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Bryn Mawr College Examination Papers Set for Matriculation in the Spring, 1900

Bryn Mawr College

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BRYN MAWR COLLEGE.

EXAMINATION PAPERS
SET FOR MATRICULATION

IN THE

SPRING, 1900.

*This pamphlet may be obtained at the Secretary's Office, Bryn Mawr College,
on payment of twenty-five cents.*

BRYN MAWR COLLEGE.

EXAMINATIONS FOR MATRICULATION.

Examinations for matriculation in Bryn Mawr College are held in the spring and autumn of every year at the college, and all candidates presenting themselves, whether they wish to enter the college or to take the examinations as a test of proficiency, are examined free of charge.

In the spring of every year examinations are held in Boston, New York, Baltimore and Chicago, and candidates taking examinations at these places must pay a fee of five dollars for the whole or any part of the examination, and must give notice to the Secretary of the College of their intention to take the examinations at least two weeks before the date set for the beginning of the examinations.

In the spring examinations may also be arranged for elsewhere, but in this case the candidate or candidates must defray the whole expense of the examinations, the minimum fee charged being five dollars. Application for all such special examinations must be made to the Secretary of the College at least *six weeks* before the date set for the beginning of the examinations.

In 1900, examinations were held at Bryn Mawr College, Boston, New York City, Baltimore, and Chicago, and at Portland (Maine), Wallingford (Connecticut), Rochester, Indianapolis, Denver, and Portland (Oregon).

Dates of Examinations for Matriculation in 1901.

SPRING, 1901.

MAY 31.	JUNE 4.	
<i>English Grammar, etc.</i> , 9½—11	<i>Latin Composition</i> , 9—10½	
<i>English Composition</i> , 11—1		<i>History</i> , 11—1
<i>Algebra</i> , 2½—5½		<i>German</i> , 2½—5½
JUNE 1.	5.	
<i>Geometry</i> , 9½—12	<i>Greek</i> , 9—12	
<i>French</i> , 2—5		<i>Minor Latin, Section A</i> , 9—12
3.		<i>Minor Latin, Section B</i> , 2—5
<i>Latin Prose Authors</i> , 9—10¾		
<i>Latin Poets</i> , 11¼—1		
<i>Science</i> , 3—5		

AUTUMN, 1901.

SEPTEMBER 23.

English Grammar, etc., . . . 9½—11
English Composition, 11—1
Algebra, 2½—5½

24.

Geometry, 9½—12
French, 2—5

25.

Latin Prose Authors, 9—10¾
Latin Poets, 11¼—1
Science, 3—5

26.

Latin Composition, 9—10½
History, 11—1
German, 2½—5½

27.

Greek, 9—12
Minor Latin, Section A, . . . 9—12
Minor Latin, Section B, . . . 2—5

FEBRUARY, 1901.*

FEBRUARY 4.

English Grammar, etc., . . . 9½—11
English Composition, 11—1
Algebra, 2½—5½

5.

Geometry, 9½—12
French, 2—5

6.

Latin Prose Authors, 9—10¾
Latin Poets, 11¼—1
Science, 3—5

7.

Latin Composition, 9—10½
History, 11—1
German, 2½—5½

8.

Greek, 9—12

The examination for matriculation must be taken by all who wish to pursue their studies at the college, either as candidates for a degree or as special students, unless they present a certificate of honorable dismissal from some college or university of acknowledged standing. The examination for matriculation will also be open to those who wish to take it as a test of proficiency in elementary studies, but have no intention of entering the college; and certificates will be given to those who are successful in passing the examination.

The subjects in which the candidate for matriculation must be examined are divided, for convenience of marking, into fifteen sections. A candidate may divide the examination into two parts, provided that not more than one calendar year and the summer recess elapse between the two parts of the examination. Should the candidate pass in fewer than three sections in the first division of the examination, the entire examination must be repeated. To secure a certificate of admission to the college, the candidate must

* The February examinations are open to those candidates only that intend to enter the college at the half-year.

have attempted all the fifteen sections included in the examination, and must have passed in at least eleven sections. All entrance conditions must be passed off within twelve months after the student enters the college classes.

Candidates are expected to show by their papers that all the subjects required for matriculation have been studied for a reasonable length of time, and are not presented as a mere form. Total failures at the second examination in all the branches of a language other than English, or in Mathematics, when such failure is of a character to indicate that the subject has been presented as a mere form, shall prevent the candidate from receiving any certificate for that examination, unless she can produce satisfactory evidence that the subject in question has been pursued for a reasonable length of time.

In addition to the subjects hitherto included in the examination for matriculation, the minor course in Latin, as outlined in the program, may also be offered for examination by candidates for admission that wish to enter with advanced standing ; but neither the minor course in Latin, Solid Geometry, Trigonometry, nor the fourth language, may be substituted for any part of the fifteen sections.

Bryn Mawr College offers annually eight competitive scholarships, four of the value of \$300 and four of the value of \$200, to candidates presenting themselves for the Spring matriculation examinations of Bryn Mawr College, a first scholarship of the value of \$300 and a second of the value of \$200, being open to candidates from each of the following districts.—(a) The New England States ; (b) New York, New Jersey, and Delaware ; (c) Ohio, Indiana, Illinois, Michigan, and Wisconsin, and the states west of the Mississippi river ; (d) Pennsylvania and all places not included in (a), (b), and (c).

The district to which a candidate shall be considered to belong shall be determined by the school at which she received her final preparation, or in case of preparation by private study, by the place of residence during the year preceding the final examination ; but the candidate may present herself for examination at any place where such examination is held.

These scholarships, which are to be held for one year only, shall be awarded in each of the above-named districts on the basis of the sum total of marks obtained by the candidate ; but no one shall be considered eligible for the first scholarship who has received more than one condition in all the fifteen sections of the examination, and

no one shall be considered eligible for the second scholarship who has received more than three conditions in the fifteen sections of the examination. When the examination has been divided, no account will be taken of those conditions incurred in the first part which have been passed off in the final examination.

The competition is limited to those who intend to spend at least one year in residence at Bryn Mawr College, who have not studied at any other college, and who have not before presented themselves more than once in the Bryn Mawr College matriculation examinations. All those who present themselves shall be *ipso facto* candidates for these scholarships, no formal declaration of candidacy being required.

Inquiries may be addressed to the Secretary of Bryn Mawr College, and to the following graduates of Bryn Mawr College, who have kindly consented to serve as Honorary Corresponding Secretaries :

Honorary Corresponding Secretaries.

MARY McMURTRIE, A.B., *Chestnut Hill*, PHILADELPHIA.

SOPHIA WEYGANDT HARRIS, A.B., (MRS. JOHN McARTHUR HARRIS), 105
West Walnut Lane, Germantown, PHILADELPHIA.

EDITH PETTIT, A.M., 1012 *Spruce Street*, PHILADELPHIA.

MARGARET THOMAS CAREY, A.B., (MRS. ANTHONY MORRIS CAREY), 832
Eutaw Street, BALTIMORE.

ALYS PEARSALL SMITH RUSSELL, A.B., (THE HON. MRS. BERTRAND RUSSELL),
44 *Grosvenor Road, S. W.*, LONDON, ENGLAND.

MILDRED MINTURN, A.B., 109 *East 21st Street*, NEW YORK CITY.

ALICE JONES, A.B., SANTA MONICA, LOS ANGELES COUNTY, CALIFORNIA.

RUTH WADSWORTH FURNESS PORTER, A.B., (MRS. JAMES FOSTER PORTER),
586 *Dearborn Avenue*, CHICAGO, ILLINOIS.

ELIZA RAYMOND ADAMS LEWIS, A.B., (MRS. FRANK NICHOLS LEWIS), 236
E. New York Street, INDIANAPOLIS, INDIANA.

Applications for admission to the examinations for matriculation should be made to the Secretary of Bryn Mawr College.

SECRETARY'S OFFICE, BRYN MAWR COLLEGE,
BRYN MAWR, PENNSYLVANIA.

June, 1900.

TABULAR STATEMENT
OF THE
EXAMINATION FOR MATRICULATION.

Tabular Statement.—All candidates for matriculation *must* be examined in the following subjects :

<i>Mathematics</i> {	Algebra, 2.	Latin Grammar and Composition, 1.	History, 1.
	Plane Geometry, 1.	Sight reading in Latin prose, 1.	English, 1.
		Sight reading in Latin poetry, 1.	Science, 1.

All candidates for matriculation *must* be examined also in *two* of the three languages, French, German, and Greek. The examination in each language consists of three sections :

Grammar and Composition, 1.
Sight reading in prose, 1.
Sight reading in poetry, 1.

The candidate *may* be examined in the following subjects, and if not examined at entrance, must pass an examination in them before receiving the Degree of Bachelor of Arts :

<i>Advanced Mathematics</i> {	Solid Geometry,*	<i>A fourth language, †</i> {	French or German or †Greek, whichever language was not included by the candidate in the above fifteen sections.
	Plane Trigonometry.		

The subjects in which the candidate for matriculation *must* be examined are divided, for convenience of marking, into fifteen sections; the figures following the subjects show the number of sections contained in each subject. The examination may be taken in two

* For Solid Geometry may be substituted the college course in Geometrical Conics as outlined on page 161 of the college program.

† Students that have omitted Greek in the examination for matriculation may substitute for the elementary course in Greek the minor course in Latin.

The minor course in Latin may also be offered for examination by candidates for matriculation that desire to enter the college with advanced standing, and, at their discretion, by matriculated students without attendance on the college classes. The minor course is considered for this purpose as comprising two sections, constituted as follows :

A. Cicero, *2nd Philippic*, Livy, *Bk. xxi.*, Latin Prose Composition, including a detailed knowledge of the more abstruse Latin constructions and some facility in turning simple English narrative into Latin.

B. Horace, *Odes*, except *i. 25, 27, 33, 36*; *ii. 5*; *iii. 6, 15, 20*; *iv. 1, 10, 13*; *Epodes*, except *3, 5, 8, 11, 12, 15, 17*. *Carmen Seculare*; *Satires i. 1, 5, 6, 9*; *ii. 6*; *Epistles i. 1, 5, 6, 7, 8, 10, 14, 20*.

No substitutions are allowed for any part of the above requirements, except in the case of students entering with advanced standing from other colleges.

There are two examinations, one in Section A, and one in Section B, each three hours in length; failure to pass in Latin Prose Composition involves failure in the whole of Section A. These examinations may be taken in different years, and in the order preferred by the candidate; or one section may be pursued in the college classes, and the other offered for examination without attendance upon the class. They are held only at the time of the regular matriculation examinations at the beginning and end of the college year, and application for admission to them must be made at least three weeks in advance.

‡ If this examination is not passed before the beginning of the student's third year in the college, she must enter the college classes in this subject:

divisions, and in each division the candidate may offer any sections she pleases, provided that, if she offer French or German she offer in the same division of the examination all the three sections, grammar and composition and translation.* If the candidate pass in fewer than three sections in the first division, the sections in which she has passed are cancelled and the examination in them must be repeated; if the candidate allow more than one calendar year and the summer recess to elapse between the two divisions of the examination, the examinations taken in the first division must be repeated. To secure a certificate of admission to the college a candidate must have attempted all the fifteen sections included in the examination, and must have passed in at least eleven sections. All entrance conditions must be passed off within twelve months after the student enters the college, under penalty of exclusion from full college work during the following year. Solid Geometry and Trigonometry, the fourth language, or the minor course in Latin may not be substituted for any part of the fifteen sections.

Candidates are expected to show by their papers that all the subjects required for matriculation have been studied for a reasonable length of time. Total failure in the second division of the examination in all the branches of any language other than English, or in Mathematics, when such failure is of a character to indicate that the subject has been presented as a mere form, prevents the candidate from receiving any certificate, unless she can produce satisfactory evidence that the subject in question has been faithfully studied for a reasonable length of time.

I. Mathematics.—(1) and (2) Algebra. (3) Plane Geometry.

The examination in Algebra comprises Elementary Operations, Quadratic Equations, Problems, Ratio, Proportion, Variation, Arithmetical and Geometrical Progressions.

While there is no formal examination in Arithmetic, an adequate knowledge of the subject is required throughout the mathematical examination; in *all* the papers there are some numerical problems, and the correct solution of a fair number of these is regarded as essential.

All candidates that do not, in addition to the above, present *Solid Geometry* † and *Trigonometry* (including the use and theory of logarithms and the solution of triangles), must pursue these branches and pass an examination in them before receiving a degree. It is especially recommended that those intending to elect mathematical courses should pass the entire matriculation examination in mathematics. These candidates are advised to confine themselves to Algebra; Plane Geometry of the straight line and the circle; Solid Geometry and Trigonometry. More benefit will be derived from a thorough acquaintance with the pure geometrical methods than from a little knowledge of Analytical Geometry.

Students whose matriculation examination has included either Solid Geometry or Trigonometry, or both, are credited with the time which others must subsequently spend upon these studies.

Phillips and Fisher's *Elements of Geometry* or Wentworth's *Geometry* will be found suitable for preparation for the examination in Plane Geometry; for the examination in Solid Geometry either of these books or Wilson's *Solid Geometry* (Macmillan) is suitable; in Algebra and Trigonometry C. Smith's *Elementary Algebra* (American edition, revised by Irving Stringham), and Lock's *Trigonometry for Beginners* (Macmillan) are recommended.

II. Latin.—(1) Grammar and Composition. (2) Translation at sight of simple passages in Latin prose. (3) Translation at sight of simple passages in Latin poetry. Due allowance is made for unusual words; there are questions testing the candidate's practical knowledge of grammar and prosody.

* If the candidate fail in translation, she must repeat the grammar as well as the translation, but if she fail in grammar she may repeat the examination in grammar without repeating that in translation.

† The college course in Geometrical Conics may be substituted for the examination in Solid Geometry.

The so-called Roman method of pronunciation, as explained in Gildersleeve's or in Allen and Greenough's *Latin Grammar*, is required.

As many schools are introducing the "natural method" as a substitute for thorough grammatical training, attention is called to the fact that special stress is laid on an accurate and ready knowledge of grammatical forms. A knowledge of paradigms and parts of irregular verbs is insisted upon.

Candidates are advised, whenever possible, to try the whole Latin examination at one time, although the three sections may be taken separately, and in any order the candidate may prefer.

III. History.—(1) The outlines of the History of Greece and Rome; or the outlines of the History of England and the United States.

Oman's *History of Greece* (second edition); Allen's *History of the Roman People*; Gardiner's *A Student's History of England*; Johnston's *History of the United States and The United States: its History and Constitution*, are recommended. It is also recommended, though in no sense required, that candidates become familiar, by means of carefully selected collateral references, with other books somewhat different in character from those mentioned above: such as, for Grecian History, Holm's *History of Greece*, vol. i., and *Epochs of Ancient History*, edited by Cox and Sankey, published by Scribner; for Roman History, Schuckburgh's *History of Rome*, Headlam's *Outlines of Roman History* and the *Epochs of Ancient History*, already mentioned; for English History, *English History from Contemporary Sources*, edited by Hutton and Powell, published by Putnam, and *Epochs of English History*, edited by Creighton, published by Longman; for American History, *Epochs of American History*, edited by Hart, published by Longman.

English.—(1) The candidate is required to write a short English composition, correct in spelling, grammar, punctuation, and general arrangement, and to correct specimens of bad English.

In 1900 candidates must be familiar with Chaucer's *Knight's Tale*; Shakespeare's *Macbeth* and *As You Like It*; Milton's *L'Allegro*, *Il Penseroso*, *Lycidas*, and *Paradise Lost*, Books I. and II.; the *Sir Roger de Coverley Papers* in the Spectator; Matthew Arnold's *Essay on Gray* and *Essay on A Guide to English Literature*; Wordsworth's *Michael* and *Resolution and Independence*; Coleridge's *Ancient Mariner* and *Christabel*; Shelley's *Adonais* and *Sensitive Plant*; Keats's *Eve of St. Agnes*; Tennyson's *Passing of Arthur*; Hawthorne's *House of the Seven Gables*; Pater's *Child in the House*; Stevenson's *Kidnapped*.

In 1901 candidates must be familiar with Chaucer's *Clerk's Tale*; Shakespeare's *Macbeth* and *The Merchant of Venice*; Milton's *L'Allegro*, *Il Penseroso*, *Lycidas*, and *Paradise Lost*, Books I. and II.; the *Sir Roger de Coverley Papers* in the Spectator; Matthew Arnold's *Essay on Gray* and *Essay on A Guide to English Literature*; Wordsworth's *Michael* and *Resolution and Independence*; Coleridge's *Ancient Mariner* and *Christabel*; Shelley's *Adonais* and *Sensitive Plant*; Keats's *Eve of St. Agnes*; Tennyson's *Passing of Arthur*; Hawthorne's *House of the Seven Gables*; Pater's *Child in the House*; Stevenson's *Kidnapped*.

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The books agreed on for the years 1900, and 1901, and 1902 by the Associations of the Colleges and Schools of the New England States, the Middle States and Maryland, the North Central States, and the Southern States, will be accepted as equivalents in corresponding years. The books prescribed for candidates taking the regular examinations for matriculation in any given year are required also of candidates taking the special matriculation exami-

nation provided for students entering the college in the February of the year following. Candidates passing off conditions after admission to the college may offer the books prescribed in the examination in which the condition was imposed.

In preparing for this examination especial attention should be given to paragraph-structure and to sentence-structure. Hill's *Foundations of Rhetoric*, Abbott's *How to Write Clearly*, and Bigelow's *Handbook of Punctuation*, are recommended.

The examination in English may not be divided; failure to offer both composition and grammar will prevent the candidate from passing in the division offered.

Science.—(1) The elements of one of the following sciences:—Physics or Chemistry, or Botany, or Physiology, or Physical Geography.

Carhart and Chute's *Elements of Physics*, Remsen's *Introduction to the Study of Chemistry* (Briefer Course), Bessey's *Essentials of Botany*, Martin's *Human Body* (Briefer Course) or Foster's *Physiology for Beginners*, and Tarr's *First Book of Physical Geography* are recommended. Candidates are advised, whenever possible, to offer Physics, as this study forms a better basis for further scientific work. It is recommended, though in no sense required, that candidates should have some knowledge of the metric system.

IV. Two of the following languages:

Greek.—(1) Grammar and Composition. (2) Translation at sight of simple passages in Attic prose, such as Xenophon's *Anabasis* or *Memorabilia*. (3) Translation at sight of passages of average difficulty from Homer. Due allowance is made for unusual words and there are questions testing the candidate's practical knowledge of grammar, including prosody.

White's *Beginners' Greek Book* and Jones's *Exercises in Greek Prose*, or equivalents, are recommended.

French.—(1) The examination in French has three divisions, one to test the candidate's knowledge of pronunciation and ordinary grammatical forms, the other two, her power to read at sight ordinary French prose and verse.

For the examination in reading no texts are assigned, the examination being intended to test the candidate's ability to read any ordinary French whatsoever. Candidates preparing for these examinations are advised to acquire as large a vocabulary as possible. They are further advised in their study of verbs to concentrate their attention on the regular verbs, the auxiliaries *être*, *avoir*, such important irregular verbs as *aller*, *devoir*, *dire*, *faire*, *mettre*, *prendre*, *pouvoir*, *vouloir*, *tenir*, *venir*, *voir*, *écrire*, *lire*, *croire*, *boire*, and the typical verbs, *conduire*, *craindre*, *paraître*, *partir*, and to acquire a fair knowledge of the use of the various past tenses and of the rules of the subjunctive.

The examination in French may not be divided; failure to pass in French translation involves failure also in French Grammar, although the reverse is not true.

Teachers preparing students that wish to elect French in the college are advised to train their pupils to write French from dictation in order to enable them to understand lectures delivered in that language.

