Bryn Mawr College Examination Papers Set for Matriculation in the Spring, 1899

Bryn Mawr College

Let us know how access to this document benefits you.

Follow this and additional works at: https://repository.brynmawr.edu/bmc_matriculationexams

Custom Citation
Bryn Mawr College Examination Papers Set for Matriculation in the Spring, 1899 (Bryn Mawr, PA: Bryn Mawr College, 1899)

This paper is posted at Scholarship, Research, and Creative Work at Bryn Mawr College. https://repository.brynmawr.edu/bmc_matriculationexams/8

For more information, please contact repository@brynmawr.edu.
BRYN MAWR COLLEGE.

EXAMINATION PAPERS

SET FOR MATRICULATION

IN THE

SPRING, 1899.

Please Remit.

This pamphlet may be obtained at the Secretary's Office, Bryn Mawr College, on payment of twenty-five cents.
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 and Baltimore, 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 1899, examinations were held at Bryn Mawr College, Boston, New York City, and Baltimore, and at Atlanta (Georgia), Bangor, (Maine), Buffalo, Chicago, Denver, Harrisburg, Indianapolis, Lexington (Kentucky), Pittsburg, Portland (Oregon), and San Francisco.

**Dates of Examinations for Matriculation in 1900.**

<table>
<thead>
<tr>
<th>JUNE 1.</th>
<th></th>
<th>SPRING, 1900.</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Grammar, etc.,</td>
<td>.9 1/2—11</td>
<td>Latin Composition,</td>
</tr>
<tr>
<td>English Composition,</td>
<td>.11—1</td>
<td>History,</td>
</tr>
<tr>
<td>Geometry,</td>
<td>.2 1/2—5</td>
<td>German,</td>
</tr>
<tr>
<td>2. Algebra,</td>
<td>.9—12</td>
<td></td>
</tr>
<tr>
<td>French,</td>
<td>.2—5</td>
<td></td>
</tr>
<tr>
<td>3. Latin Prose Authors,</td>
<td>.9—10 1/2</td>
<td>Greek,</td>
</tr>
<tr>
<td>Latin Poets,</td>
<td>.11 1/2—1</td>
<td>Minor Latin, Section A,</td>
</tr>
<tr>
<td>Science,</td>
<td>.3—5</td>
<td>Solid Geometry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Minor Latin, Section B,</td>
</tr>
</tbody>
</table>
### Autumn, 1900.

<table>
<thead>
<tr>
<th>September 24.</th>
<th>27.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English Grammar, etc.</strong>,</td>
<td>25.</td>
</tr>
<tr>
<td><strong>English Composition,</strong></td>
<td>9—11</td>
</tr>
<tr>
<td><strong>Geometry,</strong></td>
<td>11—1</td>
</tr>
<tr>
<td><strong>Algebra,</strong></td>
<td>24—5</td>
</tr>
<tr>
<td><strong>French,</strong></td>
<td>9—12</td>
</tr>
<tr>
<td><strong>Latin Prose Authors,</strong></td>
<td>2—5</td>
</tr>
<tr>
<td><strong>Latin Poets,</strong></td>
<td>11—1</td>
</tr>
<tr>
<td><strong>Science,</strong></td>
<td>3—5</td>
</tr>
<tr>
<td><strong>Latin Composition,</strong></td>
<td>9—10</td>
</tr>
<tr>
<td><strong>History,</strong></td>
<td>11—1</td>
</tr>
<tr>
<td><strong>German,</strong></td>
<td>24—5</td>
</tr>
<tr>
<td><strong>Minor Latin, Section A,</strong></td>
<td>9—12</td>
</tr>
<tr>
<td><strong>Solid Geometry</strong></td>
<td>2—5</td>
</tr>
<tr>
<td><strong>Minor Latin, Section B,</strong></td>
<td>2—5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>February 5.</th>
<th>8.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English Grammar, etc.</strong>,</td>
<td>6.</td>
</tr>
<tr>
<td><strong>English Composition,</strong></td>
<td>9—11</td>
</tr>
<tr>
<td><strong>Geometry,</strong></td>
<td>11—1</td>
</tr>
<tr>
<td><strong>Algebra,</strong></td>
<td>24—5</td>
</tr>
<tr>
<td><strong>French,</strong></td>
<td>9—12</td>
</tr>
<tr>
<td><strong>Latin Prose Authors,</strong></td>
<td>2—5</td>
</tr>
<tr>
<td><strong>Latin Poets,</strong></td>
<td>11—1</td>
</tr>
<tr>
<td><strong>Science,</strong></td>
<td>3—5</td>
</tr>
<tr>
<td><strong>Latin Composition,</strong></td>
<td>9—10</td>
</tr>
<tr>
<td><strong>History,</strong></td>
<td>11—1</td>
</tr>
<tr>
<td><strong>German,</strong></td>
<td>24—5</td>
</tr>
<tr>
<td><strong>Greek,</strong></td>
<td>9—12</td>
</tr>
<tr>
<td><strong>Solid Geometry</strong></td>
<td>2—5</td>
</tr>
<tr>
<td><strong>and Trigonometry,</strong></td>
<td></td>
</tr>
</tbody>
</table>

