

Croft, Edward Hugh
Croft, George Henry
Cross, Ernest
Crossley, Percy
Crowley, Frederick Hugh
Crowther, Daisy Isabel
Crowther, Florence
Crowther, Fred
Crowther, Ivy Emma
Crowther, Stephen
Cusworth, Emily Anne

Dale, Sam
Davenport, Harry
Davey, John Milton (*m*)
Dawidar, Abdel Mawgood Khalil
Dawson, Thomas Rayner, *Leighton Scholar*
Dearden, Gladys May
Delatek, Eugene
Dennison, Joseph Philip
Dinsdale, Edward James
Dircks, Hugh Douglas, *Clothworkers' Textile Scholar*
Dixon, Clifford Cedric (*m*)
Dobson, Alan
Dobson, Donald Frederick, M.B., B.S. (*m*)
Dodgson, John Ernest
Dodgson, Robert
Dolphin, Thomas Charles
Dougill, George
Douglas, Frank, *Akroyd Scholar*
Dransfield, Henry Ewart Stanley, B.A.
Dransfield, John William
Drury, Edward Wilson
Dry, Francis William
Dudley, Charles William, *Medical Scholar*
Duthie, Charles Sydney
Dutt, Pavitra Kumar, M.A., B.Sc.
Dykes, Janet
Dykes, Mary Wall
Dyson, Fred

Earnshaw, Ida
Edmond, William Seaward
Edwardes, Henry Fred Edgecumbe
Effron, George Henry
Elliot, Gilbert Bernard
Ellis, Francis Sleightholme
Emmerson, Eveline Maria
Emmerson, William Henry
Emsley, Edith
Everard, Herbert
Exley, Paul Alexander

Faizuddin, Syed
Falleti, Dario
Farrer, Evelyn
Fawcett, Geoffrey
Fawcett, Jane Ann
Fawcitt, Edwin Henry, B.A.
Fearnside, Marion Campbell
Fenton, Kate
Fields, Eric William
Finn, Wilfrid William
Firth, Maurice
Foad, Mohammed
Foggitt, Ida, B.A.
Foreman, Jeanie Christine
Forster, John Baker
Foster, Rosie
Foulkes, Albert David
Fowler, Joseph Charles
Fox, Arthur
Freer, George Herbert
Freistedt, Sven Hjalmar

Gabriel, William Lawson Mabson (*m*)
Galpine, Dorothy
Gaukrodgers, Annie
Gaunt, Philip
Gawthorpe, Wilfred
Gent, Sarah Ellen
Gibson, George William, B.A.
Gibson, Thomas Ernest
Gibson, Wilfrid, *Akroyd Scholar*
Gilderdale, Charles Wilfred
Gill, Joseph
Gill, Sanderson Henry Briggs
Gledhill, Charles
Glover, James Lawrence
Godlove, Louis
Goedal, Lothar
Goldstone, Cecilia, *Leighton Scholar*
Goodall, Herbert
Goode, Charles William
Goss, Francis Hennessey (*m*)
Goss, Joseph Aloysius
Graham, Reginald
Greaves, Frederick Charles

Green, Arthur Eatough
Green, Benjamin Cecil
Green, Thomas Edwin
Greenwood, Emily Maud
Greenwood, Josémée Marguerite, *Charles Wheatley Scholar*
Gregory, William Oliver
Gregson, Annie, B.Sc.
Grimshaw, Vernon Ewart
Grindle, William George
Groocock, Helena, B.Sc.
Groom, Richard Cecil
Groser, St. John Beverley
Grover, Doris

Habberjam, James
Hadwen, Frederick Guy
Haigh, Guy Rhodes
Hamilton, Andrew
Hampson, James
Hancock, Barbara
Hanson, Agnes Mary
Hanson, David Fawcett
Harding, Reginald
Hargreaves, Lionel Richard
Harland, William Harwood
Harper, Francis William
Harper, Thomas
Harrap, Frank Nettleton, *Akroyd Scholar*
Harris, Will Smith (*m*)
Harrison, Muriel Kate
Hartley, John Alfred, *Akroyd Scholar*
Harvey, William Fryer (*m*)
Harwood, Wright
Hayes, Harry
Hayes, Robert Andrew
Head, Jane
Head, John William
Heaton, Arthur
Hebblethwaite, William Murray
Hebron, Arthur
Heidrich, Leonard
Helmi, Hassan
Henderson, William Albert
Henry, William Lilburn
Heptinstall, Walter
Hesleton, Agnes
Hesselgrave, Joseph Clifford
Hewison, George Charles
Hewitt, Percy George
Hewson, Frank Richard Hick
Hey, Minnie
Hill, Jessie
Hilton, Frank
Hinchliffe, Arthur
Hinchliffe, Hubert
Hirst, Beatrice May
Hirst, John George
Hobley, Alfred Jabez
Hodkinson, Leonard
Holburn, Reginald
Hole, Ellen Mary
Holgate, James
Hollings, Dorice Mary Clotilda
Hollings, Harold
Hollings, Percy
Holmes, Richard
Holroyd, Eleanor Mary, B.Sc.
Holroyd, Thomas Arthur
Holt, Henry Mainwaring (*m*)
Holt, Willie
Hooper, Dorothy
Hopkins, Henry
Horne, William Mackenzie
Horsfield, Claude Mann
Horsley, Ernest
Hou, Yen Ping
Howcroft, Frederick
Hoyle, Harold
Hudson, John
Huffington, Thomas
Huggan, William
Huggins, John
Humphries, James Henry
Hunter, George Suart
Hunter, Nelson Ackroyd
Hurworth, Arthur
Hutchinson, Albert
Hutchinson, Miriam (*m*)
Hutton, Arthur Norman
Hutton, Charles William
Hyland, Frederick Hunter