German.—(1) The examination in German is precisely similar to that in French, and tests the candidate's pronunciation, knowledge of ordinary grammatical forms, and ability to read ordinary German at sight.

The examination in German may not be divided; failure to pass in German translation involves failure also in German grammar, although the reverse is not true.

With the exception of the Minor Course in Latin, all subjects potentially included in the examination for admission are regarded as preparatory and non-collegiate. The college course of instruction in mathematics, for example, does not include but presupposes trigonometry; the courses in French and German presuppose a reading knowledge of these languages.

It is therefore to the interest of every candidate to offer, at entrance, advanced mathematics, and if possible all four languages, since to fail in such of these examinations as are not strictly obligatory will not affect the candidate's collegiate standing, and to pass them successfully will leave her nearly free for elective study under the Group System and for true collegiate work.

EXAMINATION PAPERS
SET FOR MATRICULATION

IN THE

SPRING, 1900.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

ALGEBRA (*Counted as two sections.*)

SPRING, 1900.—THREE HOURS.

1. Show that

$$x^3(a - b) - a^3(b + x) + b^3(a + x)$$

vanishes when $x = a + b$.

2. Simplify

$$\frac{x^3 + 27}{x + 3} + \frac{x^3 - 27}{x - 3}.$$

Resolve each of the following into as many factors as you can :

(i.) $(x^4 - 1)(x^3 + 1)$;

(ii.) $(a^2 + b^2)^2(a^2 + c^2) - (a^2 + b^2)(a^2 + c^2)^2$.

3. Solve the following equations :

(i.) $(4x + 1)^2 = 4x^2 + 4x + 9$;

(ii.) $\frac{x + 1}{x - 4} - 1 = \frac{6}{x - 3}$.

4. Is it possible for two numbers to have 56 for their sum and 720 for their product?

5. Prove that the sum of a geometric series of n terms, of which the first term is a and the common ratio is r , is

$$\frac{a(r^n - 1)}{r - 1};$$

hence show that if the first term is a and the n th term l , then the sum of the n terms is

$$\frac{a - lr}{1 - r}.$$

6. Find the fourth proportional to 3.1, .002, 9.9.

Prove that if $a : b :: b : c$, then $a : c = a^2 : b^2 = b^2 : c^2$
and $b = \sqrt{ac}$.

7. State the numerical values of

$$4^{-3}, (.02)^{-1}, \frac{1}{(\sqrt[3]{2})^{-6}}, \sqrt{123} \text{ (to 3 places of decimals).}$$

8. Prove that the quadratic equation $x^2 + px + q = 0$
cannot have more than two roots; show that these roots are
equal when $p^2 = 4q$. Under what circumstances are they
imaginary?

9. Divide

$$abx^5 - (a^2 + b^2)x^4 + (b^2 + 2ab)x^3 - (b^2 + 2ab)x^2 + (a^2 + b^2)x - ab$$

by

$$bx^2 - ax + b.$$

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

PLANE GEOMETRY. (*Counted as one section.*)

SPRING, 1900.—TWO AND A HALF HOURS.

1. Define an isosceles triangle. Prove that the angles at the base of an isosceles triangle are equal.

A line is terminated by the sides of a given angle, and it is found that the point of bisection of the line lies on the line bisecting the angle. Show that this bisector is perpendicular to the given line.

2. Prove that if the opposite sides of a quadrilateral are equal, the figure is a parallelogram. Can any conclusion be drawn from the fact that the diagonals of a given quadrilateral are equal? or from the fact that being unequal they bisect each other?

3. Prove that the three perpendicular bisectors of the sides of a triangle meet in a common point, which is equally distant from the three vertices.

Prove that the distance of this point from the greatest side of the triangle is the least, and its distance from the least side of the triangle is the greatest, of its distances from the three sides; and that if these three distances are equal, the given triangle must be equilateral.

4. Define a circle, a chord of a circle.

Prove that the perpendicular bisector of a chord is a diameter.

Show how to draw a chord of a circle so as to be bisected at a given point.

Find the locus of the points of bisection of chords drawn through a fixed point within the circle.

5. Explain carefully what is meant by the statement, "An inscribed angle is measured by one-half its intercepted arc." Prove this statement.

Three points, A , B , C , are taken on a circle, and from these points three parallel lines are drawn, meeting the circle again in A^1 , B^1 , C^1 . Prove that the triangles ABC , $A^1B^1C^1$ are equal.

6. Define similar figures. Give the simplest test for (1) similar triangles, (2) similar quadrangles.

Prove that in two similar triangles, corresponding altitudes have the same ratio as any two homologous sides.

7. State and prove the relation connecting the three sides of a right-angled triangle.

Equilateral triangles are described on the three sides; prove that the area of the one on the hypotenuse is equal to the sum of the areas of the other two.

8. Give and prove an expression for the area of (1) a triangle, (2) a trapezoid.

Given the perimeter of a rectangle, when is the area a maximum? Prove your answer.

9. What is meant by saying that four given lengths are in proportion?

Show how to divide a given straight line into parts proportional to any number of given straight lines.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

LATIN. (*Counted as three sections.*)

FIRST SECTION: PROSE COMPOSITION.

SPRING, 1900.—ONE AND A HALF HOURS.

Five days afterwards I arrived in Rome. I went about looking at everything; I walked in the streets, and tried to remember all the time that I had passed there so many years before. Suddenly I met an acquaintance; the first man that I had recognized in all that multitude. I rejoiced to see him, and saluted him, and asked how he was. He seemed surprised, and to doubt whether I were sane. It was evident that he did not know me. And even when I told him my name, and where I had been, he still seemed not to believe me. I had been absent so long that most people thought me dead, he said, and had forgotten me. But after a while, when he was certain that I was not deceiving him, he began to smile, and we walked on together.

Tyler, having ordered his companions to retire until he should give them a signal, dared to come into the midst of the king's attendants. He then bore himself so that the mayor (*praefectus*) of the city was not able to endure his insolence. He drew his sword and struck him so heavily that he fell on the ground, when he was immediately killed by the soldiers. The conspirators, seeing the death of their leader, determined to revenge themselves. And the soldiers with the king would have been killed immediately, unless the king had seen what ought to be done. He ordered his companions to stop; he advanced alone towards the angry crowd, and asked them why they had made such a tumult. "Are you angry, my friends," said he, "because you have lost your leader? I am your king; I will be your leader."

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION

LATIN. (*Counted as three sections.*)

SECOND SECTION: PROSE AUTHORS.

SPRING, 1900.—ONE AND THREE-QUARTER HOURS.

I. Translate *Bellum Alex.*, § 10.

Cæsar goes on a scouting expedition and narrowly escapes capture.

Caesar, ut per se consilium caperet, quid faciendum uideretur, nauem conscendit atque omnem classem se sequi iussit nullis nostris militibus impositis, quod, cum longius paulo discederet, munitiones nudare nolebat. Cumque ad eum locum accessisset, qui appellatur Chersonesus aquandique causa remiges in terram exposuisset, nonnulli ex eo numero, cum longius a nauibus praedatum processissent, ab equitibus hostium sunt excepti. Ex his cognouerunt Caesarem ipsum in classe uenisse neque ullos milites in nauibus habere. Qua re comperta magnam sibi facultatem fortunam obtulisse bene gerendae rei crediderunt. Itaque naues omnes, quas paratas habuerant ad nauigandum, propugnatoribus instruxerunt Caesarique redeunti cum classe occurrerunt. Qui duabus de causis eo die dimicare nolebat, quod et nullos milites in nauibus habebat, et post horam X diei res agebatur; nox autem allatura uidebatur maiorem fiduciam illis, qui locorum notitia confidebant.

II. Translate either A or B.

A. Cic. Phil. X. § 1, 2.

Cicero thanks Pansa for convening the Senate on receipt of the letter from Brutus.

Maximas tibi, Pansa, gratias omnes et habere at agere debemus, qui quum hodierno die senatum te habiturum non arbitraremur, ut M. Bruti praestantissimi civis litteras accepisti, ne minimam quidem moram interposuisti quin quam primum maximo gaudio et gratulatione fruere-
mur. Quum factum tuum gratum omnibus debet esse, tum vero oratio, qua recitatis litteris usus es. Declarasti enim verum esse id, quod ego semper sensi, neminem alterius, qui suae confideret, virtuti invidere. Itaque mihi, qui plurimis officiis sum cum Bruto et maxima familiaritate coniunctus, minus multa de illo dicenda sunt. Quas enim ipse mihi partes sumpseram, eas praecepit oratio tua. Sed mihi, patres conscripti, necessitatem attulit paullo plura dicendi sententia ejus qui rogatus est ante me, a quo ita saepe dissentio ut iam verear ne, id quod fieri minime debet, min-
uere amicitiam nostram videatur perpetua dissensio.

Quae est enim ista tua ratio, Calene, quae mens, ut numquam post Kalendas Ianuarias idem senseris quod is qui te sententiam primum rogat? numquam tam frequens senatus fuerit quum unus aliquis sententiam tuam secutus sit?

B. Livy XXIV., 46.

Fabius makes preparation for besieging Arpi.

Fabius ab Suessula profectus Arpos primum institit oppugnare. Ubi quum a quingentis fere passibus castra posuisset, contemplatus ex propinquo situm urbis mœnia-
que, quæ pars tutissima mœnibus erat, quia maxime neglectam custodia vidit, ea potissimum aggredi statuit. Comparatis omnibus, quæ ad urbes oppugnandas usui sunt, centurionum robora ex toto exercitu delegit tribunosque viros fortes eis præfecit, et milites sexcentos, quantum satis

visum est, attribuit eosque, ubi quartæ vigiliæ signum cecinisset, ad eum locum scalas iussit ferre. Porta ibi humilis et angusta erat, infrequenti via per desertam partem urbis. Eam portam scalis prius transgressos murum aperire ex interiore parte aut claustra refringere iubet et tenentes partem urbis cornu signum dare, ut ceteræ copiæ admoverentur: parata omnia atque instructa sese habiturum. Ea impigre facta; et quod impedimentum agentibus fore videbatur, id maxime ad fallendum adiuvit. Imber ab nocte media coortus custodes vigilesque dilapsos e stationibus suffugere in tecta coegit.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

LATIN. (*Counted as three sections.*)

THIRD SECTION: LATIN POETS.

SPRING, 1900.—ONE AND THREE-QUARTER HOURS.

(Candidates must do A and either B or C.)

A.

I. Translate Ovid, *Metam.* V., 209-233.

Phineus fights with Perseus for the hand of Andromeda, but is turned into stone at the sight of the Gorgon's head.

Gorgone bis centum riguerunt corpora visa.
paenitet iniusti tum denique Phinea *belli*; 210
sed quid *agat*? simulacra videt diversa figuris
adgnoscitque suos et nomine *quemque* vocatum
poscit opem, credensque parum, sibi proxima tangit
corpora: marmor erant. avertitur atque ita supplex
confessasque manus obliquaque bracchia tendens, 215
'vincis' ait, 'Perseu. remove fera monstra tuaeque
saxificos vultus, quaecumque ea, tolle Medusae:
tolle, precor. non nos odium regnique cupido
compulit ad bellum: pro coniuge movimus arma.
causa fuit *meritis* melior tua, tempore nostra.
non *cessisse* piget. nihil, o fortissime, praeter
hanc animam concede mihi: tua cetera sunt.'
taliam dicenti neque eum, quem voce rogabat,
respicere audenti 'quod' ait, 'timidissime Phineu,

et possum tribuisse et magnum est munus inertī, 225
 pone metum, tribuam: nullo violabere ferro.
 quin etiam mansura dabo monimenta per aevum,
 inque domo soceri semper spectabere nostri,
 ut mea se sponsi soletur imagine coniunx.
 dixit et in partem Phorcynida transtulit illam, 230
 ad quam se trepido Phineus obverterat ore.
 tum quoque conanti sua vertere lumina cervix
 deriguit, saxoque oculorum induruit umor. 233

II. Scan vv. 209-212, marking the principal caesura in each.

III. Explain the syntax of the italicized words. Write the principal parts of *tangit* and *audenti*.

B.

I. Translate Ovid, *Metam.*, VII., 563-592.

Aeacus describes the horrors of the plague which had devastated Aegina.

quo propior quisque est servitque fidelius *aegro*, 563
 in partem leti citius venit. utque salutis
 spes abiit, finemque vident in funere morbi, 565
 indulgent animis et nulla, quid utile, cura est;
 utile enim nil est. passim positoque pudore
 fontibus et fluviis puteisque capacibus haerent,
 nec sitis est exstincta prius quam vita bibendo.
 inde graves multi nequeunt *consurgere* et ipsis 570
 immoriuntur *aquis*; aliquis tamen haurit et illas.
 tantaque sunt miseris invisī taedia *lecti*:
 prosiliunt aut, si prohibent consistere vires,
 corpora devolvunt in humum. fugiuntque penates
 quisque suos, sua cuique domus funesta videtur, 575
 et quia causa latet, locus est in crimine parvus.
 semianimes errare viis, dum stare valebant,
adspiceres, flentes alios terraque iacentes
 lassaque versantes supremo lumina motu.
 membraque pendentis tendunt ad sidera caeli, 580
 hic illic, ubi mors deprenderat, exhalantes.
 quid mihi tunc *animi* fuit? an quod debuit esse,

ut vitam odissem et cuperem pars esse meorum?
 quo se cumque acies oculorum flexerat, illic
 vulgus erat stratum, veluti cum putria motis 585
 poma cadunt ramis agitataque ilice glandes.
 templa vides contra gradibus sublimia longis;
 Iuppiter illa tenet. quis non altaribus illis
 inrita tura tulit? quotiens pro coniuge coniunx,
 pro gnato genitor dum verba precantia dicit, 590
 non exoratis animam finivit in aris,
 inque manu turis pars inconsumpta reperta est! 592

II. Explain the syntax of the italicized words. Write
 the principal parts of *cadunt* and of *reperta est*.

C.

I. Translate Virgil, Aen. IX., 176-206.

Nisus and Euryalus resolve to make their way through
 the Rutulian camps and to summon Aeneas from Pallan-
 teum.

Nisus erat portae custos, acerrimus *armis*,
 Hyrtacides, comitem Aeneae quem miserat Ida
 venatrix iaculo celerem levibusque sagittis;
 it iuxta comes Euryalus, *quo* pulchrior alter
 non fuit Aeneadum Troiana neque induit arma. 180
 ora puer prima signans intonsa iuventa.
 his amor unus erat, pariterque in bella ruebant:
 tum quoque communi portam statione tenebant.
 Nisus ait: 'dine hunc ardorem mentibus addunt,
 Euryale, an sua cuique deus fit dira cupido? 185
 aut pugnam aut aliquid iamdudum invadere magnum
 mens agitat mihi nec placida contenta quiete est.
 cernis quae Rutulos *habeat* fiducia rerum.
 lumina rara micant; sommo vinoque soluti
 procubuere; silent late loca: percipe porro, 190
 quid dubitem et quae nunc animo sententia surgat.
 Aenean acciri omnes, populusque patresque,
 exposcunt mittique viros, qui certa *reportent*.
 si tibi quae posco promittunt (nam mihi facti
 fama sat est), tumulo videor reperire sub illo 195
 posse viam ad muros et moenia Pallantea.'

obstipuit magno laudum percussus amore
 Euryalus; simul his ardentem adfatur amicum:
 'mene igitur socium summis adiungere rebus,
 Nise, fugis? solum te in tanta pericula *mittam?* 205
 non ita me genitor, bellis adsuetus Opheltes,
 Argolicum terrorem inter Troiaeque labores
 sublatum erudiit, nec tecum talia gessi,
 magnanimum Aenean et fata extrema secutus:
 est hic, est animus lucis contemptor et istum 205
 qui vita bene credat emi, quo tendis, *honorem?*'

II. Explain the syntax of the italicized words. Write
 the principal parts of *surgat* and *sublatum*.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

SPRING, 1900.—TWO HOURS.

GRECIAN HISTORY.

1. During what period did the leading Greek cities establish their chief colonies, and in what localities? Locate Sinope, Byzantium, Syracuse, Sybaris, Rhegium.
2. Give an account of the constitution of Cleisthenes, and state what changes he made in the constitution of Solon.
3. Trace the career of Themistocles from his election as archon in 493 B. C. to his death.
4. Give an account of the Sicilian expedition. Why was it undertaken, and why did it fail? Give important dates.
5. State briefly what the Greeks have contributed to civilization.

ROMAN HISTORY.

1. Describe the government and religion of the early Romans. Name the chief gods of the Romans.
2. What was the organization of the Roman government under the Republic? When and why were the offices of praetor, censor, military tribunes established?
3. Give an account of the invasion of the Gauls and the victories of Marius over them. Give necessary dates.
4. Give a biography of Cicero.
5. Who were the great poets and prose writers of the age of Augustus? Why is that age called the Golden Age?

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

HISTORY. (*Counted as one section.*)

SPRING, 1900.—TWO HOURS.

ENGLISH HISTORY.

1. What was the state of the civilization in Britain at the beginning of the Anglo-Saxon migrations? What had been the character of the Roman occupation?

2. Give an account of the reign of Henry III to 1258, showing the grievances of the barons. When was the battle of Evesham fought and with what results?

3. Who was John Wiclif, and when did he live? Give some account of his work and influence.

4. Why did England take part in the war of the Spanish succession? When was that war waged? Who was the most famous commander of the English forces? What treaty terminated this war?

5. Indicate the chief stages in the history of England's relations with Ireland from the time of Henry II to the union in 1801.

AMERICAN HISTORY.

1. When, where, and for what purposes did the Dutch settle in America? How long did their occupation last?

2. When and for what purpose did the Second Continental Congress meet? Mention some of its most important acts.

3. What were the Alien and Sedition laws, and when were they passed? What was their effect upon the Federalist party?

4. Give a biography of Henry Clay.

5. Trace the territorial growth of the United States from 1784 to 1867, giving briefly the circumstances attending each accession of territory, and the dates of the various accessions.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

ENGLISH. (*Counted as one section.*)

II. COMPOSITION.

SPRING, 1900.—TWO HOURS.

(a) Discuss Stevenson's power as a story teller as shown in *Kidnapped*, considering the management of the plot, the delineation of character, and the descriptive setting.

(b) How far in your opinion do the *Sir Roger de Coverley Papers* bear out Macaulay's estimate of Addison?

Take either (a) or (b).

The composition must contain not less than sixty lines of foolscap, and must be correct in spelling, grammar, punctuation, paragraphing, and general arrangement.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

ENGLISH. (*Counted as one section.*)

I. GRAMMAR AND PUNCTUATION.

SPRING, 1900.—ONE AND A HALF HOURS.

Correct the following sentences, making the corrections as far as possible on the printed text:

1. If I was asked when the student is, or ought to be, ready to enter on this special work, I would not hesitate to set the age as early, if not earlier than twenty-one.

2. Having no desire to underrate the evils I have referred to, it may be the more readily permitted to me to point out some of the ways in which they have or might be mitigated, in my opinion.

3. There is no doubt but that everyone that makes themselves familiar with French literature will realise its nobler qualities, and that it is not only an antidote of melancholy but of fanaticism.

4. It is very well that voters should feel that there is some official personage who they can directly appeal to and who does directly represent the people who have elected him; but it is equally as natural that these voters should want him to be the sort of a man who will be a representative of their own kind.

5. Anyone who is at all familiar with the feelings of the poor must be aware that, as a rule, they are more willing to be sent to a hospital managed by a private corporation than to one that the public manages, in case of sickness, which shows that there are deficiencies in public charities and that they are to a large degree supplied by private institutions; yet a vigorous agitation to abolish all public aid to private charities has been lately set on foot by many well-meaning citizens, who look at the subject too exclusively from a theoretical standpoint, it seems to me.

6. He is one of those students of language who believes that every word has a personal character, and in its carrying it with it wherever it goes, like a snail does its shell.