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 autumn examinations are held at Bryn Mawr College only.

†The February examinations are open to those candidates only that intend to enter the college at the half-year.
the examination, the entire examination must be repeated. To secure a certificate of admission to the college, the candidate must have attempted, and shown some knowledge of, all the fifteen sections included in the examination, and must have passed in at least eleven sections. Students who have not passed off all their entrance conditions within one year after entering the college are not permitted to take the full number of hours of college work, and must study with coaches approved by the department in which the condition was incurred.

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, will 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), 5305 Main Street, Germantown.
Edith Pettit, A.B., 2205 Trinity Place, Philadelphia.
Margaret Thomas Carey, A.B., (Mrs. Anthony Morris Carey), 335 East Ave Street, Baltimore.
Mildred Minton, A.B., 109 East 21st Street, New York City.
Alice Jones, A.B., Santa Monica, Los Angeles County, California.

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, 1899.
# Tabular Statement of the Examination for Matriculation

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

<table>
<thead>
<tr>
<th>Subject</th>
<th>Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mathematics</strong></td>
<td></td>
</tr>
<tr>
<td>Algebra</td>
<td>2</td>
</tr>
<tr>
<td>Plane Geometry</td>
<td>1</td>
</tr>
<tr>
<td><strong>Latin Grammar and Composition</strong></td>
<td>1</td>
</tr>
<tr>
<td>Sight reading in Latin prose</td>
<td>1</td>
</tr>
<tr>
<td>Sight reading in Latin poetry</td>
<td>1</td>
</tr>
<tr>
<td><strong>History</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>English</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Science</strong></td>
<td>1</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced Mathematics</strong></td>
<td></td>
</tr>
<tr>
<td>Solid Geometry,*†</td>
<td></td>
</tr>
<tr>
<td>Plane Trigonometry,†</td>
<td></td>
</tr>
<tr>
<td><strong>A fourth language</strong></td>
<td></td>
</tr>
<tr>
<td>French or German or Greek, whichever language was not included by the candidate in the above fifteen sections.</td>
<td></td>
</tr>
</tbody>
</table>

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 a course in Geometrical Conics as outlined on page 145 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*, *Epodes*, and *Carmen Sæculare*, except *Odes* i. 25, 27, 33, 36; ii. 5; iii. 6, 15, 20; iv. 1, 8, 10, 13; *Ep. 3*, 5, 8, 11, 12, 15, 17.

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. Solid Geometry and Trigonometry, the fourth language, or the minor course in Latin may not be substituted for any part of the fifteen sections.