Ingham, William Leslie (*m*)
Ingle, James William
Ireland, James Alexander
Irish, Edward
Irvin, Constance Guendolen
Isaac, Frank Stanley
Ives, Herbert Arnold

Jackson, Herbert Guy
Jagger, Mary Elizabeth Marguerita Anne
James, Gwynne Lewis Brodhurst
James, Lawrence
Jameson, Margaret Ethel
Jarvis, Harry
Jefferson, Harold Fearnside
Jemison, Charles
Jenkins, Elsie Mary
Jennings, Elsie Emmie
Jephson, Florence Margaret
Jerusalem, George, M.D., B.A.
Jessop (Mrs.), Margaret Ritchie
Jobbings, Herbert Britt
Johnson, Lionel A.
Johnson, William
Johnson, William Spurrett Fielding
Jöle, Nora Bancroft
Jones, Anne Elizabeth
Jones, Arthur Owen
Jones, Stanley
Jordan, Arthur Young
Jordan, George Jefferis
Jowett, Albert
Judd, Harold Arthur

Kaminski, Rebecca
Kay, Charles Bagnall
Kaye, Arthur Cecil
Kaye, Sidney Herbert
Kench, Henry
Kent, Leslie Harcourt
Kerr, Harold
Kershaw, Maud Harriet
Kershaw, Richard Greenwood
Khong, Kit Seng
King, Arthur
King, Walter Edward
Kirk, Leonard Bertram
Kirtland, Dorothy Mary, B.A.
Kitchener, George James
Kitson (Hon.) Emily Sylvia
Kitson, Fanny Edith
Kitson, Mary Ellen
Knowles, Cyril Reginald (*m*)
Knowles, Jane Ann
Korndörfer, Erwin
Krishna, Raj
Kurth, Lothar

Lakeman, Robert Merridew
Law, Francis Reginald (*m*)
Lawrence, Colin Hudson
Lawson, Edward Ingleson
Lawson, Quintin Young
Lawson, Tom
Leah, Annie
Lee, Fang Tsung
Leech, Dorothy Edith
Lees, Arnold
Lees, Ernest
Lees, Norman
Lestienne, Robert
Levy, Sissie Emma
Libbish, Barnet, *Leighton Scholar*
Lieberman, Reuben
Lightman, Stanley
Lister, Albert
Lister, Dorothy Daisy
Littlewood, Percy
Littlewood, Rowland Whitelaw
Litton, Reginald
Liu, Tsou Bin
Lloyd, Ivor
Lochore, Beatrice
Lodge, Harold
Lodge, William Oliver
Longbottom, Abraham
Longstaff, Annie
Lord, Benjamin
Lucas, Jarvis Owen
Lumb, Maurice George
Lund, Eleanor
Lunn, Reginald William, *Brown Scholar*
Lupton, Margaret Ella

Machin, William Arthur
Mackay, Kenneth
Mackie, Alec Coleman
MacLeod, George (*m*)
Macleod, Norman Alexander (*m*)
Macpherson, Donald Euan
Magid, Ahmed Abdel
Mallin, Hubert Patrick, *Leighton Scholar*
Mallinson, Eric
Mao, Shen Shan
Marsh, William Alfred
Marriott, Edward
Marshall, Harold
Marshall, Herbert
Marshall, Joseph
Martindale, Howard Rowland

Mason, James Payne
Mason, Maude
Mason, Nora Jane
Masterman, Dorothy
Mathers, Ronald Cyril
Maude, Edgar Ringrose
Mawson, Constance, *Edward Baines Scholar*
Mawson, Frank
McDiarmid, David
McEntegart, Mary Jane
McGeorge, Alexander
McGuire, George Francis (*m*)
McGunness, John
McKay, Annie Armstrong
McKee, Sarah Mary
McLaren, Arthur Duncan
McMillan, Mary McWhirter
Meek, Benjamin Sutcliffe
Metcalfe, William
Middleton, Gertrude
Midgley, Harry
Midgley, James
Millard, Florence Elizabeth
Miller, Eric Julius
Miller, Florence Clark, B.A.
Miller, Solomon, B.A.
Mills, Stanley
Milner, David William
Milner, Geoffrey
Mirfield, Herbert
Mitchell, Harold Clough
Moggach, Ellen Ann
Moorhouse, Herbert
More, Winifred Alicia
Morgan, Owen
Moses, Abram
Mountain, John William
Muckenhirn, Carl
Muirhead, James Ingram
Mukerjee, Kshitis Chandra
Müllett-Ward, Annie
Murphy, Alice Olive Dora
Murphy, Grace Louisa, B.A.
Murphy, Phillis Dorothy
Musgrave, Evelyn
Musgrave, Kenneth
Musson, Glenn Fowler (*m*)
Myers, Amy
Myers, Joseph Norman Cooper
Myers, Marion
Myers, Mary Alice
Naylor, Joseph
Neale, Charles Sidney
Needham, Clyde
Nesbitt, John Christopher
Nicholl, Charles Abraham
Nicholson, Margery
Nightingale, Florence Annie
Nixon, Dora
North, Kate Victoria
Nuttall, Marguerite Mary Teresa
Nuttall, Thomas Henry
Nyborg, Sigurd