7. If we examine into the nature of this strife we will neither be able wholly to blame the invaders or wholly to vindicate those who defend the ancient citadel.

8. In Mr. Henry James's *Portrait of a Lady* he exhibits to the full the masterly restraint and the exquisite finish which is to some people so delightful and which some people so dislike in his later works.

9. Miss Wilkins, like Miss Jewett, deals with rural life in New England; but unlike Miss Jewett, her stories only depict the drearier side of that life, that certainly has another and brighter side, which must make them less pleasing to New England readers.

10. Mrs. Barbara Moon, of Rolvenden, Kent, who is the only woman alive who was present at the battle of Waterloo, is ninety years of age, and was the daughter of a color sergeant, who fought in the battle of Waterloo and Salamanca, in the last-named of which he received his death-wound, when Mrs. Moon was four years old and remembers leaving the field of Waterloo with her mother in a baggage wagon.

11. There is probably no military service in the world in which a commanding officer would have dared, while in the field, to have uttered such criticisms as General Roberts, since he has taken charge of the war in South Africa, has made on General Buller and General Warren in his reports to the War Office on operations there, and no War Department that would have been willing to have published them, like the English War Department has done.

12. *David Balfour*, the sequel to *Kidnapped*, is very interesting and it shows him to us in a new rôle, that of the ardent lover; and yet we will all probably, after reading it, confess to a certain disappointment in it.

Punctuate (on the printed text) the following passage :

The following remarks from Arnolds Lecture On the Study of Celtic Literature will illustrate the point of which we have been speaking In the second place there are many ways of handling nature and we are here only concerned with one of them but a rough and ready critic imagines that it is all the same so long as nature is handled at all and fails to draw the needful distinction between modes of handling her But these modes are many I will mention four of them now there is the conventional way of handling nature there is the faithful way of handling nature there is the Greek way of handling nature there is the magical way of handling nature In all these three last the eye is on the object but with a difference in the faithful way of handling nature the eye is on the object and that is all you can say in the Greek the eye is on the object but lightness and brightness are added in the magical the eye is on the object but charm and magic are added In the conventional way of handling nature the eye is not on the object what that means we all know we have only to think of our eighteenth century poetry

As when the moon refulgent lamp of night

to call up any number of instances.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

SCIENCE. (*Counted as one section.*)

SPRING, 1900.—TWO HOURS.

PHYSICS.

1. Distinguish between force and energy, and find an equation connecting the work done by a force with that force and the distance through which the body is moved. Why does not the mass of the body enter into the equation? Find the work done in lifting a mass m through a height h , and the kinetic energy which the body acquires when it falls back again to its original position.

2. Explain the principle of a barometer; how does a water barometer differ from the common mercurial barometer?

3. What is meant by the moment of a force? Explain concisely why such a quantity is useful, and apply the principle in order to explain the value of the lever as a mechanical instrument.

4. What is meant by resonators in the study of sound? Discuss the apparent increase in the energy of the sound due to the presence of the resonator. What practical use is made of resonators?

5. Describe some simple experiments which would illustrate the behavior of electromagnetic induced currents of electricity. Show (using diagrams) that the action of the dynamo is based on an application of the laws of these induced currents.

6. Give an account of the action called electrolysis and of the laws which it obeys.

7. What is the cause of color in bodies? What are complementary colors? Explain why the effect produced on mixing two colors is different from that produced on mixing two pigments of the same two colors.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

SCIENCE. (*Counted as one section.*)

SPRING, 1900.—TWO HOURS.

CHEMISTRY.

1. What is a chemical change? Give illustrations of the difference between chemical and physical changes.

2. What is the composition of the air by volume and by weight? How can pure oxygen be separated from air? What chemical change takes place when substances burn in air? How would you prove it?

3. How is nitric acid prepared? What are its physical properties? How does it act on copper? Write a reaction that shows that nitric acid is an acid, and one that shows that it is an oxidizing agent.

4. How would you prove that diamond, charcoal and graphite are not different elements, but modifications of the same element.

5. How is carbon monoxide prepared? How does it differ from carbon dioxide in physical and chemical properties? What is carbonic acid? What are the sodium salts of carbonic acid?

6. State the following laws: (1) definite proportions, (2) multiple proportions, (3) gas volumes, (4) Boyle's Law.

7. What is soda? Washing soda? Baking soda? Caustic soda? How is sodium carbonate made from sodium chloride? What reaction takes place when sodium carbonate is treated with hydrochloric acid? How is sodium hydroxide made from sodium carbonate?

8. What are the principal iron ores? How is iron obtained from its ores? What is cast iron? Wrought iron? Steel?

9. How many grams of sulphur would be required to form 100 grams of sulphur dioxide? $S = 32$ $O = 16$.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

SCIENCE. (*Counted as one section.*)

SPRING, 1900.—TWO HOURS.

BOTANY.

1. What is protoplasm?
2. What is a cell—its structure, origin and relation to the plant-body?
3. What is the use of oxygen to plants?
4. What is the function of stomata?
5. Name and define the classes of fruits to which the apple, the gooseberry and the pea belong.
6. What is an ovule? A carpel? A vascular cryptogram? A silique? A sporogonium? Sieve tubes?
7. What is alternation of generations? Give two examples.
8. Give an outline of the general classification of plants.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

SCIENCE. (*Counted as one section.*)

SPRING, 1900.—TWO HOURS.

PHYSIOLOGY.

(Number each sheet and mark it with your initials. PRINT your name on the outside of the last sheet and note also where this examination is taken.)

1. Liver. Situation and a general description. Blood-vessels connected with it. Function.
2. Cartilage. Where found? How is it useful?
3. What advantages has man as a "cooking animal"?
4. Capillaries and their significance.
5. What is the diaphragm? How is it helpful?
6. What are the spinal nerves? Indicate their more important work as well as general structure.
7. Describe the blood (*not* the circulation).
8. Define briefly (noting essential peculiarities): Patella, incisor, blind spot, œsophagus.
9. What should be done with a broken bone in an emergency?

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION

SCIENCE. (*Counted as one section.*)

SPRING, 1900.—TWO HOURS.

PHYSICAL GEOGRAPHY.

1. Describe the changes of season at the equator; at the poles. Under what conditions would perpetual night prevail within the Arctic Circle?

2. Define and show mutual relations of universe, solar system and earth.

3. Discuss the nature of, and conditions favorable for, evaporation. When will evaporation cease, and what is the function of evaporation?

4. Discuss the origin of high and low pressure areas, and the direction of their movement. What is the law of atmospheric movements?

5. What is the relation of high and low pressure areas to rain? From what source comes most of the rain of North-eastern United States?

6. What changes of temperature occur during the course of storms and why? Explain the "cold wave," muggy summer winds, warm winter winds.

7. Compare ocean currents with air currents and note differences?

7. Give the evidences of a sinking, of a rising coast.

8. Give the theories that are held in regard to the formation of coral islands.

9. Classify mountains and valleys according to their origin.

10. What are the evidences of a glacial period, and where may they be found?

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

GREEK. (*Counted as three sections.*)

FIRST SECTION: GRAMMAR AND COMPOSITION.

SPRING, 1900.

(*One hour if all three sections are taken ; one and a half hours if only one or two sections are taken at one time.*)

I. In the second prose passage (Xen. Anab. VII., 6, 43-44) decline in full *ὀπλίτας, λαβῶν, Βασιλεῖ.*

Give the principal parts of *πέμπει, ἀποδώσειν, μένειν.*

Conjugate in the mood and tense in which each is found:

ὀπέσχετο, ἀκηχοε, ἔσται, ἀποθανοῖτο, εἶη.

Give all the infinitives of the verb from which *διαβεβλημένος* is formed.

Give the grammatical construction of *ἀποδώσειν, ἀποθανοῖτο.*

II. Translate into Greek :

Clearchus wished to have money so that he might raise an army, for war was more pleasant to him than peace.

The soldiers of Clearchus feared him more than they feared the enemy, and they say that Clearchus said that his soldiers must obey. So they followed him in the midst of danger because they thought him a good general, and whenever he led his men into battle, they fought nobly. Clearchus ruled them in order that he might not himself be ruled by them. With them he made war upon the Thracians and conquered.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

GREEK. (*Counted as three sections.*)

SECOND SECTION: PROSE AUTHORS.

SPRING, 1900.

(*One hour if all three sections are taken; one and a half hours if only one or two sections are taken at one time.*)

I. Translate: Xen. Anab., V., 3, 1-3.

Ἐπεὶ δὲ οὔτε ὁ Χειρίσοφος ἦκεν οὔτε πλοῖα ἱκανὰ ἦν οὔτε τὰ ἐπιτήδεια ἦν λαμβάνειν ἔτι, ἐδόκει ἀπιτέον εἶναι. Καὶ εἰς μὲν τὰ πλοῖα τοὺς τε ἀσθενοῦντας ἐνεβίβασαν καὶ τοὺς ὑπὲρ τετταράχοντα ἔτη καὶ παιῖδας καὶ γυναῖκας καὶ τῶν σκευῶν ὅσα μὴ ἀνάγκη ἦν ἔχειν· καὶ Φιλήσιον καὶ Σοφαίνετον τοὺς πρεσβυτάτους τῶν στρατηγῶν εἰσβιβάσαντες τούτων ἐκέλευον ἐπιμελεῖσθαι· οἱ δὲ ἄλλοι ἐπορευόντο· ἡ δὲ ὁδὸς ὠδοπεποιημένη ἦν. Καὶ ἀφικνοῦνται πορευόμενοι εἰς Κερασοῦντα τριταῖοι, πόλιν Ἑλληνίδα ἐπὶ θαλάττῃ, Σινωπέων ἀποικον, ἐν τῇ Κολχίδι χώρα. Ἐνταῦθα ἔμειναν ἡμέρας δέκα· καὶ ἐξέτασις ἐν τοῖς ὕπλοις ἐγίγνετο καὶ ἀριθμός, καὶ ἐγένοντο ὀκτακισχίλιοι καὶ ἑξακόσιοι. Οὗτοι ἐσώθησαν ἐκ τῶν ἀμφὶ τοὺς μυρίους· οἱ δὲ ἄλλοι ἀπώλοντο ὑπὸ τε τῶν πολεμίων καὶ τῆς χιόνος καὶ εἴ τις νόσῳ.

II. Translate: Xen. Anab., VII., 6, 43-44.

Καὶ ἐντεῦθεν Σεύθης πέμπει Ἀβροζέλμην τὸν ἑαυτοῦ ἐρμηνέα πρὸς Ξενοφῶντα, καὶ κελεύει αὐτὸν καταμεῖναι παρ' ἑαυτῷ ἔχοντα χιλιούς ὑπλίτας· καὶ ὑπισχνεῖται αὐτῷ ἀποδώσειν τὰ τε χωρία τὰ ἐπὶ θαλάττῃ καὶ τἄλλα ἃ ὑπέσχετο. Καὶ ἐν ἀπορρήτῳ ποιησάμενος λέγει ὅτι ἀκήχοι Πολυνίκου ὡς, εἰ ὑποχείριος ἔσται Λακεδαιμονίοις, σαφῶς ἀποθανοῖτο ὑπὸ Θίβρωνος. Ἐπέστελλον δὲ ταῦτα καὶ ἄλλοι πολλοὶ τῷ Ξενοφῶντι, ὡς διαβεβλημένος εἶη καὶ φυλάττεσθαι δεῖοι. Ὁ δὲ ἀκούων ταῦτα δύο ἱερεῖα λαβὼν ἔθυσεν τῷ Διὶ τῷ Βασιλεῖ πότερά οἱ λῶον καὶ ἄμεινον εἶη μένειν παρά Σεύθῃ ἐφ' οἷς Σεύθης λέγει ἦ ἀπιέναι σὺν τῷ στρατεύματι. Ἀναιρεῖ αὐτῷ ἀπιέναι.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

GREEK. (*Counted as three sections*).

THIRD SECTION: HOMER.

SPRING, 1900.

I. Translate: Iliad, XVI., 130-144.

ὣς φάτο, Πάτροκλος δὲ κορύσσετο νώροπι χαλκῷ.
κυημίδας μὲν πρῶτα περὶ κνήμησιν ἔθηκεν
καλάς, ἀργυρέοισιν ἐπισφυρίοις ἀραρυίας·
δεύτερον αὖ θώρηκα περὶ στήθεσσι εἶδυνεν
ποικίλον ἀστερόεντα ποδώκεος Αἰακίδαο.
ἀμφὶ δ' ἄρ' ὤμοισιν βάλετο ξίφος ἀργυρόηλον 135
χάλκεον, αὐτὰρ ἔπειτα σάκος μέγα τε στιβαρόν τε·
κρατὶ δ' ἐπ' ἰφθίμῳ κυνέην ἐτύχκτον ἔθηκεν
ἵππουριν· δεινὸν δὲ λόφος καθύπερθεν ἔνευεν.
εἶλετο δ' ἄλκιμα δοῦρε, τὰ οἱ παλάμηφιν ἀρήρειν.
ἔγχος δ' οὐχ ἔλετ' οἶον ἀμόμονος Αἰακίδαο, 140
βριθὸν μέγα στιβαρόν· τὸ μὲν οὐ δύνατ' ἄλλος Ἀχαιῶν
πάλλειν, ἀλλὰ μιν οἶος ἐπίστατο πῆλαι Ἀχιλλεύς,
Πηλιάδα μελίην, τὴν πατρὶ φίλῳ πόρε Χείρων
Πηλίου ἐκ κορυφῆς, φόνον ἔμμεναι ἠρώεσσιν.

II. Translate: Iliad, XVIII., 444-456.

κούρηγ, ἣν ἄρα οἱ γέρας ἔξελον υἷες Ἀχαιῶν,
τὴν ἄφ' ἐκ χειρῶν ἔλετο κρείων Ἀγαμέμνων. 445
ἦ τοι ὁ τῆς ἀχέων φρένας ἔφθιεν· αὐτὰρ Ἀχαιοὺς
Τρῶες ἐπὶ πρύμνησιν ἐεῖλεον, οὐδὲ θύραζε
εἴων ἐξιέναι. τὸν δὲ λίσσοντο γέροντες
Ἀργείων, καὶ πολλὰ περικλυτὰ δῶρ' ὀνόμαζον·

ἔνθ' αὐτὸς μὲν ἔπειτ' ἠγναίετο λοιγὸν ἀμῦναι, 450
 αὐτὰρ ὁ Πάτροκλον περὶ μὲν τὰ ἄ τεύχεα ἔσσειν,
 πέμπε δέ μιν πολεμόνδε, πολὺν δ' ἄμα λαὸν ὄπασσεν.
 πᾶν δ' ἡμαρ μάρναντο περὶ Σχαιῆσι πύλῃσιν ·
 καὶ νύ κεν αὐτῆμαρ πόλιν ἔπραθον, εἰ μὴ Ἄπόλλων
 πολλὰ κακὰ ῥέξαντα Μενoitίου ἄλκιμον υἱὸν 455
 ἔκταν' ἐνὶ προμάχοισι καὶ Ἔκτορι κῦδος ἔδωκεν.

III. In the second passage give the Attic for the Homeric forms in lines 444, 452, 453.

Write the scansion of lines 447, 448.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

FRENCH. (*Counted as three sections.*)

SPRING, 1900.—THREE HOURS.

I. GRAMMAR.

(Each candidate will be required to pronounce some ten or fifteen lines of French, to show her knowledge of French sounds.)

1. Give the masculine form of jumelle sèche, exécutrice, folle, servante.
2. Give the feminine form of époux, baron, jardinier, chanteur, empereur.
3. Give the plural form of perdrix, cheval, bal, bétail, grand-père, arc-en-ciel.
4. What is the English signification of:

tacher—tâcher.
pécher—pêcher.
dessin—dessein.
compter—conter.
rencontrer—raconter.
entendre—attendre—étendre.

5. Put the following sentence: *Mon ami est très vif,*

- (a) in the feminine form,
- (b) in the plural masculine form,
- (c) in the negative interrogative form.

6. Give the third person plural of the present indicative of boire, croître, croire, mentir, tenir.

7. Give the first person singular and plural of the imperfect indicative of écrire, peindre, pouvoir, acquérir, moudre, résoudre.

8. Conjugate in full the imperative of venir, mourir, aller.

9. Conjugate in full the present subjunctive of savoir, tenir, comprendre.

10. Give the first and third person singular of the imperfect subjunctive of courir, conduire, battre, acquérir, mouvoir.

II. TRANSLATION.

Le soir du jour où ils devaient entrer à Acre, ils campèrent avec leurs prisonniers dans les montagnes: l'Arabe blessé avait les jambes liées ensemble par une courroie de cuir et était étendu près de la tente où couchaient les Turcs. Pendant la nuit, tenu éveillé par la douleur de sa blessure, il entendit hennir son cheval parmi les autres chevaux entravés autour des tentes, selon l'usage des Orientaux: il reconnut sa voix, et, ne pouvant résister au désir d'aller parler encore une fois au compagnon de sa vie, il se traîna péniblement sur la terre à l'aide de ses mains et de ses genoux, et parvint jusqu'à son coursier. "Pauvre ami, lui dit-il, que feras-tu parmi les Turcs! tu seras emprisonné avec les chevaux d'un aga ou d'un pacha; les femmes ne

t'apporteront plus le lait de chameau ou l'orge dans le creux de la main; tu ne courras plus libre dans le désert comme le vent d'Égypte, tu ne fendras plus du poitrail l'eau du Jourdain, qui rafraîchissait ton poil aussi blanc que ton écume: qu'au moins, si je suis esclave, tu restes libre! Tiens, va, retourne à la tente que tu connais: va dire à ma femme que je ne reviendrai plus, et passe ta tête entre les rideaux de la tente pour lécher la main de mes petits enfants." En parlant ainsi, il avait rongé avec ses dents la corde de poil de chèvre qui sert d'entraves aux chevaux arabes, et l'animal était libre; mais voyant son maître blessé et enchainé à ses pieds, le fidèle et intelligent coursier comprit, avec son instinct, ce qu'aucune langue ne pouvait lui expliquer; il baissa la tête, flaira son maître, et, l'empoignant avec les dents par la ceinture de cuir qu'il avait autour du corps, il partit au galop, et l'emporta jusqu'à ses tentes. En arrivant et en jetant son maître sur le sable aux pieds de sa femme et de ses enfants, le cheval expira de fatigue: toute la tribu l'a pleuré, les poètes l'ont chanté, et son nom est constamment dans la bouche des Arabes de Jéricho.

Nous n'avons nous-mêmes aucune idée du degré d'intelligence et d'attachement auquel l'habitude de vivre avec la famille, d'être caressé par les enfants, nourri par les femmes, réprimandé ou encouragé par la voix du maître, peut élever l'instinct du cheval arabe.

LAMARTINE.

Les habitants de Paris sont d'une curiosité qui va jusqu'à l'extravagance. Lorsque j'arrivai, je fus regardé comme si j'avais été envoyé du ciel: vieillards, hommes, femmes, enfants, tous voulaient me voir. Si je sortais, tout le monde se mettait aux fenêtres; si j'étais aux Tuileries, je voyais aussitôt un cercle se former autour de moi; les femmes même faisaient un arc-en-ciel nuancé de mille couleurs qui m'entourait; si j'étais au spectacle, je trouvais d'abord cent lorgnettes dressées contre ma figure: enfin, jamais homme n'a tant été vu que moi. Je souriais quelquefois des gens qui n'étaient presque jamais sortis de leur chambre, qui di-

saient entre eux: " Il faut avouer qu'il a l'air bien Persan." Chose admirable! je trouvais de mes portraits partout; je me voyais multiplier dans toutes les boutiques, sur toutes les cheminées, tant on craignait de ne m'avoir pas assez vu.

MONTESQUIEU.