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

The examination in Algebra will comprise 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 and there are questions testing the candidate's practical knowledge of grammar and prosody.

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 will be laid on an accurate and ready knowledge of grammatical forms. A knowledge of paradigms and parts of irregular verbs will be 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.

* If she fails in translation, she must repeat the grammar as well as the translation, but if she fails 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.

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 1899 candidates must be familiar with Chaucer's Knight's Tale; Shakespeare's Macbeth and As You Like It; Milton's L'Allegro, L'Allegro, 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 1900 candidates must be familiar with Chaucer's Knight's Tale; Shakespeare's Macbeth and As You Like It; Milton's L'Allegro, L'Allegro, 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, L'Allegro, 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; and Stevenson's Kidnapped.

The books agreed on for the years 1899, 1900, and 1901 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 examination 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 divisions 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 or Gage'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 Russell Hinman's *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 *Beginner's 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, faire, croire, and the typical verbs, conduire, crier, 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 will test 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 by the college 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, 1899.
BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

SCIENCE. (Counted as one section.)

SPRING, 1899.—Two Hours.

BOTANY.

1. Describe, preferably with a diagram, the parts of a grain of Indian corn.

2. What are the parts of a complete flower?

3. What is a spore? What is a seed?

4. What substances form the food of plants? How are they obtained by the plant?

5. What plants need light? What is the effect of darkness upon such plants?

6. What is transpiration? How is it regulated?

7. What parts of plants are capable of movement?

8. What conditions determine the presence of plant life upon the earth?

9. What is a natural classification of plants?
BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

SCIENCE. (Counted as one section.)

SPRING, 1899.—Two Hours.

CHEMISTRY.

1. Give examples of chemical elements and compounds. What is the difference between them? How can a compound be distinguished from a mixture?

2. Which is the most abundant element? Where is it found? What are its chief properties? In what natural changes is it constantly taking part? How can it be made in the laboratory?

3. Which elements are the chief constituents of plants and animals, and which make up three-quarters of the solid crust of the earth?

4. Describe a method for determining the composition of water. What are the impurities usually present in natural water? How can pure water be obtained?

5. What gases are present in the air? How can the percentage composition of the air be determined?

6. What are the characteristic properties of acids, bases and salts? Give examples of each class of substances.

7. Describe briefly the methods of obtaining hydrochloric acid, chlorine, sodium carbonate, and metallic sodium from common salt. Write the chemical equation wherever possible.

8. What are the laws of definite, multiple and reciprocal proportions? What is the law of gas volumes?

9. What is the hypothesis of Avogadro? How is it used in obtaining the molecular weights of substances?

10. How much iron can be obtained from 160 pounds of Ferric oxide, \( \text{Fe}_2 \text{O}_3 \)?  \( \text{Fe} = 56 \).  \( \text{O} = 16 \).
PHYSICS.

1. Define the simple pendulum, and give a full account of the nature of its motion. Why does its period not depend upon the mass of the bob?

2. Explain what is meant by the Principle of Archimedes, and show how the hydrometer is used in application of that principle.

3. What is Boyle's Law of Gases? How would you proceed to prove it experimentally?

4. Upon what does the velocity of propagation of sound depend? What is meant by wave-length? Explain how nodes are produced in a vibrating string or in an open organ-pipe.

5. What are the laws of reflection and refraction of light? Utilise them to account for the behaviour of light passing through a convex lens, and explain the use of such a lens as a reading-glass.

6. Explain what is meant by electrical potential, giving some analogies from other branches of Physics. Give a short account of the way in which resistance is defined and measured.

7. What are magnetic lines of force? Upon what do they depend? Sketch roughly their form for a bar magnet, and for two bar magnets with their north poles near each other.
PHYSICAL GEOGRAPHY.

1. What is the effect of the present inclination of the earth's axis? What would be the effect if the axis were perpendicular to the plane of the orbit? What if inclined 45°? What if parallel?