Ogden, Herbert
Ogston, Kenneth

Padgett, Wilfred Wood
Padman, May
Parker, Thomas Edward
Parkinson, Ben
Parkinson, Harold Shaw
Parry, Clarise Hilda
Parsons, Ernest, M.Sc.
Parsons, George
Pattison, Mary
Pay, Thomas Wilfrid
Pearson, Albert
Pearson, William, *Akroyd Scholar* (Liversedge)
Peniston, Annie
Penlington, Harry Napier
Perkins, John Charles
Perry, Robert
Peters, Dorothy
Phillips, Charles Kendall
Phillips, Samuel, B.A., *Salt Scholar*
Phinn, Annie
Pickard, Miriam
Pickering, Jessie
Pickstone, Frederick
Pickup, Edmund
Pillai, Mudiyil Kerala Varma Govinda
Pilley, John Sydney
Pollet, René
Pounder, Benjamin William, B.A.
Pratt, Cecil Myers
Pratt, Thomas Dawson
Priestman, Kenneth Mallorie
Procter, Horace James (*m*)
Pullan, Francis Norman
Pullan, William Greaves (*m*)

Quarmby, Frederick
Quinn, Edward Hodgekins
Quinn, William Henry

Race, Ida Cunninghame, B.A.
Radcliffe, Joseph Francis Edward
Radcliffe, Norman Brooke, B.Sc.
Radford, Conrad William Rich
Raisman, Abraham
Raistrick, Harold
Ralphs, Arthur
Ramsden, Arthur Maxwell
Ramsden, John
Ramsden, William Cawtheray
Randall, William
Ratcliffe, John Allan
Rawling, Arthur, *Akroyd Scholar*
Raworth, Richard Galpine
Rayner, Roy Balfour Hodgson
Reddy, Venkat Lakshman
Redfearn, George Richard
Reynolds, Carrie
Rhodes, Alfred Irving
Rhodes, Constance
Rhodes, John Waller
Richard, Richard Thomas
Richards, Charles Threlfall
Richards, Claude Willmott
Richards, Llewellyn George
Richardson, Charles Richard Sugden
Richardson, James Rawling
Richardson, William Rowson
Rimmington, Lucy Gladys
Rintoul, William
Roberts, Augustus Alphonso, B.Sc.
Roberts, Edwin
Roberts, George
Robinson, Alice Maude Mary
Robinson, Milton
Robinson, William
Robson, John Robert
Roebuck, Henry
Rogers, Simeon
Rogerson, Ernest Arthur (*m*)
Rome, Matthew
Roodhouse, Albert Edward
Rose, George Augustus, B.A.
Rosenbaum, Joseph Louis
Rosenberg, Louis
Rosencwige, Max (*m*)
Ross, Percival Howard
Rowe, Annie Jane
Rowe, Edmund Charles Murchison
Rowe, Frederick Maurice, B.Sc., *Clothworkers' Dyeing Scholar*
Rusby, John Elvin (*m*)
Rushforth, James William

Saba El Saed Mohammed
Sabry, Mahmud
Sampson, Catherine Ruby
Sandham, George Herbert
Sarüvanov, Dimitre
Savin, Constantine
Scargill, Arthur
Schwabe, Alfred Louis
Scott, Eric
Scott, Julia Penketh
Sen, Jagendranath
Senior, Alan
Senior, Hubert
Seville, Robert Ockleston, *Brown Scholar*
Shackleton, Arthur Percival
Shackleton, Harry
Shafi, Mohamad
Shakir, Mahomud
Sharp, Alice
Shaw, George
Shaw, Joe
Shaw, John Lawrence
Shaw, Stanley
Sheard, Kathleen
Shepherd, Reginald Vernon
Shepherdson, Arnold
Shippam, Sidney Percival
Shulman, Isaac
Silcock, Edward Hewson
Silverstein, Isaac (*m*)
Simon, Paul Maurice
Simpson, John William
Sinapius, Adolph
Singer, Ernest Oskar Adolf (*m*)
Singleton, Alice
Siniscalco, Augusto
Sissons, Roland Edward
Sizer, Nelson
Slade, Frank
Slater, Joseph Y.
Smiles, Percy
Smith, Ambrose Tristram
Smith, Arthur
Smith, Constance
Smith, Geoffrey Belasyse

Smith, George White
Smith, Guy
Smith, Harry Senior
Smith, Jane Elizabeth
Smith, Leonard
Smith, Sydney Archbold
Smith, William Wheelhouse
Smithells, Colin James
Sowden, Alan
Speight, Rose
Spencer, George William
Spencer, Harry
Spencer, Hugh
Spink, Edward Holt
Stainsby, William
Standing, Christine
Staveley, John, *Akroyd Scholar*
Stead, Lilian Mary
Stedeford, Leslie Herbert
Stephenson, Cyril Richard William
Stobart, Ralph Forester
Stockdale, Guy Nelson
Stocks, Herbert Holroyd, *Brown Scholar*
Stonehouse, Eric Childe
Storey, John
Stubbs, Mrs. Elizabeth E.
Suffield (Mrs.), Hilda
Sugden, Reginald
Sutcliffe, Edgar
Sutcliffe, Frank Mallinson
Sutcliffe, Joseph Gilbert Wade (*m*)
Swain, Walter
Sweeting, Charles Proctor
Swire, Marjorie Helen
Sykes, Emily Gertrude