Voici venir l'hiver, tueur des pauvres gens.
Ainsi qu'un dur baron précédé de sergents,
Il fait, pour l'annoncer, courir le long des rues
La gelée aux doigts blancs et les bises bourruées.
On entend haleter le souffle des gamins
Qui se sauvent, collant leurs lèvres à leurs mains,
Et tapent fortement du pied la terre sèche.
Le chien, sans rien flairer, file ainsi qu'une flèche...
Oh! comme c'est joli la première gelée,
La vitre, par le froid du dehors flagellée,
Etincelle, au dedans, de cristaux délicats,
Et papillote sous la nacre des micas,
Dont le dessin fleurit en volutes d'acanthé.
Les arbres sont vêtus d'une faille * craquante.
Le ciel a la pâleur fine des vieux argents.
Voici venir l'hiver, tueur des pauvres gens.

J. RICHEPIN.

* Mantle.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

GERMAN. (*Counted as three sections.*)

SPRING, 1900.—THREE HOURS.

I.—GRAMMAR.

1. Give (together with the article) the genitive singular and accusative plural of the following nouns:

Affe (m.)	Gans (f.)	Mohr (m.)
Ausdruck (m.)	Gebot (n.)	Roman (m.)
Brunnen (m.)	Gewand (n.)	Tag (m.)
Feder (f.)	Herz (n.)	Werk (n.)

2. Decline “die alte Frau” and “eine alte Frau.”

Note.—The plural of “eine alte Frau” is “alte Frauen.”

3. Give the third person singular of (1) the present indicative, (2) the preterit indicative, (3) and the preterit subjunctive, respectively—also the past participle of the following verbs:

abratén	beginnen	gelingen
ansehen	bitten	heben
antworten	einfangen	sieden
auffassen	erlöschen	verderben
ausgleiten	fehlen	vorschlagen
befehlen		

Note.—The “preterit” is sometimes called “imperfect.”

II.—TRANSLATION.

I.

Noch in derselben Nacht brach auch Graf Gaston von seinem Jagdschlosse wieder auf, wohin er nur erst vor wenigen Tagen mit dem Ruhme eines ausgezeichneten Offiziers aus fremdem Kriegsdienste zurückgekehrt, um sich in der Einsamkeit zu erholen. Aber der Ruf seiner Tapferkeit war ihm längst nach Paris vorangeeilt, und fast gleichzeitig mit der Bitte der Marquise um seinen Schutz vor den Räubern erhielt er den unerwarteten Befehl des Königs, sich unverzüglich an den Hof zu begeben, wo man bei den damaligen heimlichen Kriegsrüstungen seine Erfahrung benutzen wollte. So war es gekommen, dass er, um sein Wort gegen die besorgte Dame zu lösen, die Räuberjagd auf das Gewaltsamte beschleunigt, dann aber keine Zeit mehr übrig hatte, bei der Marquise noch den versprochenen Besuch abzustatten.

In Paris zog er wie im Triumphe ein. Der frische Lorbeerkrantz stand der hohen schlanken Gestalt gar anmutig zu dem gebräunten Gesicht. Nun folgte ihm auch noch das vergrößernde Gerücht der Kühnheit, womit er soeben die lange vergeblich aufgesuchte Räuberbande wie im Fluge zwischen den Bergen vernichtet.

(Eichendorff.)

II.

Als sich alle zerstreut hatten, wendete sich der junge Fremdling, der in staunendem Schmerze dem Zuge gefolgt war, an einen alten Priester, der allein am Grabe betend verweilte. Er brannte zu erfahren, wer jener majestätische Greis sei, der ihm wie mit göttlichen Kräften und überirdischer Weisheit begabt erschien. Als der Jüngling dem Geistlichen die bescheidene Frage vortrug, stand dieser still, und sah ihm beim Scheine eines Lichtes, das aus einem Fenster auf sie schien, scharf ins Auge. Der Alte war eine kleine, magere Gestalt, ein blasses schnales Antlitz erhob das Feuer der Augen um mehr, und die eingekniffenen

Lippen zitterten, als er ihm in heiserem Tone antwortete: Wie? Ihr kennt ihn nicht? Unsern weltberühmten Petrus von Apone, oder Abano, von dem man in Paris, London, dem deutschen Reiche und ganz Italien spricht? Kennt nicht den grössten Weltweisen und Arzt, den Astronomen und Astrologen, von dem zu lernen und ihn zu schauen die wilde Jugend aus dem fernen Polenlande hieher schwärmt?

Der junge Spanier, Alfons, war im entzückten Erstaunen einen Schritt zurück getreten, denn der Ruhm dieses grossen Lehrers hatte auch ihn von Barcelona über die See getrieben. Also er war es, er war es selbst? rief er begeistert aus: darum war auch mein Herz so tief bewegt.

(Tieck.)

III.

Brussa, im Juni, 1839.

Ich habe die anstrengende Reise von Smyrna bis hierher, auf welcher man einen beträchtlichen Teil der Breite von Kleinasien durchschneidet, in Begleitung zweier Engländer zu Pferde gemacht. Da es hier zu Lande nicht Brauch ist, Zelte mit sich zu führen, waren wir genötigt, unseren Tagesritt immer so einzurichten, dass wir Abends einen Ort erreichten, wo wir ein Wirtshaus, einen sogenannten Khan, zur Nachtrast fanden. Diese Anstalten sind fast durchaus von der primitivsten Art, und ich ruhte noch am erträglichsten, wenn ich mich, in meine grosse wollene Decke eingewickelt, platt auf den Boden hinbettete. Weit lieber hätte ich unter dem Sternendach geschlafen; allein dazu waren die Nächte zu kalt. Die Gegend, durch welche ich kam, war fast überall fruchtbar und grün, und der Weg führte in angenehmer Abwechslung bald über Hügelzüge, bald durch Thäler hin. Er war sehr belebt, und oft begegneten uns Karawanen mit langen Reihen von Kamelen, die ein echt orientalisches Bild darboten. Mehrmals stiessen wir auf Horden von Turkomanen, die in den Thälern oder auf den Bergeshängen ihre aus kleinen, beweglichen Häusern bestehenden Lager aufgeschlagen hatten. Die erste grössere Stadt, durch die wir kamen, war

das bedeutende Magnesiä am Fusse des Sipylus. Dasselbe bietet von aussen gesehen mit seinen vielen Minareten und schöngruppirten Häusern einen überraschenden Anblick dar. Desto weniger befriedigt das Gewirr von Gassen und kleinen Gebäuden im Innern.

IV.

GEBET AUF DEN WASSERN.

Die Nacht ist hehr und heiter,
Das Land ist weit, wie weit!
Es ruht das Meer in breiter
Smaragdner Herrlichkeit.

Mir ist zu Mut, als schliefe
Der Woge Grimm und Macht,
Und schwebte über der Tiefe
Der Herr durch die heilige Nacht.

Mir ist, als müsst' ich zur Stunde
Hinsinken tief und jäh
Zum grünsten Meeresgrunde
O Herr, vor deiner Näh'!

Mir ist, als müsste hoch über
Mir ruhn die feuchte Gruft,
Und dieses Lied darüber
Weben als Morgenluft.

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EXAMINATION FOR ADVANCED STANDING.

SOLID GEOMETRY.

SPRING, 1900.—TWO HOURS.

(When this paper is taken with Trigonometry, the time allowed is one and a half hours; questions 1 and 3 are then to be omitted and the reason for the omission is to be stated.)

1. Prove that through three given points, not in the same straight line, one plane, and only one plane, can be drawn.

What other sets of elements (points or lines) will determine a plane?

2. Prove that if two straight lines are cut by three parallel planes, they are cut proportionally.

Draw the diagram for the two cases:

(1) when the two lines do not intersect,

(2) when the two lines do intersect,

stating also in words what the difference is, as to the points and lines determined in the three parallel planes.

3. Prove that the sum of the face angles of any convex polyhedral angle is less than four right angles.

4. Prove that the opposite faces of a parallelepiped are equal and parallel parallelograms.

Prove that a parallelepiped can be constructed so that three of its edges shall lie along three given non-intersecting straight lines.

5. Prove that the volume of an oblique prism is equal to the area of its right section multiplied by its length.

State (without proof) the relation of a pyramid and a cone to a prism and a cylinder (as to volume).

6. Prove that there cannot be more than five regular polyhedra, and show how these are to be made. Does this prove that there actually are these regular polyhedra?

7. Give the formulæ for the surface and volume of a sphere, and prove one of them.

8. Explain the connection between a spherical triangle and a trihedral angle. State and prove the relation between polar triangles on a sphere.

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EXAMINATION FOR ADVANCED STANDING.

TRIGONOMETRY.

SPRING, 1900.—TWO HOURS.

(When this paper is taken with Solid Geometry, the time allowed is one and a half hours; questions 1 and 6 are then to be omitted and the reason for the omission is to be stated.)

1. Prove that the tangent of any angle is the cotangent of its complement.

Given the sine of an angle, show how to find the tangent; find in this way the value of $\tan 60^\circ$.

2. Obtain the equation

$$\tan 2x = \frac{2 \tan x}{1 - \tan^2 x},$$

and hence find the value of $\tan 75^\circ$.

3. Express $\sin 2A$ in terms of $\sin A$ and $\cos A$. Prove
 $(\cos A)^4 - (\sin A)^4 = \cos 2A \cos^2 A + \cos 2A \sin^2 A$.

4. If

$L \sin 20^\circ 14' = 9.538880$ and $L \sin 20^\circ 15' = 9.539223$,
what is the value of $L \sin 20^\circ 14' 36''$?

Prove that

$$\log \sin 4A = 2 \log 2 + \log \sin A + \log \cos A + \log \cos 2A.$$

5. Prove that

$$\tan (A + B) = \frac{\tan A + \tan B}{1 - \tan A \tan B}$$

Hence show that

$$\tan (45^\circ - x) + \tan (45^\circ + x) = 2 \sec 2x.$$

6. Prove that in any triangle

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}.$$

State, without proof, the formulae for

$$\sin \frac{A}{2}, \sin \frac{B}{2}, \cos \frac{C}{2}$$

in terms of s , a , b , c where $2s = a + b + c$.

7. Show how to solve a triangle by logarithms when the three sides are given.

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EXAMINATION FOR ADVANCED STANDING

MINOR LATIN.

SECTION A: LIVY, CICERO, PROSE COMPOSITION.

SPRING, 1900.—THREE HOURS.

I. What were the materials at hand for writing history in Livy's time? What are the chief characteristics of Hannibal as shown in the 21st book? What was the state of the Roman Empire at the beginning of the 2d Punic war? Sketch the conditions at Rome under which the 2d Philippic was written. What is the general subject of the speech?

II. Translate Liv., XXI., 10, 9-12.

Vicerunt ergo dii hominesque, et id, de quo verbis ambigebatur, uter populus foedus rupisset, eventus belli velut aequus iudex, unde ius stabat, ei victoriam dedit. Carthagini nunc Hannibal vineas turresque admovet, Carthaginis moenia quatit ariete: Sagunti ruinae—falsus utinam vates sim—nostris capitibus incident, susceptumque cum Saguntinis bellum habendum cum Romanis est. dedemus ergo Hannibalem? dicet aliquis. scio meam levem esse in eo auctoritatem propter paternas inimicitias; sed et Hamilcarem eo perisse laetatus sum, quod, si ille viveret, bellum iam haberemus cum Romanis, et hunc iuvenem tamquam furiam facemque huius belli odi ac detestor; nec dedendum solum ad piaculum rupti foederis, sed, si nemo deposcit, devehendum in ultimas maris terrarumque oras, ablegandum eo, unde nec ad nos nomen famaue eius accedere neque ille sollicita re quietae civitatis statum possit.

III. Explain the syntax of *rupisset*, (vates) *sim*, *dedemus*, *haberemus*, *possit*. Who was Hamilcar, and what was his position? Where was Saguntum, and what was its importance?

IV. Translate Liv. XXI., 49, 1-6.

Cum ad Trebiam terrestre constitisset bellum, interim circa Siciliam insulasque Italiae imminentes et a Sempronio consule et ante adventum eius terra marique res gestae. viginti quinqueremes cum mille armatis ad depopulandam oram Italiae a Carthaginensibus missae; novem Liparas, octo ad insulam Vulcani tenuerunt, tres in fretum advertit aestus. ad eas conspectas a Messana duodecim naves ab Hierone rege Syracusanorum missae, qui tum forte Messanae erat consulem Romanum opperians, nullo repugnante captas naves Messanam in portum deduxerunt. cognitum ex captivis praeter viginti naves, cuius ipsi classis essent, in Italiam missas quinque et triginta alias quinqueremes Siciliam petere ad sollicitandos veteres socios; Lilybaei occupandi praecipuam curam esse; credere eadem tempestate, qua ipsi disiecti forent, eam quoque classem ad Aegatis insulas deiectam. haec sicut audita erant rex M. Aemilio praetori, cuius Sicilia provincia erat, perscribit monetque, ut Lilybaeum firmo teneret praesidio.

V. Explain the syntax of *constitisset*, *forent*, *teneret*. What do you know of Hiero? Where is Messana? Where Lilybaeum?

VI. Translate Cicero, 2d Phil., XXXII., 78-80.

C. Caesari ex Hispania redeunti obviam longissime processisti. Celeriter isti redisti, ut cognosceret te si minus fortem, at tamen strenuum. Factus es ei rursus nescio quo modo familiaris. Habebat hoc omnino Caesar: quem plane perditum aere alieno egentemque, si eundem nequam hominem audacemque cognorat, hunc in familiaritatem libentissime recipiebat. His igitur rebus praeclare commendatus, iussus es renuntiari consul et quidem cum ipso. Ni-

hil queror de Dolabella, qui tum est impulsus, inductus, elusus. Qua in re quanta fuerit uterque vestrum perfidia in Dolabellam quis ignorat? ille induxit ut peteret, ille promissum et receptum intervertit ad seque transtulit: tu eius perfidiae voluntatem tuam ascripsisti. Veniunt Kalendae Ianuariae. Cogimur in senatum, invectus est copiosius multo in istum et paratius Dolabella quam nunc ego.

VII. Explain the syntax of *cognosceret, fuerit*. Who was Dolabella? and what was the allusion in the *Kalendae Ianuariae*?

VIII. Translate into Latin:

An empty house in this street had been occupied by the conspirators. When the King came opposite to it, one of their number, who was one of the King's guards, stopped just behind him, as if something had caught his foot; and whilst he seemed trying to get free he checked the advance of the following multitude and allowed the King to go on for a few steps unattended. At that moment the conspirators rushed out of the house and murdered him. So sudden was the act that his guards could not save him. Seeing him dead they were seized with a panic and dispersed. The murderers hastened, some into the market-place of Leontini, to raise the cry of liberty there, and others to Syracuse to anticipate the King's friends, and secure the city for themselves and the Romans.

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EXAMINATION FOR ADVANCED STANDING.

MINOR LATIN.

Section B: Horace.

SPRING, 1900.—THREE HOURS.

I. Translate Od. III., 3.

O fons Bandusiae, splendidior vitro,
Dulci digne mero non sine floribus,
Cras donaberis haedo
Cui frons turgida cornibus
Primis et venerem et proelia destinat,
Frustra: nam gelidos inficiet tibi
Rubro sanguine rivos
Lascivi suboles gregis.
Te flagrantis atrox hora Caniculae
Nescit tangere, tu frigus amabile
Fessis vomere tauris
Praebes et pecori vago.
Fies nobilium tu quoque fontium,
Me dicente cavis impositam ilicem
Saxis, unde loquaces
Lymphae desilunt tuae.

II. Scan vv. 1-4, and name the metre in which each verse is written.

III. Name the figure in *non sine floribus*, and illustrate by other examples from Horace. What are the classic fountains to which Horace refers in v. 13 (nobilium—fontium)? What two views are there respecting the situation of the spring of Bandusia? Write an account of Horace's Sabine farm.

IV. Translate Od. IV., 6, vv. 1-8, and vv. 25-44.

Dive, quem proles Niobea magnae
Vindicem linguae Tityosque raptor
Sensit et Trojae prope victor altae
Phthius Achilles,
Ceteris major, tibi miles impar,
Filius quamvis Thetidis marinae
Dardanas turres quateret tremenda
Cuspide pugnax.

Doctor argutae fidicen Thaliae,
Phoebe, qui Xantho lavis amne crines,
Dauniae defende decus Camenae,
Levis Agyieus.
Spiritus Phoebus mihi, Phoebus artem
Carminis nomenque dedit poëtae.
Virginum primae puerique claris
Patribus orti,
Deliae tutela deae fugaces
Lyncas et cervos cohibentis arcu,
Lesbium servate pedem meique
Pollicis ictum,
Rite Latonae puerum canentes,
Rite crescentem face Noctilucam,
Prosperam frugum celeremque pronos
Volvere menses.
Nupta jam dices: Ego dis amicum,
Saeculo festas referente luces,
Reddidi carmen, docilis modorum
Vatis Horati.

V. Scan vv. 1-4, and name the metre. State the occasion for which the ode was composed.

VI. Write geographical notes on *Phthius* (v. 4) and on *Dauniae* (v. 27). Write explanatory notes on *Niobea* (v. 1), *levis Agyieus* (v. 28), *Lesbium—pedem* (v. 35). Explain the syntax of *volvere* (v. 40), and illustrate this construction by quoting from some other passage.

VII. Translate Epode VI., vv. 9-16.

Tu cum timenda voce complesti nemus
Projectum odoraris cibum.
Cave, cave: namque in malos asperrimus
Parata tollo cornua.
Qualis Lycambae spretus infido gener
Aut acer hostis Bupalò.
An si quis atro dente me petiverit
Inultus ut flebo puer?

VIII. Scan vv. 9 and 10. Why are these poems called "Epodes"? Explain fully the historical references in *Lycambae spretus* and *hostis Bupalò*. What is the general character of the Epodes of Horace?

IX. Enumerate the chief themes of Horace's Odes. Mention his other works, and give some accounts of each. Explain what classes of odes seem to you to show Horace at his best. Explain the character of the love poetry of Horace.

BRYN MAWR COLLEGE.

EXAMINATION PAPERS
SET FOR MATRICULATION

IN THE

AUTUMN, 1900.

*This pamphlet may be obtained at the Secretary's Office, Bryn Mawr College,
on payment of twenty-five cents.*

BRYN MAWR COLLEGE.

EXAMINATIONS FOR MATRICULATION.

Examinations for matriculation in Bryn Mawr College are held in the spring and autumn of every year at the college, and all candidates presenting themselves, whether they wish to enter the college or to take the examinations as a test of proficiency, are examined free of charge.

In the spring of every year examinations are held in Boston, New York, Baltimore and Chicago, and candidates taking examinations at these places must pay a fee of five dollars for the whole or any part of the examination, and must give notice to the Secretary of the College of their intention to take the examinations at least two weeks before the date set for the beginning of the examinations.

In the spring examinations may also be arranged for elsewhere, but in this case the candidate or candidates must defray the whole expense of the examinations, the minimum fee charged being five dollars. Application for all such special examinations must be made to the Secretary of the College at least *six weeks* before the date set for the beginning of the examinations.

In 1900, examinations were held at Bryn Mawr College, Boston, New York City, Baltimore, and Chicago, and at Portland (Maine), Wallingford (Connecticut), Rochester, Indianapolis, Denver, and Portland (Oregon).

Dates of Examinations for Matriculation in 1901.

SPRING, 1901.

MAY 31.	JUNE 4.
<i>English Grammar, etc.</i> , 9½—11	<i>Latin Composition</i> , 9—10½
<i>English Composition</i> , 11—1	<i>History</i> , 11—1
<i>Algebra</i> , 2½—5½	<i>German</i> , 2½—5½
JUNE 1.	
<i>Geometry</i> , 9½—12	
<i>French</i> , 2—5	5.
3.	
<i>Latin Prose Authors</i> , 9—10¾	<i>Greek</i> , 9—12
<i>Latin Poets</i> , 11¼—1	<i>Minor Latin, Section A</i> , 9—12
<i>Science</i> , 3—5	<i>Minor Latin, Section B</i> , 2—5

AUTUMN, 1901.