2. What two general laws govern the direction and determine the force of all atmospheric movements?
Discuss the constant and special movements of the atmosphere.

3. Distinguish between relative and absolute humidity. Under what conditions and in what forms does atmospheric moisture condense?

4. What causes determine the formation of lakes? Classify lake basins according to origin.

5. Give two theories to explain the formation of coral atolls.
What light has been thrown on these theories by recent borings in atolls off the coast of Australia?

6. Which portion of the American Continent is the older, and how do we determine its age?

7. What can you say as to the origin of continents and ocean basins?
1. Enumerate the principal organs of the abdominal cavity. What are their anatomical relations to one another?

2. General structure and action of muscle.

3. Function of the pancreas.

4. Describe the ear and tell what you know about the function of each part.

5. Explain briefly these words: Incisor, diaphragm, rectum, cerebellum, femur.

6. How is breathing carried on? To what purpose?

7. What substances should good "foods" contain? Must each "food" contain all of them?

8. Describe the blood and the way in which it is moved about in the body.
1. Resolve into factors
   (i.) 4 \( a^2 b^2 - (a^2 + b^2 - c^2)^2 \),
   (iii.) \( x^3 + y^3 + x + y \).

2. Simplify
   \[
   \frac{x + y}{1 - xy} \quad \frac{y + z}{1 - yz} \quad \frac{(x + y)(y + z)}{(1 - xy)(1 - yz)}
   \]
   Express as a single rational fraction in its lowest terms:
   \[
   \frac{1}{(a - b)^2} + \frac{1}{a - b} - \frac{1}{a + b} + \frac{1}{(a + b)^2}
   \]

3. Solve
   (i.) \[
   \frac{1}{a + b + x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}
   \]
   (ii.) \[
   \frac{a - x}{b - x} + \frac{b - x}{a - x} = \frac{10}{3}
   \]

4. Find the remainder after dividing \( a^n + b^n \) by \( a + b \),
   \( n \) being a positive integer. When is this remainder equal to zero?

5. Define ratio, proportion, and prove that if \( a : b :: c : d \)
   then \( a^2 + c^2 :: a^2 - c^2 :: b^2 + d^2 :: b^2 - d^2 \).
   Prove also that, if \( a : b :: b : c \), then
   \[
   (a - b)^2 (b + c)^2 = a c (a - c)^2.
   \]
6. The population of a town increases every year by 2 per cent. of the population at the beginning of the year. What was the population on 1st January, 1897, if the population on the 1st January of this year was 85,833?

7. What is the relation between \( a \) and \( b \) when \( x^4 + ax^2 - bx + a \) is divisible without remainder by \( x^2 - x + 1 \)?

8. Find the square root of

\[
4x^2 + 16x + 32 + 32x^{-1} + 16x^{-2}.
\]

9. Find the condition that the equation \( x^2 + px + q = 0 \) may have equal roots. For what values of \( a \) are the roots of \( 3x^2 + ax + \frac{4}{3} = 0 \) equal?
1. Define a plane. When are two planes said to be (i) parallel, (ii) perpendicular?
   Prove that if two intersecting planes are perpendicular to a third plane, their line of intersection is perpendicular to that plane.
   How many planes can there be through one point, such that every one is perpendicular to every other?

2. Define a tetrahedron.
   Prove that the planes which contain each an edge of a tetrahedron and the point of bisection of the opposite edge pass through one point. How many such planes are there?
   How many of the face angles of a tetrahedron can be right angles?

3. Find the volume of the frustum of a triangular pyramid, in terms of its altitude, and the areas of its bases. Give the corresponding result for a cone.

4. Define similar polyhedra.
   Prove that the volumes of similar polyhedra are in the ratio of the cubes of corresponding edges.
5. Prove that a right circular cone can be circumscribed to a sphere, and will touch it along the circumference of a circle whose plane is perpendicular to the axis of the cone.