Talbot, Rupert Kershaw
Taylor, Alfred Reginald
Taylor, Arthur, B.Sc.
Taylor, Bertha
Taylor, Bertram Gledhill
Taylor, Dora
Taylor, Eric Francis Howard
Taylor, Ernest, *Akroyd Scholar*
Taylor, John Robinson
Tee, Richard Harry
Telling, Aubrey Leonard (*m*)
Tempest, Mabel Dorothy
Templeton, William, M.B. (*m*)
Terry, Ernest
Tetley, Humphrey
Thistlethwaite, Hilda
Thomas, Frederick, M.Sc.
Thomas, Walter Morgan
Thomas, William Calvert
Thompson, Fred
Thompson, Frederick Charles, B.Sc.
Thompson, George Casburne
Thompson, Harold Stead
Thompson, Harold Winsor
Thompson, Henry Wilberforce
Thompson, William
Thorpe, Hugh Stanley
Tomlinson, Alice Marian
Trotter, Alick Dunbar
Troughton, Ida Rosalie
Tune, Grace Mary
Turnbull, Donald
Turney, Marianne Emmeline
Turner, Ernest
Tweedale, Joseph
Twitchin, Elizabeth Edwards
Tyne, Wilfred Herbert

Uddin, Syud Mohammad Amin

Varey, Mary
Varley, Bessie
Varley, Harold Fay Fleetwood
Vause, John Gilbert
Versey, Henry Cherry
Vince, Eva Mary, B.Sc.

Waddell, Lawrence William
Walbank, Alec David Robert
Walker, Albert George
Walker, Alfred Percy
Walker, Cecil
Walker, Emily Ethe
Walker, Evelyn
Wallis, Robert
Walsh, Jane Mary
Walter, William Guy Ardagh
Ward, Kate
Ward, William
Ware, Henry Allen
Waterworth, Francis William (*m*)
Watherston, Robert James Henderson Fell
Watkin, William Clifford
Watkinson, Percy Snowden
Watson, Albert
Watson, Alice Pauline
Watson, Clifford Riley

Watson, Fred
Watson, Graham Lauder
Watson, Lionel Cassels
Washington, Thomas
Weatherill, Eva Margaret
Webster, Francis John
Webster, Fred, *Edward Baines Scholar*
Webster, Herbert
Weeks, Norley Cecil
Weir, Henry Keith Crichton
Wells, Marie Jeanne
Werquin, Charles Louis Joseph
Westrope, Dorothy Noël
Wetherell, William
Whalley, Fred
Wharram, Charles Etherington
Wharton, James Henry Shields
Wheatley, Arnold Herbert Maurice
Whillier (Mrs.) Agnes
Whincup, Harry Haynes, *L.C.C. Scholar*
Whitaker, Henry
Whiteley, Harold
Whitelock, Clarence Harold
Whitley, Arthur
Whittaker, Gladstone
Whittle, Levi William
Whitworth, Frank
Whitworth, William Wilson
Widdowson, George Ambler
Wilkins, Louisa Mary
Wilkinson, Ernest
Wilkinson, Harold
Wilkinson, John
Williams, Arthur Wynne
Williams, Thomas
Williams, Thomas Rhondda
Williams, William
Williamson, Norman Tetlow (*m*)
Williamson, William Macintosh
Willis, George Henry
Wilson, Alexander William
Wilson, Eric Western
Wilson, Ernest Percival
Wilson, John Harry, B.Sc.
Wilson, Maurice Lowell
Wilson, Otto Bob
Wilton, Winifred
Witty, Hubert Edward
Wolfe, Harold Maurice
Womack, Oswald Cedric
Wood, George
Wood, George Oliver
Wood, Herbert
Wood, John
Wood, Lawrence
Wood, Ronald Maxwell
Wood, Stanley
Woodman, Herbert Ernest, B.Sc., *University Scholar*
Woodroffe, David, *L.C.C. Scholar*
Woolley, Herbert Edward
Worsnop, Harry
Wrathmell, Bertrand Booth
Wray, John Lamport
Wright, Beatrice Hilda
Wright, Bertha Helen, B.A.
Wright, Claude Ernest
Wright, Ernest Francis
Wright, Fred
Wright, Gladys
Wright, Hilda
Wright, William Greenwood
Wurzal, Joseph, *Emsley Scholar*
Wylde, Jessie Irene

Yang, Shao Nan
Young, Arthur Britton, Ph.D.

Faculty of Medicine

(*s*)—*Signifies also in attendance in the Faculty of Science.*

Anderton, William Dinsdale
Angel, Harry
Bamford, Jane (*s*)
Bastable, Arthur Langford
Bentley, Roland Cameron
Black, Albert Lyth
Blackburn, John Holliday
Bleasdell, John Tydesley
Briggs, Norman
Broughton, John Frederick, M.B., B.S.
Brown, Charles Suffield
Brown, Herbert Horan
Brown, John Perrin
Bruce, George Robert, M.B. (*s*)
Butler, Leonard Henry

Caplan, Harry
Castelow, Ben William
Cattley, Robert, B.Sc., M.B.
Chadwick, Richard Henry
Chambers, Guy Oldham (*s*)
Clark, Henry Joy, M.B.
Clarke, Digby Arthur Pebody
Clarke, Thomas
Clubb, Douglas Bailley (*s*)
Cocker, James Percy
Cohen, Sam Nathaniel
Conway, J. H.
Cooper, Frederick Scott
Crosby, John
Crowther, William Edmund, B.Sc.

Davey, John Milton (*s*)
Digges La Touche, John James
Dixon, Clifford Cedric (*s*)
Dobson, Donald Frederick, M.B. (*s*)
Dolan, Stephen Ormond
Drake, Harry
Drake, William Allison
Dunbar, Leslie
Dwyer, Maurice

Elliott, Thomas

Farrer, Robert Noel
Ferguson, John
Fischer, Ilse
Fisher,[2] John Barugh
Foord, James Maurice
Foxton, Hartas
Franklin, Hyman
Frobisher, James Hebblethwaite Martin, M.B., Ch.B.