SEPTEMBER 23.

<i>English Grammar, etc.</i> , . . .	9½—11
<i>English Composition</i> , . . .	11—1
<i>Algebra</i> ,	2½—5½

24.

<i>Geometry</i> ,	9½—12
<i>French</i> ,	2—5

25.

<i>Latin Prose Authors</i> ,	9—10¾
<i>Latin Poets</i> ,	11¼—1
<i>Science</i> ,	3—5

26.

<i>Latin Composition</i> ,	9—10½
<i>History</i> ,	11—1
<i>German</i> ,	2½—5½

27.

<i>Greek</i> ,	9—12
<i>Minor Latin, Section A</i> , . . .	9—12
<i>Minor Latin, Section B</i> , . . .	2—5

FEBRUARY, 1901.*

FEBRUARY 4.

<i>English Grammar, etc.</i> , . . .	9½—11
<i>English Composition</i> ,	11—1
<i>Algebra</i> ,	2½—5½

5.

<i>Geometry</i> ,	9½—12
<i>French</i> ,	2—5

6.

<i>Latin Prose Authors</i> ,	9—10¾
<i>Latin Poets</i> ,	11¼—1
<i>Science</i> ,	3—5

7.

<i>Latin Composition</i> ,	9—10½
<i>History</i> ,	11—1
<i>German</i> ,	2½—5½

8.

<i>Greek</i> ,	9—12
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The examination for matriculation must be taken by all who wish to pursue their studies at the college, either as candidates for a degree or as special students, unless they present a certificate of honorable dismissal from some college or university of acknowledged standing. The examination for matriculation will also be open to those who wish to take it as a test of proficiency in elementary studies, but have no intention of entering the college; and certificates will be given to those who are successful in passing the examination.

The subjects in which the candidate for matriculation must be examined are divided, for convenience of marking, into fifteen sections. A candidate may divide the examination into two parts, provided that not more than one calendar year and the summer recess elapse between the two parts of the examination. Should the candidate pass in fewer than three sections in the first division of the examination, the entire examination must be repeated. To secure a certificate of admission to the college, the candidate must

* The February examinations are open to those candidates only that intend to enter the college at the half-year.

have attempted all the fifteen sections included in the examination, and must have passed in at least eleven sections. All entrance conditions must be passed off within twelve months after the student enters the college classes.

Candidates are expected to show by their papers that all the subjects required for matriculation have been studied for a reasonable length of time, and are not presented as a mere form. Total failures at the second examination in all the branches of a language other than English, or in Mathematics, when such failure is of a character to indicate that the subject has been presented as a mere form, shall prevent the candidate from receiving any certificate for that examination, unless she can produce satisfactory evidence that the subject in question has been pursued for a reasonable length of time.

In addition to the subjects hitherto included in the examination for matriculation, the minor course in Latin, as outlined in the program, may also be offered for examination by candidates for admission that wish to enter with advanced standing ; but neither the minor course in Latin, Solid Geometry, Trigonometry, nor the fourth language, may be substituted for any part of the fifteen sections.

Bryn Mawr College offers annually eight competitive scholarships, four of the value of \$300 and four of the value of \$200, to candidates presenting themselves for the Spring matriculation examinations of Bryn Mawr College, a first scholarship of the value of \$300 and a second of the value of \$200, being open to candidates from each of the following districts.—(a) The New England States ; (b) New York, New Jersey, and Delaware ; (c) Ohio, Indiana, Illinois, Michigan, and Wisconsin, and the states west of the Mississippi river ; (d) Pennsylvania and all places not included in (a), (b), and (c).

The district to which a candidate shall be considered to belong shall be determined by the school at which she received her final preparation, or in case of preparation by private study, by the place of residence during the year preceding the final examination ; but the candidate may present herself for examination at any place where such examination is held.

These scholarships, which are to be held for one year only, shall be awarded in each of the above-named districts on the basis of the sum total of marks obtained by the candidate ; but no one shall be considered eligible for the first scholarship who has received more than one condition in all the fifteen sections of the examination, and

no one shall be considered eligible for the second scholarship who has received more than three conditions in the fifteen sections of the examination. When the examination has been divided, no account will be taken of those conditions incurred in the first part which have been passed off in the final examination.

The competition is limited to those who intend to spend at least one year in residence at Bryn Mawr College, who have not studied at any other college, and who have not before presented themselves more than once in the Bryn Mawr College matriculation examinations. All those who present themselves shall be *ipso facto* candidates for these scholarships, no formal declaration of candidacy being required.

Inquiries may be addressed to the Secretary of Bryn Mawr College, and to the following graduates of Bryn Mawr College, who have kindly consented to serve as Honorary Corresponding Secretaries :

Honorary Corresponding Secretaries.

MARY McMURTRIE, A.B., *Chestnut Hill*, PHILADELPHIA.

SOPHIA WEYGANDT HARRIS, A.B., (MRS. JOHN McARTHUR HARRIS), 105
West Walnut Lane, Germantown, PHILADELPHIA.

EDITH PETTIT, A.M., 1012 *Spruce Street*, PHILADELPHIA.

MARGARET THOMAS CAREY, A.B., (MRS. ANTHONY MORRIS CAREY), 832
Eutaw Street, BALTIMORE.

ALYS PEARSALL SMITH RUSSELL, A.B., (THE HON. MRS. BERTRAND RUSSELL),
44 *Grosvenor Road, S. W.*, LONDON, ENGLAND.

MILDRED MINTURN, A.B., 109 *East 21st Street*, NEW YORK CITY.

ALICE JONES, A.B., SANTA MONICA, LOS ANGELES COUNTY, CALIFORNIA.

RUTH WADSWORTH FURNESS PORTER, A.B., (MRS. JAMES FOSTER PORTER),
586 *Dearborn Avenue*, CHICAGO, ILLINOIS.

ELIZA RAYMOND ADAMS LEWIS, A.B., (MRS. FRANK NICHOLS LEWIS), 236
E. New York Street, INDIANAPOLIS, INDIANA.

Applications for admission to the examinations for matriculation should be made to the Secretary of Bryn Mawr College.

SECRETARY'S OFFICE, BRYN MAWR COLLEGE,
BRYN MAWR, PENNSYLVANIA.

June, 1900.

TABULAR STATEMENT
OF THE
EXAMINATION FOR MATRICULATION.

Tabular Statement.—All candidates for matriculation *must* be examined in the following subjects :

<i>Mathematics</i> {	Algebra, 2.	Latin Grammar and Composition, 1.	History, 1.
	Plane Geometry, 1.	Sight reading in Latin prose, 1.	English, 1.
		Sight reading in Latin poetry, 1.	Science, 1.

All candidates for matriculation *must* be examined also in *two* of the three languages, French, German, and Greek. The examination in each language consists of three sections :

Grammar and Composition, 1.
Sight reading in prose, 1.
Sight reading in poetry, 1.

The candidate *may* be examined in the following subjects, and if not examined at entrance, must pass an examination in them before receiving the Degree of Bachelor of Arts :

<i>Advanced Mathematics</i> }	Solid Geometry,*	<i>A fourth language, †</i>	}	French or German or †Greek, whichever language was not included by the candidate in the above fifteen sections.
	Plane Trigonometry.			

The subjects in which the candidate for matriculation *must* be examined are divided, for convenience of marking, into fifteen sections; the figures following the subjects show the number of sections contained in each subject. The examination may be taken in two

*For Solid Geometry may be substituted the college course in Geometrical Conics as outlined on page 161 of the college program.

†Students that have omitted Greek in the examination for matriculation may substitute for the elementary course in Greek the minor course in Latin.

The minor course in Latin may also be offered for examination by candidates for matriculation that desire to enter the college with advanced standing, and, at their discretion, by matriculated students without attendance on the college classes. The minor course is considered for this purpose as comprising two sections, constituted as follows :

A. Cicero, *2nd Philippic*, Livy, *Bk. xxi.*, Latin Prose Composition, including a detailed knowledge of the more abstruse Latin constructions and some facility in turning simple English narrative into Latin.

B. Horace, *Odes*, except *i. 25, 27, 33, 36*; *ii. 5*; *iii. 6, 15, 20*; *iv. 1, 10, 13*; *Epodes*, except *3, 5, 8, 11, 12, 15, 17*. *Carmen Seculare*; *Satires i. 1, 5, 6, 9*; *ii. 6*; *Epistles i. 1, 5, 6, 7, 8, 10, 14, 20*.

No substitutions are allowed for any part of the above requirements, except in the case of students entering with advanced standing from other colleges.

There are two examinations, one in Section A, and one in Section B, each three hours in length; failure to pass in Latin Prose Composition involves failure in the whole of Section A. These examinations may be taken in different years, and in the order preferred by the candidate; or one section may be pursued in the college classes, and the other offered for examination without attendance upon the class. They are held only at the time of the regular matriculation examinations at the beginning and end of the college year, and application for admission to them must be made at least three weeks in advance.

‡ If this examination is not passed before the beginning of the student's third year in the college, she must enter the college classes in this subject:

divisions, and in each division the candidate may offer any sections she pleases, provided that, if she offer French or German she offer in the same division of the examination all the three sections, grammar and composition and translation.* If the candidate pass in fewer than three sections in the first division, the sections in which she has passed are cancelled and the examination in them must be repeated; if the candidate allow more than one calendar year and the summer recess to elapse between the two divisions of the examination, the examinations taken in the first division must be repeated. To secure a certificate of admission to the college a candidate must have attempted all the fifteen sections included in the examination, and must have passed in at least eleven sections. All entrance conditions must be passed off within twelve months after the student enters the college, under penalty of exclusion from full college work during the following year. Solid Geometry and Trigonometry, the fourth language, or the minor course in Latin may not be substituted for any part of the fifteen sections.

Candidates are expected to show by their papers that all the subjects required for matriculation have been studied for a reasonable length of time. Total failure in the second division of the examination in all the branches of any language other than English, or in Mathematics, when such failure is of a character to indicate that the subject has been presented as a mere form, prevents the candidate from receiving any certificate, unless she can produce satisfactory evidence that the subject in question has been faithfully studied for a reasonable length of time.

I. Mathematics.—(1) and (2) Algebra. (3) Plane Geometry.

The examination in Algebra comprises Elementary Operations, Quadratic Equations, Problems, Ratio, Proportion, Variation, Arithmetical and Geometrical Progressions.

While there is no formal examination in Arithmetic, an adequate knowledge of the subject is required throughout the mathematical examination; in *all* the papers there are some numerical problems, and the correct solution of a fair number of these is regarded as essential.

All candidates that do not, in addition to the above, present *Solid Geometry*† and *Trigonometry* (including the use and theory of logarithms and the solution of triangles), must pursue these branches and pass an examination in them before receiving a degree. It is especially recommended that those intending to elect mathematical courses should pass the entire matriculation examination in mathematics. These candidates are advised to confine themselves to Algebra; Plane Geometry of the straight line and the circle; Solid Geometry and Trigonometry. More benefit will be derived from a thorough acquaintance with the pure geometrical methods than from a little knowledge of Analytical Geometry.

Students whose matriculation examination has included either Solid Geometry or Trigonometry, or both, are credited with the time which others must subsequently spend upon these studies.

Phillips and Fisher's *Elements of Geometry* or Wentworth's *Geometry* will be found suitable for preparation for the examination in Plane Geometry; for the examination in Solid Geometry either of these books or Wilson's *Solid Geometry* (Macmillan) is suitable; in Algebra and Trigonometry C. Smith's *Elementary Algebra* (American edition, revised by Irving Stringham), and Lock's *Trigonometry for Beginners* (Macmillan) are recommended.

II. Latin.—(1) Grammar and Composition. (2) Translation at sight of simple passages in Latin prose. (3) Translation at sight of simple passages in Latin poetry. Due allowance is made for unusual words; there are questions testing the candidate's practical knowledge of grammar and prosody.

* If the candidate fail in translation, she must repeat the grammar as well as the translation, but if she fail in grammar she may repeat the examination in grammar without repeating that in translation.

† The college course in Geometrical Conics may be substituted for the examination in Solid Geometry.

The so-called Roman method of pronunciation, as explained in Gildersleeve's or in Allen and Greenough's *Latin Grammar*, is required.

As many schools are introducing the "natural method" as a substitute for thorough grammatical training, attention is called to the fact that special stress is laid on an accurate and ready knowledge of grammatical forms. A knowledge of paradigms and parts of irregular verbs is insisted upon.

Candidates are advised, whenever possible, to try the whole Latin examination at one time, although the three sections may be taken separately, and in any order the candidate may prefer.

III. History.—(1) The outlines of the History of Greece and Rome; or the outlines of the History of England and the United States.

Oman's *History of Greece* (second edition); Allen's *History of the Roman People*; Gardiner's *A Student's History of England*; Johnston's *History of the United States* and *The United States: its History and Constitution*, are recommended. It is also recommended, though in no sense required, that candidates become familiar, by means of carefully selected collateral references, with other books somewhat different in character from those mentioned above: such as, for Grecian History, Holm's *History of Greece*, vol. i., and *Epochs of Ancient History*, edited by Cox and Sankey, published by Scribner; for Roman History, Schuckburgh's *History of Rome*, Headlam's *Outlines of Roman History* and the *Epochs of Ancient History*, already mentioned; for English History, *English History from Contemporary Sources*, edited by Hutton and Powell, published by Putnam, and *Epochs of English History*, edited by Creighton, published by Longman; for American History, *Epochs of American History*, edited by Hart, published by Longman.

English.—(1) The candidate is required to write a short English composition, correct in spelling, grammar, punctuation, and general arrangement, and to correct specimens of bad English.

In 1900 candidates must be familiar with Chaucer's *Knight's Tale*; Shakespeare's *Macbeth* and *As You Like It*; Milton's *L'Allegro*, *Il Penseroso*, *Lycidas*, and *Paradise Lost*, Books I. and II.; the *Sir Roger de Coverley Papers* in the Spectator; Matthew Arnold's *Essay on Gray* and *Essay on A Guide to English Literature*; Wordsworth's *Michael* and *Resolution and Independence*; Coleridge's *Ancient Mariner* and *Christabel*; Shelley's *Adonais* and *Sensitive Plant*; Keats's *Eve of St. Agnes*; Tennyson's *Passing of Arthur*; Hawthorne's *House of the Seven Gables*; Pater's *Child in the House*; Stevenson's *Kidnapped*.

In 1901 candidates must be familiar with Chaucer's *Clerk's Tale*; Shakespeare's *Macbeth* and *The Merchant of Venice*; Milton's *L'Allegro*, *Il Penseroso*, *Lycidas*, and *Paradise Lost*, Books I. and II.; the *Sir Roger de Coverley Papers* in the Spectator; Matthew Arnold's *Essay on Gray* and *Essay on A Guide to English Literature*; Wordsworth's *Michael* and *Resolution and Independence*; Coleridge's *Ancient Mariner* and *Christabel*; Shelley's *Adonais* and *Sensitive Plant*; Keats's *Eve of St. Agnes*; Tennyson's *Passing of Arthur*; Hawthorne's *House of the Seven Gables*; Pater's *Child in the House*; Stevenson's *Kidnapped*.

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The books agreed on for the years 1900, and 1901, and 1902 by the Associations of the Colleges and Schools of the New England States, the Middle States and Maryland, the North Central States, and the Southern States, will be accepted as equivalents in corresponding years. The books prescribed for candidates taking the regular examinations for matriculation in any given year are required also of candidates taking the special matriculation exami-

nation provided for students entering the college in the February of the year following. Candidates passing off conditions after admission to the college may offer the books prescribed in the examination in which the condition was imposed.

In preparing for this examination especial attention should be given to paragraph-structure and to sentence-structure. Hill's *Foundations of Rhetoric*, Abbott's *How to Write Clearly*, and Bigelow's *Handbook of Punctuation*, are recommended.

The examination in English may not be divided; failure to offer both composition and grammar will prevent the candidate from passing in the division offered.

Science.—(1) The elements of one of the following sciences:—Physics or Chemistry, or Botany, or Physiology, or Physical Geography.

Carhart and Chute's *Elements of Physics*, Remsen's *Introduction to the Study of Chemistry* (Briefer Course), Bessey's *Essentials of Botany*, Martin's *Human Body* (Briefer Course) or Foster's *Physiology for Beginners*, and Tarr's *First Book of Physical Geography* are recommended. Candidates are advised, whenever possible, to offer Physics, as this study forms a better basis for further scientific work. It is recommended, though in no sense required, that candidates should have some knowledge of the metric system.

IV. Two of the following languages:

Greek.—(1) Grammar and Composition. (2) Translation at sight of simple passages in Attic prose, such as Xenophon's *Anabasis* or *Memorabilia*. (3) Translation at sight of passages of average difficulty from Homer. Due allowance is made for unusual words and there are questions testing the candidate's practical knowledge of grammar, including prosody.

White's *Beginners' Greek Book* and Jones's *Exercises in Greek Prose*, or equivalents, are recommended.

French.—(1) The examination in French has three divisions, one to test the candidate's knowledge of pronunciation and ordinary grammatical forms, the other two, her power to read at sight ordinary French prose and verse.

For the examination in reading no texts are assigned, the examination being intended to test the candidate's ability to read any ordinary French whatsoever. Candidates preparing for these examinations are advised to acquire as large a vocabulary as possible. They are further advised in their study of verbs to concentrate their attention on the regular verbs, the auxiliaries *être*, *avoir*, such important irregular verbs as *aller*, *devoir*, *dire*, *faire*, *mettre*, *prendre*, *pouvoir*, *vouloir*, *tenir*, *venir*, *voir*, *écrire*, *lire*, *croire*, *boire*, and the typical verbs, *conduire*, *craindre*, *paraître*, *partir*, and to acquire a fair knowledge of the use of the various past tenses and of the rules of the subjunctive.

The examination in French may not be divided; failure to pass in French translation involves failure also in French Grammar, although the reverse is not true.

Teachers preparing students that wish to elect French in the college are advised to train their pupils to write French from dictation in order to enable them to understand lectures delivered in that language.

German.—(1) The examination in German is precisely similar to that in French, and tests the candidate's pronunciation, knowledge of ordinary grammatical forms, and ability to read ordinary German at sight.

The examination in German may not be divided; failure to pass in German translation involves failure also in German grammar, although the reverse is not true.

With the exception of the Minor Course in Latin, all subjects potentially included in the examination for admission are regarded as preparatory and non-collegiate. The college course of instruction in mathematics, for example, does not include but presupposes trigonometry; the courses in French and German presuppose a reading knowledge of these languages.

It is therefore to the interest of every candidate to offer, at entrance, advanced mathematics, and if possible all four languages, since to fail in such of these examinations as are not strictly obligatory will not affect the candidate's collegiate standing, and to pass them successfully will leave her nearly free for elective study under the Group System and for true collegiate work.

EXAMINATION PAPERS
SET FOR MATRICULATION

IN THE

AUTUMN, 1900

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION

ALGEBRA. (*Counted as two sections.*)

AUTUMN, 1900.—THREE HOURS.

1. Solve the equations

$$(i.) \quad \frac{2}{5}(3x - 5) + \frac{1 - 6x}{7} = 3x$$

$$(ii.) \quad \left. \begin{aligned} \frac{5x + 18}{30} - \frac{11(y - 25)}{105} &= 11 \\ 11y - 12 &= 21x - 185 \end{aligned} \right\}$$

2. Show that the product of the highest common divisor and the least common multiple of two quantities is equal to the product of the quantities themselves.