6. State and prove the relation between the volume of a sphere and the volume of the circumscribing cylinder.

7. Find the volume of a hollow sphere, the radii of the two surfaces being 12 inches and 10 inches.
   With eight times the quantity of material to use in constructing a similar solid, what will the radii be?

8. Define a spherical triangle, and its polar triangle. State and prove the relations connecting the parts of the two triangles.
1. Define perpendicular straight lines.

Prove that if two straight lines are parallel, any line perpendicular to one of them is perpendicular to the other also.

Show how to draw a straight line that shall pass through a given point and be parallel to a given line.

2. Prove that if two triangles have two sides and the included angle of one equal to two sides and the included angle of the other, the triangles are equal in all respects.

Is this true if the words "side" and "angle" are interchanged?

3. Prove that triangles on equal bases and between the same parallels are equal in area.

The sides AB, AC of a triangle ABC are bisected in P, Q; prove that the area of the triangle PBC is twice the area of the triangle PQC.

4. Define equal arcs of a circle.

Prove that in the same circle equal arcs subtend equal chords, and equal angles at the circumference.

A circle is cut by a second circle, passing through its centre O, in points AB; any point P is taken on the part of
the circumference of the second circle that lies outside the first. Prove that PO bisects the angle APB.

5. Prove that in a circle the shorter of two chords is at the greater distance from the centre; and that of two chords the one at the greater distance from the centre is the shorter.

Given a circle, and a point inside it; show how to draw the longest and the shortest chord through the point.

Prove that if the area of a rectangle is given, the perimeter is least when the rectangle is a square.

6. Define similar figures.

Prove that two triangles are similar if their sides are proportional.

Is this true for quadrilaterals? Prove your answer.

7. Prove that the line that bisects a chord of a circle at right angles passes through the centre.

Apply this to prove that two chords of a circle cannot bisect one another unless both pass through the centre.

Hence show that no parallelogram other than a rectangle can be inscribed in a circle.

8. Prove that the line bisecting the vertical angle of a triangle divides the base into segments proportional to the sides.

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

Express the side of the square in terms of the radius of the circle.
Correct the following sentences, making the corrections as far as possible on the printed text:

1. I could not help but wish that there was the same application and endeavour to cultivate and improve our church music as have been lately bestowed on that of the stage.

2. She never afterwards swerved from her resolution not to see Rowland, a name associated in her mind with the tragedy of her life and who she both looked on as utterly heartless and wanting in principle.

3. If you think that if I was to ask him if he was guilty, he will confess it, I will gladly do so; but I fear that it would only lead to fresh prevarication and we will gain nothing.
4. No one, whatever they may say of the style of Richard Feverel, can deny but that it displays a vigour and originality of thought unequalled in any English novel, and which places its author in the forefront of modern writers.

5. He thanked the Committee for the honour it had done him, and said that it would always be his endeavour to deserve it, and that he was not only ready now but at all times to carry out their instructions whether they agreed with his views or not.

6. If I was to tell her that she had been entirely blameless in the affair, I would undo all that I have and will do for her future good.

7. He was surprised when she told him she would dine out and he must dine with his friends. This saved him from making an excuse to get away, and so he felt grateful and small at the same time, which was wholesome.

8. He is one of those who believes in letting every one do as they like, provided that they do not push it too far and consider others.
9. Not one of the least ills of poverty is that by depriving people of the power to help themselves they often lose their independence of spirit, and favours in their fall are courted that they would have scorned to accept if they had been offered in their day of prosperity.

10. Charmed by the gentle flow of his thought, by his lambent humor, and the playfulness of his fancy, he was placed by the writers of his own generation on a pedestal which posterity has acquiesced in.

11. The publication of the Hobhouse Memoirs is sure to be of interest to the readers of Byron, for they will contain not only matter hitherto unknown, which every lover of Byron must be grateful for, but Hobhouse having been the poet's life-long friend and possessed of his confidence, we may count on its throwing light on many obscure points of his life.