Gabriel, William Lawson Mabson (*s*)
Garland, Geoffrey
Gill, John Edgar
Gillies, John Cruickshanks
Goss, Francis Hennessey (*s*)
Gozney, Charles Marsh
Greaves, Samuel Sowray
Green, Stanley Willoughby
Griffith, Frank

Harris, Will Smith (*s*)
Hart, Walter Sidney
Harvey, Reginald Simpson
Harvey, William Fryer (*s*)
Hebblethwaite, Arthur Stuart
Hesterlow, Edward
Hodgson, Gordon Alexander
Holt,[2] Harry Mainwaring (*s*)
Horne, Harold Forster
Hutchinson, Miriam (*s*)

Iles, George Denis
Ingham, Harold Norman
Ingham, William Leslie (*s*)

Kenworthy, Tom Ramsden
Keswick, John Barton Thompson
King, Frank
King, William Douglas Anderson
Kirk[1], George William Lister
Kitson, Frederick Hubert
Knowles, Cyril Reginald (*s*)
Knowles[1], Henry Rylands

Ladell, Robert George
Lambert, John Vollans
Law, Francis Reginald (*s*)
Leake[1], Charles Edward
Liberman, Israel
Little[1], Cuthbert Joseph Harwood
Lockwood, Herbert Sinclair
Lodge, Samuel Durham
Lonen, William Hubert
Ludolph, Henry Guy
Lyons, William Campbell, M.B.

McGuire, George Francis (*s*)
Macleod, George, M.B. (*s*)
MacLeod, Norman Alexander, M.B. (*s*)
Macvie, George Ernest
Magoveny, Edward, M.B., Ch.B.
Mason, William Fidler
Mawson, Harold Woodhead
Medhurst, Norman Hastings
Mellis, George Pickard
Menon, M. P. Kesava
Menton, John, M.B.
Metcalfe[2], John Clifford
Mitton, Norman Vernon
Musson, Glenn Fowler (*s*)
Musson, John Percy

[1] Medical Scholar. [2] Infirmary Scholar.

Nunneley, Francis William

Ogilvy, William Airlie, M.B.

Parker, Harold
Partridge, Hugh Roger
Pearson, Lionel Glover
Peto, Morton
Pickles, Clifford Crawshaw, M.R.C.S., L.R.C.P.
Pickles, Harold Dobson
Pickles, John Jagger
Piercy, Bernard Charles
Pinder, John
Pope, Herbert Barrett
Prendergast, John Arnoux
Procter, Horace James (*s*)
Pullan, William Greaves (*s*)

Rankin, Thomas Thornton, M.D.
Reinhardt, Cecil Goodwin
Richardson, Cyril Brian
Richardson, Gerald Sidney
Riddett, Stanley Alfred
Riley, Arthur
Roberts, Warren Longtoft
Robinson, Henry Clifford
Robinson, Henry Whitteron
Robinson, William
Rogerson, Ernest Arthur (*s*)
Rosencwige, Jacob
Rosencwige, Max (*s*)
Rusby, John Elvin (*s*)
Rushton, Irvine

Samuel, Samuel
Scargill, Henry Edwin
Seville, Charles Heywood
Shackleton, Herbert Park
Sharpe, Claudius Galen Kaye
Shochet[2], Harry
Shoesmith, Harold Percy
Silverstein, Isaac (*s*)
Singer, Ernest Oskar Adolf (*s*)
Sinson[2], Harry Abram
Sinson[2], Julius Barnet
Slocombe, Bernard Atkinson
Smith, Jessie
Stansfield, Harry, M.R.C.S.
Stockdale, George Vincent
Sutcliffe, Joseph Gilbert Wade (*s*)
Swire, Frank
Sykes, Frank
Symons, Hubert Wallace

Tasker, Robert Bertram
Taylor, Herman Louis
Taylor, John Edgar
Telling, Aubrey Leonard (*s*)
Templeton, William, M.B. (*s*)
Thomas, John William
Topham, Harold
Topham, Richard Stanley

Umanski, Augusta

Veale, Henry de Paiva

Waddington, Charles Grimshaw
Waddington, Horace Victor
Walker, John Perry
Walker, Thomas Lockwood
Walton, Francis
Ward, Clifford
Ward, Rowland
Waterworth, Francis William, M.B. (*s*)
Watson, George William
White, Leslie Gordon
Wigglesworth, Frank
Wilkinson, John
Wilks, Harry
Willans, Esmond Tetley
Williamson, Norman Tetlow (*s*)
Wilman, Joseph Burnett
Wilson, Colin
Wood, Bertram William Francis
Wright, John

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1 Medical Scholar. 2 Infirmary Scholar.

Number of Students

The following table shows the number of Students of different classes who attended the University of Leeds during the last two Sessions :—

	1910-11.	1911-12.
Registered Students :		
In Faculty of Medicine (including students who were also in attendance in the Faculty of Science)	151	182
In Faculties of Arts (including Commerce and Law), Science and Technology (including students also in attendance in the Faculty of Medicine)	778	844
	929	1,026
Less deducted for students who attended in both the Faculties of Medicine and Science ...	28	32
Total number of Registered students	901	994
Occasional Students :		
In Faculties of Arts, Science, and Technology	55	68
Evening Students :		
In Faculties of Arts, Science, and Technology (excluding those who only attended short courses of lectures)	207	187
	1,163	1,249

ENTRANCE SCHOLARSHIPS

The papers set for Entrance Scholarships will be found in the Matriculation Calendar.

DEGREE EXAMINATIONS

The Examination papers set at Degree Examinations are issued annually in volume form in September, and may be obtained from the Secretary on application, price 1s., or by post to any address in the United Kingdom, price 1s. 5d.