Find the highest common divisor of

$$(2a^2 + 3y^2)x + (2x^2 + 3a^2)y \text{ and } (2x^2 - 3a^2)y + (2a^2 - 3y^2)x.$$

3. Reduce to their simplest forms

$$(i.) \quad \frac{3x^2 - 5x - 2}{x - 2} + \frac{4 - 9x - 9x^2}{3x - 1} + \frac{x^3 - 8}{x - 2} - x^2;$$

$$(ii.) \quad (3^{\frac{1}{3}} + 1)(3^{\frac{2}{3}} - 3^{\frac{1}{3}} + 1);$$

(iii.)

$$(bc + ca + ab) \left(\frac{1}{a} + \frac{1}{b} + \frac{1}{c} \right) - abc \left(\frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} \right).$$

4. A man works 365 days and is paid 1 cent the first day, two cents the second day, three cents the third day, four cents the fourth day, and so on. How many dollars does he receive in all?

5. The sum of two numbers is 11 and the difference of their squares falls short of twenty times the smaller of the two numbers by 47; find the numbers.

6. Form a quadratic equation whose roots are
 $-2 + \sqrt{5}$ and $-2 - \sqrt{5}$.

Prove that if α, β are the roots of $ax^2 + bx + c = 0$,
then

$$\alpha - \beta = \frac{\sqrt{b^2 - 4ac}}{a}, \quad \alpha + \beta = -\frac{b}{a}.$$

7. If $a : b :: c : d$, show that

$$3a + 5b : 3c + 5d :: 5a + 3b : 5c + 3d.$$

Explain what is meant by one quantity varying jointly as two others.

8. Divide 52 into three parts in geometric progression, these parts being such that the sum of the first and third is $3\frac{1}{2}$ times as great as the second.

9. Find the fourth power of $a^{\frac{1}{4}} + a^{-\frac{1}{4}}$.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

PLANE GEOMETRY. (*Counted as one section.*)

AUTUMN, 1900.—TWO AND A HALF HOURS.

1. Prove that if the three sides of a triangle are equal, then the three angles are equal; and if the angles are equal, then the three sides are equal.

The sides of a triangle are proportional to 3, 4 and 5; what do you know about the angles?

2. Define parallel straight lines. Prove that the parts intercepted on parallel straight lines, by parallel straight lines, are equal.

Two parallel straight lines intercept equal parts on two given straight lines; are the straight lines necessarily parallel? Prove your answer.

3. Prove that the sum of the three angles of a triangle is equal to two right angles.

What is the magnitude of an angle of an equilateral triangle?

4. Prove that in the same circle equal chords are equally distant from the center; and conversely.

Prove that equal chords of a circle are tangents to a concentric circle.

5. Prove that the angle between two lines is measured by one-half the difference of the arcs intercepted on any circle, unless the point of intersection of the chords lies inside the circle, and then the angle is measured by one-half the sum of the intercepted arcs.

6. Prove that a quadrangle is inscribable in a circle if, and only if, the sum of two opposite angles is two right angles.

Prove that the internal bisectors of the angles of a quadrangle, taken in order, determine a quadrangle which is inscribable in a circle.

7. Prove that triangles are similar if one angle of the one is equal to one angle of the other, and the sides about these equal angles are proportionals.

Let the three vertices of an acute angled triangle be joined to any point O , so forming three new triangles. Prove that it is not possible for these three triangles to be similar, unless the original triangle is equilateral; and then the three are equal to one another.

8. Show how to find a mean proportional to two given lines.

Apply this to construct lines of lengths $\sqrt{11}$ and $\sqrt{35}$, by means of a circle of diameter $= 12$.

9. Give and prove the construction for a square in a given circle.

Show how to describe a square in a semicircle.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

LATIN. (*Counted as three sections.*)

FIRST SECTION: PROSE COMPOSITION.

AUTUMN, 1900.—ONE AND A HALF HOURS.

Quintus had a great friend by the name of Sextus, who lived in Tarentum, and whom he used to visit twice a year. Sextus was poor, and Quintus was rich; but Sextus did not envy Quintus, and when they came together, Quintus would often entrust to Sextus large sums of money to use for him. Quintus had a house at Rome full of beautiful things, and a sweet wife and dear children. Sextus had none of these, but it was Quintus who consulted him, not he Quintus. It was Quintus who relied on him; who loved to be with him and to be taught by him, and who concealed nothing from him. Do you ask why he acted so? Because Sextus was a philosopher who could properly estimate human events, and whom fortune obeyed, because he obeyed not fortune.

Octavianus fought in a naval battle with Antonius at Actium, which is a place in Epirus; he conquered Antonius and pursued him to Egypt, and having besieged Alexandria, whither Antonius and Cleopatra had betaken themselves, he got possession of it in a short time. Then Antonius, having taken his seat on the royal throne, crowned with the diadem, killed himself with his sword. But Cleopatra ordered a snake to be brought to her in a basket among some figs, and with her own hand applied it to her arm. When Octavianus heard this he ordered the physicians to apply remedies to the wound. But the physicians used all their arts in vain; Cleopatra soon died. She was then buried together with Antonius.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

LATIN. (*Counted as three sections.*)

SECOND SECTION: PROSE AUTHORS.

AUTUMN, 1900.—ONE AND THREE-QUARTER HOURS.

I. Translate Curt., VII., 5, 13-18.

Alexander arrives at the river Oxus with his army.

Tandem ad flumen Oxum ipse pervenit prima fere vespera. Sed exercitus magna pars non potuerat consequi: in edito monte ignes iubet fieri, ut ii, qui aegre sequebantur, haud procul castris ipsos abesse cognoscerent. Eos autem, qui primi agminis erant, mature cibo ac potione firmatos, implere alios utres, alios vasa, quibuscumque aqua portari posset, iussit ac suis opem ferre. Sed qui intemperantius hauserunt, intercluso spiritu, extincti sunt, multoque maior horum numerus fuit, quam ullo amiserat proelio. At ille thoracem adhuc indutus nec aut cibo refectus aut potu, qua veniebat exercitus, constitit nec ante ad curandum corpus recessit, quam praeterierant, qui agmen claudebant: totamque eam nocte cum magno animi motu perpetuis vigiliis egit. Nec postero die laetior erat, quia nec navigia habebat nec pons erigi poterat, circum amnem nudo solo et materia maxime sterili. Consilium igitur, quod unum necessitas subiecerat, init. Utres quam plurimos, stramentis refertos, dividit. His incubantes transnavere amnem, quique primi transierant, in statione erant, dum traicerent ceteri. Hoc modo sexto demum die in ulteriore ripa totum exercitum exposuit.

II. Translate either A or B.

A. Cicero, Phil. X., § 15, 16.

Cicero replies to the objection that perhaps the veterans would not like to be commanded by Brutus:

Timere se dicunt quo modo ferant veterani exercitum Brutum habere. Quasi vero quidquam intersit inter A. Hirtii, C. Pansae, D. Bruti, C. Caesaris et hunc exercitum M. Bruti. Nam si quattuor exercitus ii de quibus dixi propterea laudantur, quod pro populi Romani libertate arma ceperunt, quid est cur hic M. Bruti exercitus non in eadem caussa ponatur? At enim veteranis suspectum est nomen M. Bruti. Magisne quam Decimi? Equidem non arbitror. Etsi est enim Brutorum commune factum et laudis societas aequa, Decimo tamen iratiores erant ii qui id factum dolebant, quo minus ab eo rem illam dicebant fieri debuisse. Quid ergo agunt nunc tot exercitus nisi ut obsidione Brutus liberetur? Qui autem hos exercitus ducunt? Ii, credo, qui C. Caesaris res actas everti, qui caussam veteranorum prodi volunt. Si ipse viveret C. Caesar, acrius, credo, acta sua defenderet quam vir fortissimus defendit Hirtius: aut amiciores caussae quisquam potest inveniri quam filius? At horum alter, nondum ex longinquitate gravissimi morbi recreatus, quidquid habuit virium, id in eorum libertatem defendendam contulit, quorum votis iudicavit se a morte revocatum: alter virtutis robore firmior quam aetatis cum istis ipsis veteranis ad D. Brutum liberandum est profectus.

B. Livy, XXVII., 40.

The consuls leave Rome in different directions to meet the enemy, leaving the citizens distracted with anxiety.

Consules diversis itineribus profecti ab urbe velut in duo pariter bella distenderant curas hominum, simul recordantium, quas primus adventus Hannibalis intulisset Italiae clades, simul quum illa angeret cura: quos tam propitios urbi atque imperio fore deos, ut eodem tempore utrobique res publica prospere gereretur? Adhuc adversa secundis

pensando rem ad id tempus extractam esse. Quum in Italia ad Trasumennum et Cannas præcipitasset Romana res, prospera bella in Hispania prolapsam eam erexisse; postea, quum in Hispania alia super aliam clades, duobus egregiis ducibus amissis, duos exercitus ex parte delesset, multa secunda in Italia Siciliaque gesta quassatam rem publicam excepisse, et ipsum intervallum loci, quod in ultimis terrarum oris alterum bellum gereretur, spatium dedisse ad respirandum; nunc duo bella in Italiam accepta, duo celeberrimi nominis duces circumstare urbem Romanam, et unum in locum totam periculi molem, omne onus incubuisse; qui eorum prior vicisset, intra paucos dies castra cum altero iuncturum. Terrebat et proximus annus lugubris duorum consulum funeribus. His anxii curis homines digredientes in provincias consules prosecuti sunt.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

LATIN. (*Counted as three sections.*)

THIRD SECTION: LATIN POETS.

AUTUMN, 1900.—ONE AND THREE-QUARTER HOURS.

(Candidates must do A and either B or C.)

A.

I. Translate Ovid, *Metam.* VIII., 741 ff.

The Thessalian king, Erysichthon, cuts down a tree in a grove sacred to Ceres. His punishment is foretold.

ille etiam Cereale nemus violasse securi 741
dicitur et lucos ferro temerasse vetustos.
stabat in his ingens annoso *robore* quercus,
saepe sub hac dryades festas duxere choreas,
saepe etiam manibus nexis ex ordine trunci
circuere modum.

Non tamen idcirco ferrum Triopeïus *illa*
abstinuit famulosque iubet succidere sacrum
robur; et ut iussos cunctari vidit, ab uno
edidit haec rapta sceleratus verba *securi*:

“non dilecta deae solum, sed et ipsa licebit 755
sit dea, iam tanget frondente cacumine terram.”

Dixit, et obliquos dum telum librat in ictus,
contremuit gemitumque dedit Deoïa quercus:
et pariter frondes, pariter *pallescere* glandes

coepere ac longi pallorem ducere rami.
 cuius ut in trunco fecit manus in pia vulnus,
 haut aliter fluxit discusso cortice sanguis,
 quam solet, ante aras ingens ubi victima taurus
 concidit, abrupta cruor e cervice profundi.

Obstipuere omnes, aliquisque ex omnibus audet 765
 deterrere nefas saevamque inhibere bipennem.
 aspicit hunc "mentis" que "piae cape praemia!" dixit
 Thessalus inque virum convertit ab arbore ferrum
 detruncatque caput. repetitaque robora caedit,
 redditus e medio sonus est cum robore talis: 770
 "nympha sub hoc ego sum *Cereri* gratissima ligno,
 quae tibi factorum *poenas* instare tuorum
 vaticinor moriens, nostri solacia leti." 773

II. Scan the first four lines, marking the principal caesura in each.

III. Explain the syntax of the italicized words. Write the principal parts of *aspicit* and *caedit*.

B.

1. Translate Ovid, *Metam.* XI., 721-748.

Halcyone sees the body of her husband, Ceyx, washed ashore, and attempts to go to him. Both are changed into birds.

fluctibus actum 721

fit propius corpus. quod *quo* magis illa tuetur,
 hoc minus et minus est *mentis*. iam iamque propinquae
 admotum terrae, iam quod cognoscere posset,
 cernit: erat coniunx. 'ille est!' exclamat et una 725
 ora, comas, vestem lacerat tendensque trementes
 ad Ceyca manus 'sic, o carissime coniunx,
 sic ad me, miserande, redis?' ait. adiacet *undis*
 facta manu moles, quae primas aequoris iras
 frangit et incursus quae praedelassat aquarum. 730
 insilit huc, mirumque fuit potuisse, volabat
 percutiensque levem modo natis aëra pennis
 stringebat summas ales miserabilis undas.

dumque volat, *maesto* similem plenumque querellae
ora dedere sonam tenui crepitantia rostro. 735
ut vero tetigit mutum et sine sanguine corpus,
dilectos artus amplexa recentibus alis
frigida nequiquam duro dedit oscula rostro.
senserit hoc Ceyx, an vultum motibus undae
tollere sit visus, populus dubitabat. at ille 740
senserat. et tandem, superis miserantibus, ambo
alite mutantur. fatis obnoxius isdem
tunc quoque mansit amor, nec coniugiale solutum
foedus in alitibus. coeunt fiuntque parentes,
perque dies placidos hiberno tempore septem 745
incubat Aleyone pendentibus aequore nidis.
tunc iacet unda maris: ventos custodit et arcet
Aeolus egressu praestatque nepotibus aequor. 748

II. Explain the syntax of the italicized words. Write the principal parts of *cognoscere* and of *dilectos*.

C.

1. Translate Virgil, Aen. XII., 54-89.

Queen Amata seeks in vain to dissuade Turnus from engaging in single combat with Aeneas.

At regina, nova pugnae conterrita sorte,
flebat et ardentem generum *moritura* tenebat: 55
‘Turne, per has ego te lacrimas, per siquis Amatae
tangit honos animum (spes tu nunc una, senectae
tu requies miserae, decus imperiumque Latini
te penes, in te omnis domus inclinata recumbit),
unum oro: desiste manum committere Teucris. 60
qui te cumque manent isto certamine casus,
et me, Turne, manent: simul haec invisam relinquam
lumina nec generum Aenean captiva videbo.
accepit vocem lacrimis Lavinia matris
flagrantis perfusa *genas*, *cui* plurimus ignem 65
subiecit rubor et calefacta per ora cucurrit.
Indum sanguineo veluti violaverit ostro
siquis ebur, aut mixta rubent ubi lilia multa
alba rosa: talis virgo dabat ore colores.

illum turbat amor, figitque in virgine voltus: 70
ardet in arma magis *paucisque* adfatur Amatam.
‘ ne, quaeso, ne me lacrimis neve omine tanto
prosequere in duri certamina Martis euntem,
o mater; neque enim Turno mora libera mortis.
nuntius haec Idmon Phrygio mea dicta tyranno 75
haut placitura refer: cum primum crastina caelo
puniceis invecta rotis Aurora rubebit,
non Teucros agat in Rutulos, Teucrum arma *quiescant*
et Rutuli; nostro dirimamus sanguine bellum,
illo quaeratur coniunx Lavinia *campo.*’ 80

II. Explain the syntax of the italicized words. How would ‘*ne—prosequere*’ be expressed in prose? State the rule of syntax for this. Write the principal parts of *quaeratur*.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

AUTUMN, 1900.—TWO HOURS.

GRECIAN HISTORY.

1. How is the term tyrant used in Grecian history? When do tyrannies first appear? Give a brief account of the Pisistradidae in Athens.

2. How was Athens governed in the time of Pericles? Describe the character of Pericles. When did he die?

3. Trace the career of Alcibiades from the beginning of the Sicilian expedition to his return to Athens in 408 B. C.

4. What was the object of the expedition of the Ten Thousand into Asia Minor? In this connection describe the Persian system of government and point out some of its weaknesses.

5. When did Demosthenes the orator live, and what part did he take in the political events of his time?

ROMAN HISTORY.

1. Name the kings of the Tarquin dynasty, and give the traditional dates of their reigns. What was accomplished by these kings for the benefit of the city?

2. Contrast the resources of Rome and Carthage at the beginning of the Punic wars. What events led to the first Punic war.

3. Give an account of the political parties in Rome after the death of the Gracchi. What were the principal questions in dispute? Who was Marcus Livius Drusus, and what did he try to do?

4. When was the conquest of Gaul undertaken? When concluded? What was its importance for the people of Gaul? For the Romans? For Julius Cæsar?

5. Give reasons why the Roman Empire is generally considered to have attained the height of its power during the reign of Trajan. Discuss the literary life of Rome under Trajan, the attitude of the government toward the Christians, and the signs of economic decay.

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EXAMINATION FOR MATRICULATION.

HISTORY. (*Counted as one section.*)

AUTUMN, 1900.—TWO HOURS.

ENGLISH HISTORY.

1. Name the Danish kings of England, and give the dates of their reigns. What was the influence of the Danish conquest upon the life and language of the English?

2. Trace the history of the rise of Parliament to the reign of Richard II. Who were the knights of the shire?

3. What grounds had Henry VIII for his quarrel with the Pope? What acts of Parliament effected the separation of the English Church from the authority of the Church of Rome?

4. Indicate the chief stages in the history of the relations of England and Scotland from the reign of Edward I to the union in 1707.

5. Give an account of the attempts to reform the system of representation in 1831 and 1832. Why was reform so greatly needed?

AMERICAN HISTORY.

1. By whom was Massachusetts settled? What kind of government was established by her first charter? When and under what circumstances was this charter taken away and another substituted?

2. On what grounds did the colonies declare their independence in 1776? By what body was this Declaration adopted?

3. To which party did Thomas Jefferson belong? State the political principles of this party. What were the chief events of Jefferson's administration?

4. Why did South Carolina secede from the Union in 1860? Why did not all the Confederate States secede at once?

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EXAMINATION FOR MATRICULATION.

ENGLISH. (*Counted as one section.*)

II. COMPOSITION.

AUTUMN, 1900.—TWO HOURS.

(a) Compare and contrast the scenery and the use made of the scenery in *Macbeth* and *As You Like It*.

(b) Of what excellences of treatment did the subject of De Quincey's *Flight of the Tartars* seem to him especially susceptible, and how far in your judgment has he achieved them?

Take either (a) or (b).

The composition must contain not less than sixty lines of foolscap, and must be correct in spelling, grammar, punctuation, paragraphing, and general arrangement.

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EXAMINATION FOR MATRICULATION.

ENGLISH. (*Counted as one section.*)

I. GRAMMAR AND PUNCTUATION.

AUTUMN, 1900.—ONE AND A HALF HOURS.

Correct the following sentences, making the corrections as far as possible on the printed text:

1. He is one of those men who believes in the supreme importance of education and that the more we become possessed of things intellectual the better we will be prepared for the emergencies of life.

2. There is no doubt but that everyone who reads the book will be obliged to acknowledge that it is as valuable, if not more valuable than any book on the subject, whatever their prejudices may be.

3. If we read *Cyrano de Bergerac* carefully we will find not only that the author knows his Molière but also his Corneille and his Hugo, like Stevenson did his Scott or Keats his Shakespeare.

4. In Lowell's *Among My Books* he has brought together essays on Dante, Spenser, Wordsworth, Milton, and Keats, names very different in suggestion to the imagination but which are fitly brought together, for they were all poets, and have all become types in greater or less degree.

5. Softly crackling in quiet indifference to the storm, I had the luxury of the log-fire at my back, that offered a strange contrast to the tumult outside.

6. We have had a magnificent storm, which came, like an equinoctial storm should come, exactly at the equinox, which for a day and a night heaped the sea upon the shore in thundering surges which were twenty or thirty feet high, which I watched at their awfulest from the back windows of a cottage which crouched on the very edge of the surf, with the effect of clutching the rocks with one hand and holding its roof on with the other.

7. Having said so much I would have liked to have said more, but I feared I would make her angry, for nothing exasperates a woman more than such a humiliating sort of a comparison.

8. Mr. Goldwin Smith, like Mr. Gladstone, is both versatile and scholarly, which are necessary qualities in a translator; but, unlike Mr. Gladstone, his translation does not show the hard work and the patient endeavour which is equally as essential for such a task.