Punctuate (on the printed text) the following passage:

She thought of the dim forest with its little dell of solitude and love and anguish and the mossy tree trunk where sitting hand in hand they had mingled their sad and passionate talk with the melancholy murmur of the brook. How deeply had they known each other then and was this the man? She hardly knew him now. He moving proudly past enveloped as it were in the rich music with
the procession of majestic and venerable fathers he so unattainable in his worldly position and still more so in that far vista in his unsympathising thoughts through which she now beheld him. Her spirit sank with the idea that all must have been a delusion and that vividly as she had dreamed it there could be no real bond betwixt the clergyman and herself. And thus much of woman was there in Hester that she could scarcely forgive him least of all now when the heavy footstep of their approaching fate might be heard nearer nearer nearer for being able so completely to withdraw himself from their mutual world while she groped darkly and stretched forth her cold hands and found him not.

She sighed she looked up through the clear green sea
She said I must go for my kinsfolk pray
In the little gray church on the shore to day
Twill be Easter time in the world ah me
And I lose my poor soul Merman here with thee
I said go up dear heart through the waves
Say thy prayer and come back to the kind sea caves
She smiled she went up through the surf in the bay
Children dear was it yesterday

(25)
How far does the interest of Hawthorne's *House of the Seven Gables* centre in the old Pyncheon house and the legends gathered about it, and how far in the actors in the story? Discuss as fully as possible.

The composition must contain not less than sixty lines of foolscap, and must be correct in spelling, grammar, punctuation, paragraphing, and general arrangement.
GRECIAN HISTORY.
1. Trace the early migrations of the Thessalians, Ætolians and Dorians. Who were the Ionians?
2. Give the extent of the Persian Empire at the time of the Ionian Revolt, and describe the form of government. Why did Persia wish to conquer Greece?
3. When and for what purpose was the Confederation of Delos established? When and why was it dissolved? Mention five members of it.
4. Trace the career of Alcibiades from the time of the Sicilian expedition to the close of the Peloponnesian war.
5. Under what circumstances were the philippics of Demosthenes delivered?

ROMAN HISTORY.
1. What peoples occupied the peninsula of Italy during the earliest period of Roman history? Describe the territory and civilization of the Etruscans.
2. How was Rome governed during the time of the Republic? Explain particularly the organization and duties of the comitia tributa.
3. What were the causes of the war with Jugurtha, and when did it take place? What new territory was added to Rome in consequence of it?
4. Give a sketch of the career of Julius Cæsar. Why was he murdered?
5. Under Trajan the Roman Empire was at height of its power. Explain. Describe the literary life at this time, and the attitude of the government toward the Christians.
ENGLISH HISTORY.

1. How were the Anglo-Saxons governed? What was the importance of the hundred, the shire? Define folkland, bookland.

2. Characterize the reign of Stephen, and show why it is called a period of anarchy. Why did the Empress Matilda dispute Stephen's title to the throne, and how was the matter finally settled?

3. Give an account of the Reformation under Henry VIII. What is meant by the dissolution of the monasteries?


5. Explain the corn laws. Who was chiefly influential in effecting their repeal? When were the laws repealed?

AMERICAN HISTORY.

1. Up to the year 1650 what territory in America had been occupied by each of the following peoples: Swedes, French, English, Dutch, Spanish?
2. What were the Navigation Acts, the Stamp Act, the Tea tax? Why were these measures displeasing to the colonists?

3. In what respects did the Constitution of 1789 differ from the Articles of Confederation? How many amendments have there been to the Constitution? Mention four of the most important.

4. What were the chief causes of the war with Mexico? What territory was added to the United States in consequence of the war, and what by the Gadsden purchase?