UNIVERSITY SOCIETIES, 1912-13

The sanction of the Senate is required to the Rules and Regulations of any new Society which it is proposed to establish.

The University Union. The University Union comprises the Cricket, Football (Rugby and Association), Hockey, Tennis, Lacrosse and Fives Clubs, and undertakes the management of the Gymnasium, the Fives Court, and the Debating Society. The Union has also the management of the University Athletic Ground, and undertakes the arrangement of the Athletic Sports, the Conversazione, and other entertainments.

The governing body of the Union consist of an Honorary President, Honorary Vice-Presidents, a Staff representative, an Hon. Treasurer, and a Committee of twenty-three students (*i.e.* thirteen men students from College Road departments, three women students from the Women's Representative Committee, and seven men students from the School of Medicine) elected annually.

The subscription to the Union is 10s. 6d. annually. It is payable to the Accountant of the University at the beginning of the session, with the class fees, and is compulsory on each registered student attending for more than six hours per week, with certain exceptions.

Membership of the Union carries with it membership of the various athletic clubs under its control, membership of the Debating Society, and the right of using the Common Rooms and the Gymnasium.

Handbooks, containing all information concerning the Union, its Rules, Officers, Athletic Clubs, and also the various Societies, are issued *gratis* to all members of the Union. They may be had on application to the Hon. Secretary or the Hall Porter.

Further information may be obtained from the Hon. Secretary of the Union.

Hon. President—His Grace the Duke of Devonshire, LL.D. *Hon. Vice-Presidents*—The Pro-Chancellor; The Vice-Chancellor; Professor Grünbaum, M.D., Dean of the Faculty of Medicine. *President and*

Chairman of Committee—G. L. B. James. *Hon. Secretary*—A. C. Bingham. *Hon. Treasurer*—Professor Connal. *Staff Representative*—Professor Gillespie. *Committee*—Miss M. Varey, Miss C. Reynolds, Miss C. Standing, Messrs. E. E. Ainley, S. R. Butler, J. B. Forster, J. Huggins, K. Musgrave, E. H. Silcock, C. P. Sweeting, L. W. Waddell, W. G. A. Walter, G. L. Watson, N. C. Weeks, and seven representatives from the Students' Representative Council of the School of Medicine.

The Women's Representative Committee. This Committee is annually elected by the Women Students. It has control of the Women's Common Rooms and appoints representatives on the University Union Committee and sub-committees.

President—Miss M. Varey. *Hon. Secretary*—Miss C. Reynolds, *Union Representative*—Miss C. Standing. *Committee*—The above and Misses M. G. S. Aston, J. Dykes, E. Farrer, M. Nicholson and H. Thistleton.

The Debating Society. This Society meets at 5.15 p.m. on alternate Mondays in the first and second terms.

Every student who has paid the Union Fee is *ipso facto* a member of the society, no other subscription for election being necessary. *President and Chairman*—Professor Priestley.

The Literary and Historical Society. This Society meets at 5 p.m. on alternate Mondays during the first and second terms for the reading of papers and discussions on literary and historical subjects. The annual subscription is 4s.

President—Mr. G. B. Elliot. *Vice-Presidents*—Miss E. Jenkins, Mr. A. B. Cohen. *Treasurer*—Miss Robertson. *Secretaries*—Miss K. Fenton, Mr. A. Fox. *Staff Representative*—Mr. P. W. Dodd. *Committee*—The above and Miss J. M. Greenwood, Miss C. Reynolds, Messrs. S. Cohen, C. T. Richards, C. R. S. Richardson.

The Society for Social Study. This Society has been formed for the purpose of obtaining a good understanding of social questions and schemes of social reform by means of lectures, discussions and other methods. The meetings of the society are open to all members of the University.

President—Professor Cohen *Vice-Presidents*—Miss Cooke, Professor Macgregor, Professor Priestley. *Secretaries*—Miss C. Levy, Mr. N. C. Weeks. *Committee*—Miss J. Greenwood, Miss D. Leech, Mr. G. B. Elliot, Mr. G. N. Stockdale.

The Cavendish Society. The object of this Society is to promote the study of Chemistry, Pure and Applied, and Physics. The meetings are held during the first and second terms. Members take tea together at 5 p.m., after which papers are read and discussions take place. Any present or past student of the University is eligible for membership.

Other persons, not eligible for Ordinary membership, may become Associate members subject to the discretion of the Committee. The subscription for Ordinary and Associate members is 4s.; for Life members, £1 1s. During the session excursions are made to neighbouring chemical works, dyehouses, &c.

President—Professor Procter. *Student Vice-President*—Mr. F. M. Rowe. *Staff Vice-President*—Mr. H. Calam. *Hon. Treasurer*—Mr. P. K. Dutt. *Hon. Secretary*—Mr. Atkin. *Committee*—The above together with Messrs. L. Ackroyd, A. Bright and E. Irish.

Natural History Society.—All members of the University, past or present, interested in any branch of Natural History are eligible for membership. Papers on any subject connected with Botany, Geology or Zoology will be given and discussed, and objects of interest will be exhibited. The meetings (preceded by tea at 5.15 p.m.) will be held in the Botanical department at 5.45 p.m. on the first Friday in each month. One of the main aims of the Society is to effect a closer bond between past and present students. Excursions will be arranged during the summer term. The subscription is fixed at 2/6 per annum.

President—Prof. Priestley. *Vice-Presidents*—Mr. F. W. Dry, Miss Lebour, Mr. Stiles. *Hon. Secretaries*—Miss J. E. Smith, Mr. W. H. Thompson. *Committee*—Misses A. Cass, E. A. Cusworth, D. M. C. Hollings, Messrs. M. Odling, H. Tetley, D. Woodroffe.