9. We would certainly say that the importance of the translator's function neither has or will be duly appreciated, if we consider how profoundly indifferent the public is to the defects or merits of any new translation, even if they are fairly familiar with the original.

10. Gay, Johnson tells us, though the general favorite of the wits, was a man beloved as a playfellow rather than a partner, and who they treated with more fondness than respect; and Pope seems to have loved him better than any one, and was probably soothed by his easy-going unsuspecting temper.

11. Neither his charitable conviction that a divine element was to be found in all creeds, from the "poor Indian" upwards, or the fact that the specific dogmas of his sect had very little hold upon his mind, were enough to make him consider an open secession necessary or even honourable.

12. If we study this question carefully we would readily see that our existence, our political happiness, our safety, depends upon the union of these states.

Punctuate (on the printed text) the following passage:

The following passage will give the reader a very fair idea of Arnolds views on this subject The translator of Homer should above all be penetrated by a sense of four qualities of his author that he is eminently rapid that he is eminently plain and direct both in the evolution of his thought and in the expression of it that is both in his syntax and in his words that he is eminently plain and direct in the substance of his thought that is in his matter and ideas and finally that he is eminently noble And it is strictly true that for want of penetrating themselves with the first named quality of Homer his rapidity Cowper and Mr Wright have failed in rendering him that for want of appreciating the second named quality his plainness and directness of style Pope and Mr Sotheby have failed in rendering him that for want of appreciating the third his plainness and directness of ideas Chapman has failed in rendering him while for want of appreciating the fourth his nobleness Mr Newman has failed more conspicuously than any of them Coleridge says in his strange language speaking of the union of the human soul with the divine essence that this takes place

Wheneer the mist which stands twixt God and thee
Defecates to a pure transparency

and so too it may be said of that union of the translator with his original which alone can produce a good translation that it takes place when the mist which stands between them the mist of alien modes of thinking speaking and feeling on the translators part defecates to a pure transparency and disappears

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EXAMINATION FOR MATRICULATION.

SCIENCE. (*Counted as one section.*)

AUTUMN, 1900.—TWO HOURS.

PHYSICS.

1. Derive the equations for the motion of a body which is uniformly accelerated. Show how the truth of these equations can be tested by the Atwood's machine.
2. How are several component velocities added together? Give reasons for your statements. Explain how it is that a body moving uniformly in a circle can yet be moving with an acceleration.
3. Explain the distinction between mass and weight. Why does a body weigh less at the equator than at the pole? How could you find two equal masses?
4. How are sound vibrations compounded? What is meant by the *interference* of sound waves? Show how the principle of interference accounts for consonance and dissonance in music.
5. Explain in your own words the meaning and importance of Ohm's law. How can it be utilized to find the magnitude of the resistance of a given wire?
6. Describe some simple experiments which would prove the laws of electrostatic attraction, and derive the unit of electricity therefrom. How is an electroscope charged by induction?
7. Explain how an image is formed by a concave mirror. When will the image be erect, when magnified and when virtual?

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EXAMINATION FOR MATRICULATION.

SCIENCE. (*Counted as one section.*)

AUTUMN, 1900.—TWO HOURS.

CHEMISTRY.

1. Is the air a chemical compound or a mixture? How would you prove it? How can pure oxygen be obtained from the air?

2. What are the physical and chemical properties of ammonia? How is ammonia prepared? How can ammonium nitrate be made from ammonia? How does ammonium nitrate decompose when heated? Write the equation representing the change.

3. Write equations illustrating the following chemical processes: (1) Oxidation, (2) reduction, (3) neutralization, (4) reaction between an acid and a salt, (5) reaction between a base and a salt?

4. How does bromine occur in nature? How is free bromine obtained from its compounds? How is hydrobromic acid made from bromine? How does bromine act on potassium iodide?

5. How do we know that red and yellow phosphorus are not two different elements, but different forms of the same element?

6. What is caustic soda? Washing soda? Baking soda?
Given metallic sodium, how would you make all three?

7. How is bleaching powder made? How does it bleach?
What chemical change takes place when substances are
bleached by chlorine? By sulphur dioxide?

8. How many grams of pure sulphur would be required
to prepare a kilogram of sulphur dioxide? $S = 32$
 $O = 16$.

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EXAMINATION FOR MATRICULATION.

SCIENCE. (*Counted as one section.*)

AUTUMN, 1900.—TWO HOURS.

BOTANY.

1. Define a natural classification of plants.
2. Name and characterize the groups into which plants are divided, giving examples of each that you have examined.
3. What is the function of the epidermis? Of fibrovascular bundles? Of parenchyma? Of fibrous tissue? What is primary meristem? Name the plants in which you have examined these tissues.
4. Give an example of green plants and of colorless plants. What is the chief difference in the life-activity of these two classes of plants?
5. Describe the structure of bacteria. To what is their importance due?
6. Compare the activity of plants in summer and in winter. What are the conditions that favor plant growth?
7. What are the different uses of roots?
8. By what means in the flowering plants is pollination effected? What is fertilization?
9. What are the chief properties of protoplasm?

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EXAMINATION FOR MATRICULATION.

AUTUMN, 1900.—TWO HOURS.

PHYSIOLOGY.

(Number each sheet and mark it with your initials. PRINT your name on the outside of the last sheet.)

1. Pancreas. Situation and function.
2. How are joints constructed? Name at least two kinds. How are they useful?
3. Mastication. What are its advantages? Do all animals masticate their food?
4. What is "venous" blood, and on what do its peculiarities depend? Where and how is it changed?
5. Brain. Situation and general description.
6. What are "smooth" muscles? Where are they found and how do they act?
7. Describe the heart and the action of its parts. Do *not* describe the blood or the blood-vessels except those close to the heart itself.
8. Define briefly (and indicate the function): Clavicle, thorax, rectum, eustachian tube, ureter.
9. What would you do for a person injured by fire?

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EXAMINATION FOR MATRICULATION.

SCIENCE. (*Counted as one section.*)

AUTUMN, 1900.—TWO HOURS.

PHYSICAL GEOGRAPHY.

1. Explain the principle of the compass and magnetic declination.

2. What are the daily changes of temperature in summer in the temperate zone? What causes may introduce irregularities in this daily change?

3. Describe the planetary circulation of the atmosphere. What causes may introduce local modifications of this circulation?

4. Discuss the origin of high and of low pressure areas, and their relation to atmospheric movements.

5. In what forms does moisture occur in the atmosphere? Explain the relation between a low barometer and bad weather.

6. Discuss the movements of the ocean and their causes.

7. Give the evidences of a sinking, of a rising coast.

8. What are the processes and the final products of rock decay?

9. Discuss the history and work of a river.

10. Explain the formation of mountains, valleys, plains, plateaus and waterfalls.

(Questions based on Tarr's "First Book in Physical Geography.")

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EXAMINATION FOR MATRICULATION.

GREEK. (*Counted as three sections.*)

FIRST SECTION: GRAMMAR AND COMPOSITION.

AUTUMN, 1900.

(*One hour if all three sections are taken ; one and a half hours if only one or two sections are taken at one time.*)

In the first passage, give the principal parts of *διαβαῖεν*, *πεπεισμένος*, *ἐλθών*, *λήψομαι*, *πέισεται*.

Explain the construction of *διαβαῖεν*, *παρεῖεν*, *ὄν*.

Decline in full *τεῖχος*, *τριήρεις*, *ἀσφαλές*.

Give the synopsis of *ἀφικόμενος*.

In the second passage turn into indirect discourse *ἀδικεῖτε*
. . . . *χώρας*.

Xenophon told his troops that they must not obey the Persians, nor make treaties with them, but must march back towards Greece with all speed. "We can no longer," said he, "harm the enemy by pursuing them, but even our retreat will be very difficult. Why should we wait here? That the enemy may destroy us? If you will follow me, I promise you safety, and we shall show to Greeks and barbarians that 10,000 brave Greeks can invade a hostile country and retreat easily, though surrounded by dangers. Let us not delay another day."

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EXAMINATION FOR MATRICULATION.

GREEK. (*Counted as three sections.*)

SECOND SECTION: PROSE AUTHORS.

AUTUMN, 1900.

(*One hour if all three sections are taken ; one and a half hours if only one or two sections are taken at one time.*)

I. Translate:

Μετὰ ταῦτα Ξενοφῶν μὲν ἔπραττε περὶ πλοίων, ὅπως ὅτι τάχιστα διαβαίεν. Ἐν δὲ τούτῳ ἀφικόμενος Ἀρίσταρχος ὁ ἐκ Βυζαντίου ἀρμοστής ἔχων δύο τριήρεις, πεπεισμένος ὑπὸ Φαρναβάζου τοῖς τε ναυκλήροις ἀπέειπε μὴ διάγειν, ἐλθὼν τε ἐπὶ τὸ σπράτευμα τοῖς στρατιώταις εἶπε μὴ περαιοῦσθαι εἰς τὴν Ἀσίαν. Ὁ δὲ Ξενοφῶν ἔλεγεν ὅτι Ἀναξίβιος ἐκέλευσε, καὶ ἐμὲ πρὸς τοῦτο ἔπεμφεν ἐνθάδε. Πάλιν δ' Ἀρίσταρχος ἔλεξεν. Ἀναξίβιος μὲν τοίνυν οὐκέτι ναύαρχος, ἐγὼ δὲ τῆςδε ἀρμοστής· εἰ δέ τινα ὑμῶν λήψομαι ἐν τῇ θαλάττῃ, καταδύσω. Ταῦτ' εἰπὼν ᾤχετο εἰς τὸ τεῖχος. Τῇ δ' ὑστεραία μεταπέμπεται τοὺς στρατηγούς καὶ λοχαγούς τοῦ στρατεύματος. Ἦδη δὲ ὄντων πρὸς τῷ τείχει, ἐξαγγέλλει τις τῷ Ξενοφῶντι ὅτι, εἰ εἴσεισι, σπληφθήσεται, καὶ ἢ αὐτοῦ τι πείσεται ἢ καὶ Φαρναβάζῳ παραδοθήσεται. Ὁ δὲ, ἀκούσας ταῦτα, τοὺς μὲν προπέμπεται, αὐτὸς δὲ εἶπεν ὅτι θῦσαί τι βούλοιο. Καὶ ἀπελθὼν ἐθύετο εἰ παρεῖεν αὐτῷ οἱ θεοὶ πειρᾶσθαι πρὸς Σεύθην ἄγειν τὸ σπράτευμα· ἑώρα γὰρ οὔτε διαβαίνειν ἀσφαλὲς ὄν, τριήρεις ἔχοντος τοῦ κωλύσοντος, οὔτ' ἐπὶ Χερρόνησον ἐλθὼν κατακλεισθῆναι ἐβούλετο καὶ τὸ σπράτευμα ἐν πολλῇ σπάνει πάντων γενέσθαι, ἐνθα δὴ πείθεσθαι μὲν ἀνάγκη τῷ ἐκεῖ ἀρμοστῇ, τῶν δὲ ἐπιτηδείων οὐδὲν ἔμελλεν ἔξειν τὸ σπράτευμα.

II. Translate :

Ἐντεῦθεν Σεύθης μὲν ἀπεστρατοπεδεύσατο προσωτέρω· οἱ δὲ Ἕλληγες ἐσκήνησαν εἰς κώμας ὅθεν ἔμελλον πλεῖστα ἐπισιτισάμενοι ἐπὶ θάλατταν ἦξιν. Αἱ δὲ κῶμαι αὗται ἦσαν δεδομέναι ὑπὸ Σεύθου Μηδοσάδῃ. Ὅρων οὖν ὁ Μηδοσάδης δαπανώμενα τὰ ἑαυτοῦ ἐν ταῖς κώμαις ὑπὸ τῶν Ἑλλήνων χαλεπῶς ἔφερε· καὶ λαβὼν ἄνδρα Ὀδρύσῃν δυνατώτατον τῶν ἄνωθεν καταβεβηκότων καὶ ἰππέας ὅσον τριάκοντα ἔρχεται, καὶ προσκαλεῖται Ξενοφῶντα ἐκ τοῦ Ἑλληνικοῦ στρατεύματος· καὶ ὅς, λαβὼν τινὰς τῶν λοχαγῶν καὶ ἄλλους τῶν ἐπιτηδείων, προσέρχεται. Ἐνθα δὲ λέγει Μηδοσάδης· Ἀδικεῖτε, ὦ Ξενοφῶν, τὰς ἡμετέρας κώμας πορθοῦντες. Προλέγομεν οὖν ὑμῖν, ἐγὼ τε ὑπὲρ Σεύθου καὶ ὅδε ὁ ἀνὴρ παρὰ Μηδόκου ἦγων τοῦ ἄνω βασιλέως, ἀπιέναι ἐκ τῆς χώρας· εἰ δὲ μή, οὐκ ἐπιτρέψομεν ὑμῖν, ἀλλ' ἐὰν ποιῆτε κακῶς τὴν ἡμετέραν χώραν, ὡς πολεμίους ἀλεξήσομεθα.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

GREEK. (*Counted as three sections.*)

THIRD SECTION: HOMER.

AUTUMN, 1900.

(*One hour if all three sections are taken ; one and a half hours if only one or two sections are taken at one time.*)

I. Translate: Iliad, XII., 108-123.

ἐνθ' ἄλλοι Τρῶες τηλεκλειτοί τ' ἐπίκουροι
βουλῇ Πουλυδάμαντος ἀμωμήτοιο πίθοντο·
ἀλλ' οὐχ Ἵρτακίδης ἔθελ' Ἄσιος, ὄρχαμος ἀνδρῶν, 110
αὔθει λιπεῖν ἵππους τε καὶ ἡνίοχον θεράποντα,
ἀλλὰ σὺν αὐτοῖσιν πέλασεν νήεσσι θοῆσιν,
νήπιος, οὐδ' ἄρ' ἔμελλε κακὰς ὑπὸ κῆρας ἀλύξας,
ἵπποισιν καὶ ὄχεσφιν ἀγαλλόμενος παρὰ νηῶν
ἄψ ἀπονοστήσειν προτὶ Ἴλιον ἠνεμόεσσαν· 115
πρόσθεν γάρ μιν μοῖρα δυσώνυμος ἀμφεκάλυψεν
ἔγχεϊ Ἰδομενεῖος, ἀγαυοῦ Δευκαλίδαι.
εἶσατο γὰρ νηῶν ἐπ' ἀριστερά, τῇ περ Ἀχαιοὶ
ἐκ πεδίου νίσσοντο σὺν ἵπποισιν καὶ ὄχεσφιν·
τῇ β' ἵππους τε καὶ ἄρμα διήλασεν, οὐδὲ πύλησιν 120
εὖρ' ἐπικεκλιμένας σανίδας καὶ μακρὸν ὄχημα,
ἀλλ' ἀναπεπταμένας ἔχον ἄνδρες, εἴ τιν' ἑταίρων
ἐκ πολέμου φεύγοντα σώσειαν μετὰ νῆας.

II. Translate: Iliad, VIII., 212-226.

ὣς οἱ μὲν τοιαῦτα πρὸς ἀλλήλους ἀγόρευον·
τῶν δ', ὅσον ἐκ νηῶν ἀπὸ πύργου τάφρο ζῆεργεν,
πλήθην ὁμῶς ἵππων τε καὶ ἀνδρῶν ἀσπιστάων

εἰλομένων· εἴλει δὲ θεῶν ἀτάλαντος Ἄρηι 215
 Ἐκτωρ Πριαμίδης, ὅτε οἱ Ζεὺς κῦδος ἔδωκεν.
 καὶ νύ κ' ἐνέπρησεν πυρὶ κηλέφ νῆας εἴσας,
 εἰ μὴ ἐπὶ φρεσὶ θῆκ' Ἀγαμέμνονι πότνια Ἥρη
 αὐτῶν ποιπνύσαντι θεῶς ὀτρῦναι Ἀχαιοῦς.
 βῆ δ' ἰέναι παρά τε κλισίας καὶ νῆας Ἀχαιῶν 220
 πορφύρεον μέγα φᾶρος ἔχων ἐν χειρὶ παχείῃ,
 στῆ δ' ἐπ' Ὀδυσσεύῃος μεγακῆτεϊ νηὶ μελαίνῃ,
 ἣ ῥ' ἐν μεσσήτῳ ἔσχε, γεγωνέμεν ἀμφοτέρωσε·
 ἡμὲν ἐπ' Αἴαντος κλισίας Τελαμωνιάδαο
 ἠδ' ἐπ' Ἀχιλλεύῃος, τοί ῥ' ἔσχατα νῆας εἴσας 225
 εἴρυσαν, ἠγορέῃ πίσυνοι καὶ κάρτεϊ χειρῶν·

In the first passage, give the Attic for the Homeric forms
 in the first six verses; scan the last four verses of the second
 passage.

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

FRENCH. (*Counted as three sections.*)

AUTUMN, 1900.—THREE HOURS.

I. GRAMMAR.

(Each candidate will be required to pronounce some ten or fifteen lines of French, to show her knowledge of French sounds.)

1. Give the masculine form of *caduque*, *dangereuse*, *captif*, *fausse*, *longue*, *publique*.
2. Give the feminine form of *turc*, *grec*, *poète*, *auteur*, *gentil*, *cher*, *gras*.
3. Give the plural form of *émail*, *travail*, *feu*, *ciel*, *genou*, *dangereux*.
4. Give the comparative and superlative of *grand*, *bon*, *bien*, *mauvais*, *mal*.
5. Put the following French sentence: *Il a vu le cheval de son oncle*,
 - (a) in a plural form (subject, verb and complements);
 - (b) in a negative form;
 - (c) in a negative interrogative form.

6. Give the first person singular of the present indicative of jeter, coudre, vouloir, vivre, mourir, bouillir, ouvrir.

6. Give the first person plural of the present indicative of acquérir, boire, dormir, résoudre, rompre, construire, vivre, vêtir.

8. Give the second person singular of the future of tenir, s'asseoir, absoudre, cueillir, revoir, savoir, pouvoir, pourvoir.

9. Give the third person singular of the imperfect subjunctive of voir, tressaillir, aller, avoir, fuir, croire.

10. Give the past participle of bénir, mouvoir, prendre, rendre, offrir.

II. TRANSLATION.

Bien avant de s'approprier le sol par la science, l'homme avait commencé de se l'approprier par la culture. Les tribus de chasseurs et de pêcheurs, de même que les bergers nomades, n'avaient en rien modifié l'aspect de la Terre, et si leur race avait disparu, aucun vestige n'en eût indiqué le passage à la surface des continents; mais dès que les familles, s'établissant d'une manière permanente à côté des végétaux nourriciers, eurent appris à planter les arbres, à semer les graines et les fruits, l'œuvre de transformation fut inaugurée. Chaque point de la Terre où des plantes utiles à l'homme, telles que les céréales et les arbres à fruit, avaient

pris la place d'autres végétaux coupés par la hache ou par le feu, est devenu un centre autour duquel les cultures se sont étendues de proche en proche, et maintenant, grâce aux centaines de millions d'hommes travaillant sans relâche à solliciter les forces productives du sol, d'immenses territoires ont complètement perdu leur physionomie première. On peut évaluer à 12 millions de kilomètres carrés, soit environ à la dixième partie de la superficie des continents, l'ensemble des espaces qui sont cultivés par les mains de l'homme et partagés en champs aux contours réguliers. Il est vrai que la plus grande partie de cette vaste étendue est plutôt exploitée par une sorte de pillage que mise sérieusement en culture. La population de la Terre, évaluée de nos jours à quatorze cent millions d'hommes, pourrait facilement se doubler, se quintupler, se décupler même, sans que le sol lui manquât, pourvu qu'il fût cultivé avec intelligence.

ELISÉE RECLUS.