5. Give the chief periods in the history of the Civil War. What campaign and what battles mark the turning point in the war? When was the Emancipation Proclamation issued?
When I was twelve years old I began to study the Latin language. I have learned that Caesar was born 102 B.C. In order to be happy a man needs only bread and water. How much did the house cost? Every one ought to be a friend to virtue and an enemy to vice. The general had an army of five legions; of these 1,500 men were killed in the battle and 500 in the flight. Do you envy your friend her beauty? If you rely on that you are content with little. It is better to benefit the poor than to enjoy the pleasures of wealth.

Manlius, in the Latin war, in order to restore military discipline, ordered that no one should leave his station to fight. By chance his son had approached the camp of the enemy. He who commanded the Latin cavalry, when he recognized the consul's son, said: "Will you fight with me, that the result may show how much a Latin horseman excels a Roman?" Forgetful of the general's order, the youth rushes to the conflict and slays the Latin. Having collected the spoils, he returns to his father. The consul at once summons the troops with the trumpet; then he addresses his son as follows: "Since thou, my son, hast not obeyed the order of the consul, it behooves you to restore discipline by punishment. Go, lictor, bind him to the stake." His head was then cut off by the lictor with an axe.

disciplina, statio, agnosce, eventus, praestare, vincire, palus.
1. Translate Justinus XXX. 3. After the death of their king, the Egyptians sent an embassy to Rome asking the Romans to take charge of their young prince and protect the kingdom against Philip, King of Macedon.


II. Translate either A or B.

A. Translate Cicero pro Caelio, 56 and 57. Caelius was accused of having poisoned a woman. Cicero comes now to that point.


B. Translate Cicero, post Reditum in Senatu, 29-30
Cicero recounts his obligations to Pompey.

Possum ego satis in Cn. Pompeium umquam gratus videri? qui non solum apud vos, qui omnes idem sentiebatis, sed etiam apud universum populum salutem populi Romani et conservatam per me et conjunctam esse cum mea dixerit; qui causam meam prudentibus commendaret, imperitos edocuerit eodemque tempore improbos auctoritate sua compresenterit, bonos excitaret; qui populum Romanum pro me tamquam pro fratre aut pro parente non solum hortatus sit, verum etiam obsecrarit; qui cum ipse propter metum dimicationis et sanguinis domo se teneret, iam a superioribus tribunis petierit, ut de salute mea et promulgaret et referrent; qui in colonia nuper constituenda cum ipse gereret magistratum, in qua nemo erat emptus intercessor, vim et crudelitatem privilegii auctoritatem honestissimorum hominum et publicis litteris consignavit princepsque Italiae totius praesidium ad mean

(32)
salutem inplorandum putarit; qui cum ipse mihi semper amicissimus fuisset, etiam ut suos necessarios mihi amicos redderet, elaborarit. Quibus autem officiis T. Anni beneficia remunerabor? cuius omnis ratio, cogitatio, totus denique tribunatus nihil aliud fuit nisi constans, perpetua, fortis, invicta defensio salutis meae. Quid de P. Sestio loquar? qui suam erga me benivolentiam et fidem non solum animi dolore, sed etiam corporis vulneribus ostendit.
EXAMINATION FOR MATRICULATION.

LATIN.  (Counted as three sections.)

THIRD SECTION: LATIN POETS.

Spring, 1899.—One and Three-Quarter Hours.

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

A.

1. Translate Phaedrus I, 1.


2. Explain the syntax of fauce, mihi, qui, nece, causis.

3. Translate Phaedrus I, 12.

Laudatis utiliora, quae contemptseris, saepe inveniri haec asserit narratio. Ad fontem cervus, cum bibisset, restitit et in liquore vidit effigiem suam. ibi dum ramosa mirans laudat cornua curumque nimiam tenuitatem vituperat, venantium subito vocibus conterritus

(34)
per campum fugere coepit et cursu levi
  canes elusit. silva tum exceptit ferum,
in qua retentis impeditus cornibus
lacerari coepit morsibus saevis canum.
tunc moriens vocem hanc edidisse dicitur:
  "o me infelicem! qui nunc demum intellego,
  utilia mihi quam fuerint, quae despexeram,
et, quae laudaram, quantum luctus habuerint."
  4. Explain the syntax of laudatis, utiliora, bibisset,
cursu, cornibus, me, fuerint.