The Education Society. This Society holds two meetings in each of the first and second terms. At each of these meetings there is a lecture followed by discussion on some topic of interest to those who are, or likely to be, engaged in educational work. The Vice-Chancellor is included amongst those who have kindly promised to give lectures during the current session. The annual subscription is 2/6.

President—Mr. F. W. Turner. *Vice-Presidents*—Professor Welton, Mr. Welpton, Miss Robertson, Miss Blackburn, Miss Parry. *Hon. Secretaries*—Miss J. Pickering, Mr. T. Pay. *Committee*—The above together with Miss M. G. Aston, Miss M. M. T. Nuttall, Mr. S. Cohen, and Mr. P. Walker.

The Engineering Society. This Society has for its object the discussion of subjects bearing upon Engineering and Applied Sciences, the visiting of works and other places of engineering interest, and the promotion of a friendly intercourse amongst its members. It consists of Ordinary, Associate, and Honorary Members and Associates. Any past or present day or evening student of the University is eligible for ordinary membership. Any person not eligible for ordinary membership, but who shall have been actively engaged in engineering for a period of not less than five years, or who shall have passed through an engineering training at any University or University College, is eligible as an Associate Member. Any person may be elected an Honorary Member. Any person is eligible as an Associate who is recommended by the Committee as a fit and proper person. Members are elected by ballot at the ordinary meetings. The ordinary meetings

are held fortnightly at the University, the chair being taken at 7.30 p.m. Each Ordinary and Associate member pays an annual subscription of 5s. (except present day and evening students, who pay 2s. 6d., and receive no notices of meetings), and each Associate not less than 10s. per annum.

President—Professor Goodman. *Hon. Secretaries*—Mr. S. E. Clark and Mr. K. Musgrave. *Hon. Treasurer*—Mr. Wilson Gardner. *Committee*—Messrs. G. Milner, A. E. Green, C. P. Sweeting, E. E. Ainley, A. C. Bingham, R. O. Seville (representing day students), Mr. N. Duang (representing evening students), Mr. H. C. Day, Mr. W. B. Odgers, Mr. C. Hartnell, Mr. W. Rintoul (representing past students), Mr. A. Towler (Representing Associate Members).

Textile Students' Association. The objects of the Association are to promote intercourse between its Members, and to advance the interests of the Textile Industries. (*a*) To promote and maintain communication between Members occupied in the various centres of the Textile Industry of the world; (*b*) to keep an up-to-date record of careers of Members, such as the Sessions when they attended the University and any appointments they may have obtained; (*c*) to facilitate mutual help to Members in their industrial and commercial life; (*d*) to place manufacturers, and others, having vacant appointments, in communication with Members qualified by their training and experience to discharge the duties of such appointments; (*e*) to promote scientific and technical developments relating to the Textile Industry; (*f*) to foster and encourage Textile Invention; (*g*) to establish a library of works on, or relating to, any phase of the Textile Industry; (*h*) to issue at suitable periods a Journal for the purposes above set forth; (*i*) to found, when desirable, a Club having a library and other offices.

The Membership consists of:—(*a*) Members, (*b*) Associate Members, (*c*) Life Members, (*d*) Honorary Members. Former Day Students of the Day Classes of the Textile Department of the University are eligible for election as Members, and Day Students for the time being as Associate Members, and for a period not exceeding four years after their course of study has terminated, when they are eligible for Membership on application. Any Member of the Association can qualify for a Life Membership on the payment of Ten Guineas.

The subscription for Vice-Presidents and Members of Council is One Guinea; Members Half-a-Guinea; Associate Members, Five Shillings per annum.

President—Alderman Fred Kinder. *Vice-Presidents*—F. T. Chadwick, D. D. Marshall, F. Priestley, A. W. Smith, Professor Beaumont. *General Committee*—F. R. Rhodes (*Chairman*); Messrs. G. Blackburn, V. J. Carmouche, H. D. Dircks, T. H. Gaunt, J. Hanson, jun., E. W. Hinchliffe, Thos. Hollis, W. C. Hutton, A. S. Lyles, J. Mathers, D. S. Mellish, J. Rudd, J. W. C. Walton. *Hon. Secretaries and Treasurers*—H. P. Holloway, E. Gaille.

Students' Section. Meetings of the Student Members are held periodically during the Session, when Papers on Textile and cognate subjects are read by Day Students. *Chairman*—H. D. Dircks, *Hon. Secretary*—E. H. Bottomley.

The Agricultural Society. This Society exists for the purpose of fostering the social spirit among students of the Agricultural Department. Meetings are held at 6.30 p.m. on alternate Wednesdays during the winter session, when papers are read or debates take place on agricultural topics. Students of the University and other persons interested in the development of agriculture are eligible for membership. The minimum annual subscription is 1s.

President—Professor Seton. *Vice-Presidents*—Messrs. A. G. Ruston and H. Marshall. *Hon. Treasurer*—Dr. Crowther. *Hon. Secretary*—Mr. A. C. Womack. *Committee*—Messrs. H. W. Brooke, C. W. Goode, W. E. King, H. Roebuck, W. H. Tyne, and a first year student.

The Christian Union (Men's Branch). Affiliated to the Student Christian Movement of Great Britain and Ireland. *President*—Mr. G. B. Elliot. *Secretary*—Mr. H. S. Parkinson. *Treasurer*—Mr. D. Woodroffe. *Bible Study Secretary*—Mr. J. Hudson. *Missionary Study Secretary*—Mr. D. McDiarmid. *Social Study Secretary*—Mr. R. F. Watherston. *Medical School Secretary*—Mr. C. W. Dudley. The Committee consists of the above with Messrs. C. G. Brown, G. Jackson, F. Quarmby and E. Wilkinson.