Ce grand homme doit être placé au premier rang parmi les plus remarquables figures que le passé a laissées en exemple à notre siècle. Nul ne mérite plus d'être étudié, admiré et imité. Quand on songe à ce qui, pendant quarante ans, est sorti de cette tête puissante, et toujours au profit de la France, on est attendri jusqu'aux larmes d'un tel labeur. Tout le monde se plaint aujourd'hui que les caractères disparaissent; or les jeunes gens n'ont qu'à étudier Sully, et ils trouveront en lui un des plus grands hommes que la France ait produits; ils apprendront de lui comment on peut être à la fois héroïque et pratique, vaillant et prudent, personnel et dévoué, fidèle à son maître jusqu'à l'abnégation la plus absolue, mais fidèle aussi jusqu'au sacrifice, à ce qu'on se doit à soi-même. Jamais homme ne montra mieux la différence du mot serviteur et du mot servile, et il est trois choses que le ministre ne sacrifia jamais à son roi Henri IV: sa conscience, sa dignité, et l'intérêt de la France.

ERNEST LEGOUVÉ.

NOX.

Sur la pente des monts les brises apaisées
Inclinent au sommeil les arbres onduleux;
L'oiseau silencieux s'endort dans les rosées,
Et l'étoile a doré l'écume des flots bleus.

Au contour des ravins, sur les hauteurs sauvages,
Une molle vapeur efface les chemins;
La lune tristement baigne les noirs feuillages;
L'oreille n'entend plus les murmures humains.

Mais sur le sable au loin chante la mer divine,
Et des hautes forêts gémit la grande voix,
Et l'air sonore, aux cieus que la nuit illumine,
Porte le chant des mers et le soupir des bois.

Montez, saintes rumeurs, paroles surhumaines,
Entretien lent et doux de la terre et du ciel!
Montez, et demandez aux étoiles sereines
S'il est pour les atteindre un chemin éternel.

O mers, ô bois songeurs, voix pieuses du monde,
Vous m'avez répondu durant mes jours mauvais,
Vous avez apaisé ma tristesse inféconde,
Et dans mon cœur aussi vous chantez à jamais!

BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION

GERMAN. (*Counted as three sections.*)

AUTUMN, 1900.—THREE HOURS.

I. GRAMMAR.

1. Give (together with the article) the genitive singular and the nominative plural of the following nouns:

Auge (n.)	Hase (m.)	Mensch (m.)
Blatt (n.)	Hund (m.)	Nadel (f.)
Garten (m.)	Magd (f.)	Schaf (n.)
Gewölbe (n.)	Mantel (m.)	Schuh (m.)

2. Decline “der bunte Vogel” and “ein bunter Vogel.”
Note.—The plural of “ein bunter Vogel” is “bunte Vögel.”

3. Give the third person singular of (1) the present indicative, (2) the preterit indicative, (3) and the preterit subjunctive, respectively—also the past participle of each of the following verbs:

abschliessen	einschneiden	schwören
anbeissen	empfehlen	sitzen
aufpassen	erziehen	vergeltten
betreten	flechten	vortragen
denken	gewinnen	zutrinken
dürfen		

Note.—The “preterit” is sometimes called “imperfect.”

II. TRANSLATION.

Sie mochte lange geschlafen haben, denn als sie erwachte, hielt der Wagen still mitten in der Nacht, Frenel und der Kutscher waren fort, seitwärts stand eine einzelne Hütte, man sah das Herdfeuer durch die kleinen Fenster schimmern, im Hause hörte sie den Frenel sprechen; er schien nach dem Wege zu fragen. Sie lehnte sich an das Kutschenfenster, ein finstrer Wald lag vor ihnen und drüben auf einer Höhe ein Schloss im Mondschein. Wie sie aber so, nicht ohne heimliches Grauen, mit ihren Augen noch die Oede durchmisst, hört sie auf einmal Pferdetritte fern durch die Stille der Nacht. Es schallt immer näher und näher, jetzt sieht sie einen Reiter, in seinen Mantel gehüllt, im scharfen Trabe auf demselben Wege vom Walde rasch daherkommen. Sie fährt erschrocken zurück und drückt sich in die Ecke des Wagens. Der Reiter aber, da er den verlassenen Wagen bemerkt, hält plötzlich an.

Wer ist da! rief er, wo wollen Sie hin?—Nach St. Lüc. erwiderte Leontine, ohne sich umzusehen.—St. Lüc? das ist das Schloss der Gräfin Diana, sagte der Reiter; wenn Sie die Gräfin sehen wollen, die ist seit einigen Stunden schon auf des Grafen Gaston Schloss dort überm Wald.—Unmöglich, versetzte das Fräulein, sich lebhaft aufrichtend bei der unerwarteten Nachricht.

(Eichendorff.)

II.

Und wie alt war Baron Harald, als sein Vater starb? fragte Oswald.

Zehn Jahre, antwortete Mutter Clausen; und ihm wäre besser gewesen, er wäre an dem Tage gestorben,—ihm und manchem Andern.

Die Alte hatte das Strickzeng, das in ihrem Schoss müssig gelegen hatte, wieder zur Hand genommen und strickte emsiger wie zuvor, als müsse sie die verlorene Zeit einholen.

Ja, ja, sagte sie, es wäre besser gewesen. Damals war er ein bild-hübscher, unschuldiger Junge mit Augen, blau wie Veilchen, und rosenroten Wangen; und als er starb—

Die Alte schwieg—die Nadeln klepperten, und der Regen klatsche gegen die Scheiben.

Nun, sagte Oswald, und als er starb—

Da starb ein böser Mann, und es war ein böses, böses Sterben. Ich weiss es allein, denn ich war allein mit dem Unseligen, als der Tod ihn packte mit seiner eisernen Faust. Da rangen sie Beide, der starke Harald und der starke Tod, und grässlich genug war es anzusehen, so grässlich, dass die Andern davon liefen—aber ich wollte ihn nicht verlassen in seiner letzten Not, denn er war, böse wie er war, doch Oscar's Sohn, und ich hatte ihn, als er ein unschuldig Kind war, auf meinen Armen getragen und auf meinen Knien gewiegt. So hielt ich aus und betete, während er sich und Gott verfluchte, bis der Tod ihm auf's Herz schlug, dass er laut aufschrie und auf sein Kissen zurückfiel. Da war es aus mit ihm, und seine arme Seele hatte Ruhe.

(Spielhagen.)

III.

Sangerheim war indessen in einer Stimmung und Gemütsverfassung, die sich schwerlich darstellen lässt. Auf seine vielen und dringenden Schreiben hatte er noch einmal eine kurze Antwort von einem Manne erhalten, der sich früher seinen Freund nannte, und der ihm jetzt meldete, dies sei der letzte Brief, den er ihm senden könne, indem er eben in den Wagen steige, um nach Italien, und von dort nach Griechenland und Constantinopel zu reisen. Von Gelsendungen war keine Rede, und doch hatte Sangerheim auf diese, und zwar auf sehr bedeutende, gerechnet. Er meinte, er dürfe es, nach allen früheren Beteuerungen und Versprechungen. Er war von Schulden bedrängt; um glänzend aufzutreten, hatte er Alles wieder ausgegeben, was ihm von Freunden und Schülern zugeflossen war. Um sein Ansehn zu vergrössern, und sich mehr Zutrauen zu

erwerben, war er in der Wohltätigkeit ein Verschwender gewesen. Er schrieb noch einmal, und zwar unmittelbar an einen Mann, den er für einen jener Obern halten musste, aber indem er in Angst die Sekunden auf seiner Uhr zählte, und der Antwort Flügel wünschte, kam sein eigener Brief ihm zurück, mit der Anweisung vom Postamt, kein Mann von dem Namen sei in der Stadt zu finden.

(Tieck.)

IV. . .

ABENDLIED.

Nun schlafen die Vöglein im Neste,
Nun schlummern die Blüten am Strauch,
Und unter dem Himmel die Weste,
Horch, horch! sie ruhen nun auch.

Nur droben, da wachen die Sterne
Und singen ihr ewiges Lied,
Das, hallend aus endloser Ferne,
Leis' über die Erde noch zieht.

Und der da von Anbeginn lenket
Das ganze schimmernde Heer,
Auch deiner liebend gedenket,
Du giltst ihm ja noch viel mehr.

Der segnet die Vöglein und Blüten,
Und leitet der Winde Hauch,
Der wird auch dich wol behüten,
So ruh' in Frieden nun auch!

BRYN MAWR COLLEGE.

EXAMINATION FOR ADVANCED STANDING.

SOLID GEOMETRY.

SEPTEMBER, 1900.—TWO HOURS.

NOTE.—When this paper is taken with Trigonometry, the time allowed is one and one-half hours; questions 2 and 7 are then to be omitted, and the reason for the omission is to be stated.

1. Prove that the intersection of two planes is a straight line. Prove also that three planes in general determine a point; what are the exceptions to this statement?

2. Define a polyhedron. Give and prove the relation connecting the numbers of the faces, edges, and vertices of a polyhedron.

3. Prove that one straight line can be drawn to meet each of two given straight lines at right angles, and that this will be the shortest distance between the two given lines.

4. Define a prism. What is the difference between an *oblique* prism and a *right* prism?

Prove that the volume of any prism is the product of the area of a right section and the length of a lateral edge.

5. Define a cone, and explain the connection between a cone and a pyramid. Give and prove the expression for the area of the curved surface of a frustum of a right circular cone.

A right circular cone of height 12 feet stands on a base of radius 9 feet. If a right circular cone of height 8 feet is cut off this, find the volume, and the area of the curved surface, of the frustum that remains.

6. Define a sphere. A hemisphere, a right circular cylinder, and a right circular cone have the same base and the same altitude; state and prove the relation connecting their volumes. Hence determine the volume of a sphere.

7. Prove that through four points, which are not in the same plane, one sphere and only one, can be described.

8. Explain the connection between trihedral angles and spherical triangles. Prove that the sum of the sides of a spherical polygon is less than the circumference of a great circle. Prove also the proposition regarding polyhedral angles of which you make use.

BRYN MAWR COLLEGE.

EXAMINATION FOR ADVANCED STANDING.

TRIGONOMETRY.

AUTUMN, 1900.—TWO HOURS.

(When this paper is taken with Solid Geometry, the time allowed is one and a half hours; questions 1 and 5 are then to be omitted, and the reason for the omission is to be stated.)

1. One angle of a triangle is 60° and the circular measure of another is $\frac{4}{3}$, find the remaining angle in circular measure and in degrees.

2. Show that the sine and cosecant of any angle are respectively the same as the sine and cosecant of the supplement of the angle. Is this true of the cosine and secant of the angle?

$$\text{Prove } \tan 75^\circ + \cot 75^\circ = 4.$$

3. Give definitions of the sine and cosine of an angle that will apply to angles of any size. Prove that

$$\cos A = \sin (90^\circ + A) = -\cos (180^\circ + A).$$

4. Prove that in all systems of logarithms $\log 1 = 0$ and that the logarithms of all proper fractions are negative.

$$\text{Given } \log_{10} 2 = .30103, \text{ find } \log_{10} 16 \text{ and } \log_{10} 25.$$

5. For what data does the solution of a triangle become ambiguous? Explain this.

6. Prove the following formulæ for the triangle $A B C$: —

(i.) Area of the triangle = $\sqrt{s(s-a)(s-b)(s-c)}$,

(ii.) $a^2 + b^2 + c^2 = 2bc \cos A + 2ca \cos B + 2ab \cos C$.

7. Prove that

(i.) $\sin 3 A = 3 \sin A - 4 \sin^3 A$,

(ii.) $\cos 4 A = 8 \cos^4 A - 8 \cos^2 A + 1$.

BRYN MAWR COLLEGE.

EXAMINATION FOR ADVANCED STANDING.

MINOR LATIN.

SECTION A: LIVY, CICERO, PROSE COMPOSITION.

AUTUMN, 1900.—THREE HOURS.

I. Sketch the life of Livy with dates. What was his object in writing the history of Rome? What was the original extent of that history, and how much has been preserved? What do you know of Livy's style? What is the date of the Second Philippic, and what was the position of Cicero at this time? What was its effect, as regards both Cicero and Antonius?

II. Translate Livi, XXI., 43, 1-6:

Cum sic aliquot spectatis paribus adfectos dimisisset, contione inde advocata ita apud eos locutus fertur: "si, quem animum in alienae sortis exemplo paulo ante habuistis, eundem mox in aestimanda fortuna vestra habueritis, vicimus, milites: neque enim spectaculum modo illud, sed quaedam veluti imago vestrae condicionis erat. ac nescio an maiora vincula maioresque necessitates vobis quam captivis vestris fortuna circumdederit: dextra laevaue duo maria claudunt nullam ne ad effugium quidem navem habentibus, circa Padus amnis, maior Padus ac violentior Rhodano, ab tergo Alpes urgent, vix integris vobis ac vigentibus transitae. hic vincendum aut moriendum, milites, est, ubi primum hosti occurristis. et eadem fortuna, quae necessitatem pugnandi inposuit, praemia vobis ea victoribus proponit, quibus ampliora homines ne ab diis quidem immortalibus optare solent. si Siciliam tantum ac

Sardiniam parentibus nostris ereptas nostra virtute recuperaturi essemus, satis tamen ampla pretia essent: quidquid Romani tot triumphis partum congestumque possident, id omne vestrum cum ipsis dominis futurum est.

III. Explain the syntax of *dimisisset*, *vicimus*, *circum-dederit*, *essemus*. Where was this speech delivered? What was the condition of the Punic army? Who commanded the Romans?

IV. Translate Cicero, 2d Phil., XI., 25, 26:

Sed haec vetera, illud vero recens, Caesarem meo consilio interfectum. Iam vereor, patres conscripti, ne, quod, turpissimum est, praevaricatorem mihi apposuisse videar, qui me non solum meis laudibus ornaret, sed etiam oneraret alienis. Quis enim meum in ista societate gloriosissimi facti nomen audivit? Cuius autem, qui in eo numero fuisset, nomen est occultatum? Occultatum dico? cuius non statim divulgatum? Citius dixerim iactasse se aliquos, ut fuisse in ea societate viderentur, cum conscii non fuissent, quam ut quisquam celari vellet qui fuisset. Quam veri simile porro est in tot hominibus partim obscuris partim adolescentibus neminem occultantibus meum nomen latere potuisse? Etenim si auctores ad liberandam patriam desiderarentur illis actoribus, Brutos ego impellerem, quorum uterque L. Bruti imaginem cotidie videret, alter etiam Ahalae?

V. Explain the syntax of *videar*, *ornaret*, *fuisset*, (non) *fuissent*, *desiderarentur*. What is the allusion that Cicero is discussing? Who was L. Brutus?

VI. Translate Cicero, 2d Phil., XLII., 107-108:

Interea dum tu abes, qui dies ille collegae tui fuit, cum illud, quod venerari solebas, bustum in foro evertit? Quare tibi nuntiata, ut constabat inter eos, qui una fuerunt, concidisti. Quid evenerit postea nescio. Metum credo valuisse et arma. Collegam quidem de caelo detraxisti effecistisque non tu quidem etiam nunc ut similis tui, sed certe ut dissimilis esset sui.

Qui vero inde reditus Romam! Quae perturbatio totius urbis! Memineramus Cinnam nimis potentem, Sullum postea dominantem: modo Caesarem regnantem videramus. Erant fortasse gladii, sed absconditi nec ita multi. Ista vero quae et quanta barbaria est! Agmine quadrato cum gladiis sequuntur: scutorum lecticas portari videmus. Atque his quidem iam inveteratis, patres conscripti, consuetudine obduruimus. Kalendis Iuniis cum in senatum, ut erat constitutum, venire vellemus, metu perterriti repente diffugimus.

VII. Explain the syntax of *abes*, *evenerit*, *esset*. What is the reference in Cinna and Sulla?

VIII. Translate into Latin:

Nero found M. Livius at Lena Gallica awaiting the enemy; both consuls at once marched against Hasdrubal, whom they found occupied in crossing the Metaurus. Hasdrubal wished to avoid a battle and to escape from the Romans by a detour, but his guides abandoned him; he lost his way on ground that was strange to him, and was at length attacked on the march by the Roman cavalry, and detained until the Roman infantry arrived, and a battle became inevitable. Hasdrubal stationed the Spaniards on the right wing, with his ten elephants in front of it, and the Gauls on the left, which he held back. Long the fortune of battle wavered on the right wing, and the consul Livius, who commanded there, was hard pressed, till Nero, allowing the enemy opposite to him to remain as they stood, marched round his own army and fell upon the flank of the Spaniards.

BRYN MAWR COLLEGE.

EXAMINATION FOR ADVANCED STANDING.

MINOR LATIN.

Section B: Horace.

AUTUMN, 1900.—THREE HOURS.

I. Translate Od. II., 19, vv. 1-20.

Bacchum in remotis carmina rupibus
Vidi decentem—credite posteri—
Nymphasque discentes et aures
Capripedum Satyrorum acutas.
Euoë, recenti mens trepidat metu
Plenoque Bacchi pectore turbidum
Laetatur. Euoë, parce Liber,
Parce, gravi metuende thyrsos!
Fas pervicaces est mihi Thyiadas
Vinique fontem lactis et uberes
Cantare rivos, atque truncis
Lapsa cavis iterare mella;
Fas et beatae conjugis additum
Stellis honorem, tectaque Penthei
Disjecta non leni ruina,
Thracis et exitium Lycurgi.
Tu flectis amnes, tu mare barbarum,
Tu separatis uvidus in jugis
Nodo coërces viperino
Bistonidum sine fraude crines.

II. Scan vv. 1-4, and name the metre in which the ode is written.

III. Write explanatory notes upon *Satyrorum* (v. 4) and *coniugis* (v. 13). Outline the story of *Pantheus* (v. 14). Name the figure in *non leni ruina* (v. 15), and illustrate by other examples from Horace. Explain the syntax of *lactis* (v. 10), and illustrate, if possible, from some other passage.

IV. In Od. IV., 3, scan vv. 1-2, and name the metre of each line.

Quem tu, Melpomene, semel
Nascentem placido lumine videris.

V. Translate Od. IV., 9, vv. 1-28.

Ne forte credas interitura quae
Longe sonantem natus ad Aufidum
Non ante vulgatas per artes
Verba loquor socianda chordis:
Non si priores Maeonius tenet
Sedes Homerus, Pindaricae latent
Caeaeque et Alcaei minaces
Stesichorique graves Camenae:
Nec si quid olim lusit Anacreon
Delevit aetas; spirat adhuc amor
Vivuntque commissi calores
Aeoliae fidibus puellae.
Non sola comptos arsit adulteri
Crines, et aurum vestibus illitum
Mirata regalesque cultus
Et comites Helene Lacaena,
Primusve Teucer tela Cydonio
Direxit arcu; non semel Ilios
Vexata; non pugnavit ingens
Idomencus Sthenelusve solus
Dicenda Musis proelia; non ferox
Hector vel acer Deiphobus graves

Exceptit ictus pro pudicis
Conjugibus puerisque primus.
Vixere fortes ante Agamemnona
Multi; sed omnes illacrimabiles
Urgentur ignotique longa
Nocte, carent quia vate sacro.

VI. Write explanatory notes upon *Maeonius*, *Ceae*—*Camenae*, *Anacreon*, *Aeoliae*—*puellae*. Distinguish between *Musa* and *Camena*.

VII. Sketch the life of Horace, with dates, and give a brief account of his several works. State the purpose for which the IVth book of the Odes was composed, and give the date of its publication. What is the meaning of the term "Epode"?

VIII. Write a brief biographical account of the persons addressed in Od. II., 1 (see v. 14), and in Od. III., 21 (see v. 7).

IX. Mention the Greek poets by whom Horace was influenced, and point out the extent of their influence. How far is Horace's claim that he was Rome's first lyric poet well-founded? Enumerate the chief subjects of the Odes.