The Christian Union (Women's Branch). Affiliated to the Student Christian Movement of Great Britain and Ireland. *President*—Miss M. Varey. *Secretary*—Miss J. Dykes. *Treasurer*—Miss H. Thistlethwaite. *Bible Study Secretary*—Miss C. Reynolds. *Missionary Study Secretary*—Miss C. Standing. *Prayer Meeting Secretary*—Miss E. Farrer. *Social Study Secretary*—Miss E. M. Jenkins. *S.V.M.U. Secretary*—Miss C. Mawson. *Magazine Secretary*—Miss M. Nicholson.

Women's Discussion Society. This Society has been formed for the discussion of social, economic and political discussions affecting women. It aims at including all shades of opinion among its members and at giving an understanding of the conditions under which women work and of their economic position. The annual subscription is 1/-. *President*—Miss E. M. Blackburn. *Secretary*—Miss M. Lupton. *Treasurer*—Miss F. Crowther. *Committee*—The above with Miss D. Leech, Miss J. Hill and Miss A. Umanski.

The Leeds University Working Men's Club. The object of the club is to provide evening recreation for working lads who have left school. The club-rooms in Berking Avenue, York Road, are open every evening except Sundays, from 8 to 10. The rooms are under the supervision of a committee of the club, controlled by a committee of members of the University. In addition to various games, some intellectual occupation is usually afforded. The Secretary will be glad to furnish a copy of the annual report, and to supply additional information.

Hon. Secretary and Treasurer—Professor Cohen. *Committee*—The Vice-Chancellor, Professors Connal, Goodman, Grant, Hellier, and Smithells; Dr. Moorman, Messrs. E. Kitson Clark, T. H. Taylor and J. J. Wood.

Societies in School of Medicine

The Students' Representative Council.[1] Elected annually by the students of the Department of Medicine from amongst their own number.

It concerns itself with the affairs of the Medical Students, and appoints representatives to serve on the Committee of the University Union, a proportion of whose funds it has at its disposal.

The Secretary of the Council is *ex-officio* the Medical Secretary of the Union Committee.

The Council further appoints a sub-committee to manage the Students' Medical Society, and two of its number serve upon the Refectory Committee.

The Medical Society is managed by a Sub-Committee of the Students' Representative Council. Meetings are held on alternate Tuesdays during the first and second terms when papers dealing with subjects of medical interest are read and discussed. The session usually commences with an address, and there is an annual Prize Debate.

Royal Army Medical Corps Territorial Force (West Riding Division). Medical Students are invited to join this Corps. The active part of the drill season is from the beginning of May to the end of July. Camp is held usually during the first week in August. Instruction is given in First Aid to the wounded, nursing duties, cooking for the personnel and sick, and water and sanitary duties with troops. For further information apply at the Headquarters, Harewood Barracks, Woodhouse Lane, at 8 p.m. any week-day, excepting Saturdays.

The following units are stationed in Leeds :—

1st West Riding Field Ambulance.
2nd ,, ,, ,, ,,
No. 2 Northern General Hospital Nucleus.
A contingent of men for water duties.

A Territorial School of Instruction, for the R.A.M.C. (T.) of the West Riding Division Territorial Force, has its headquarters in Leeds.

Societies of Old Students

The Old Students' Association (Women). The aims of the Association are (1) to hold re-unions three times each session; (2) to provide opportunities of communication between former students by means of

[1] The Officers for 1912-13 are not elected in time for insertion in the Calendar.

a list of addresses to be put in a handbook containing also items of interest from former students, to be sent to all members every two or three years; (3) to provide a loan fund (*a*) to enable any present student who is in need of pecuniary help to continue her course at College; (*b*) to aid members of the Association who through illness are temporarily incapacitated from work. Subscriptions: life membership, 10s.; annual, 2s.

President—Miss Robertson. *Vice-President.*—Miss M. Skinner. *Secretary and Treasurer*—Miss E. M. Blackburn. *Assistant Secretary*—Mrs. Monahan. *Editor of Handbook*—Miss M. G. Findlay. *Committee*—Misses L. Allen, C. Armitage (*present student representative*), A. Crawshaw, F. Cuthbertson, A. Jowett, D. D. Lister, M. S. Longstaff, A. Outram.

The Leeds Day Training College Club. The objects of the Club are (1) to provide for a re-union in a social manner of the past students of the Training College, all of whom may become members of the Club; (2) to supply the members with a means of communicating with each other privately, by the annual issue of a list of members and their addresses; (3) to establish a fund which may be used at the discretion of the President for the relief of any past or present student of the Training College who may be in financial distress. Subscription—life membership 10s.; annual, 1s.

President—Professor Welton. *Vice-Presidents*—Professors Connal, Kendall, Roberts, Rogers, Smithells, Stroud, Dr. Moorman, Dr. Dwerryhouse, Messrs. C. M. Gillespie, W. H. Davis, A. Greenwood, J. A. Lumbe, A. W. Priestley, A. J. Walker, W. P. Welpton, H. Hartley, H.M.I., J. Whaley, J. H. R. Appleyard, S. Feather. *Secretaries*—A. Charlesworth, J. H. Everett, *Cockburn High School, Leeds. Committee*—A. J. Walker, H. E. Rayner, W. S. Walbank, C. E. Moss, W. Ramshaw, A. Charlesworth, E. J. Edwards, H. Thompson, F. Horn, F. R. Townsend, J. W. Moulden, W. F. Fearnley, F. Hepworth, A. Hinchley, W. Hall.

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