B.
1. Translate Virgil, Aen., XII, 54-80.
(Queen Amata entreats Turnus not to engage the Trojans.)
  At regina, nova pugnae conterrita sorte,
  Flebat, et ardentem generum moritura tenebat:
  "Turne, per has ego te lacrimas, per siquis Amatae
  Tangit honos animum—spes tu nunc una, senectae
  Tu requies miserae; decus inperiumque Latini
  Te penes; in te omnis domus inclinata recumbit—
  Unum oro: desiste manum committere Teucris.
  Qui te cumque manent isto certamine casus,
  Et me, Turne, manent; simul haec invisa relinquam
  Lumina, nec generum Aenean captiva videbo."  
  Accepit vocem lacrimis Lavinia matris
  Flagrantis perfusa genas, cui plurimus ignem
  Subiecit rubor, et calefacta per ora cecurrit.
  Indum sanguineo veluti violaverit ostro
  Siquis ebur, aut mixta rubent ubi lilia multa
  Alba rosa: talis virgo dabat ore colores.
  Illum turbat amor, fitgiteque in virgine voltus.
  Ardet in arma magis, paucisque adfatur Amatam:
  "Ne, quaeo, ne me lacrimis, neve omine tanto
  Prosequere in duri certamina Martis euntem,
  O mater; neque enim Turno mora libera mortis.
  Nuntius haec Idmon Phrygig mea dicta tyranno
  Haud placitura refer: Cum primum erastina caelo
  Puniceis inventa rotis Aurora rubebit,
  Non Teucros agat in Rutulos, Teucrum arma quiescant.
  Et Rutuli: nostro dirimamus sanguine bellum;
  Illo quaeratur coniunx Lavinia campo."

(35)
2. Scan vv. 54-57, marking the principal caesura in each.

C.

(The losses of the Rutulians and Trojans. The Meeting of Mezentius and Aeneas.)

Iam gravis aequabat luctus et mutua Mavors Funera; caedebant pariter pariterque ruebant Victores victique; neque his fuga nota, neque illis. Di Iovis in tectis iram miserantur inanem Amborum, et tantos mortalibus esse labores; Hinc Venus, hinc contra spectat Saturnia Iuno, Pallida Tisiphone media inter milia saevit. At vero ingentem quatiens Mezentius hastam Turbidus ingreditur campo. Quam magnus Orion, Cum pedes incedit medii per maxuma Nerei Stagna viam scindens, humero supereminet undas, Aut summis referens annosam montibus ornun Ingrediturque solo et caput inter nubila condit: Talis se vastis infert Mezentius armis. Huic contra Aeneas, speculatus in agmine longo, Obvius ire parat. Manet inperterritus ille, Hostem magnanimum opperiens, et mole sua stat; Atque oculis spatium emensus, quantum satis hastae: "Dextra mihi deus et telum, quod missile libro, Nunc adsint! Voveo praedonis corpore raptis Indutum spoliiis ipsum te, Lause, tropaeum Aeneae." Dixit, stridentemque eminus hastam Iecit; at illa volans clipeo est excussa, proculque Egregium Antoren latus inter et ilia figit, Herculis Antoren comitem, qui missus ab Argis Haeserat Euandro, atque Itala consederat urbe.

2. Scan vv. 755-758, marking the principal caesura in each.
I. In the first prose passage, give the principal parts of μένειν, ἔκλεισε, ἔλεγεν, ἀπῆγγελεν, διαμᾶλλοντα. Rewrite the first clause in the second sentence, using δῆλον instead of δῆλος (l. 3). Decline ἄπαν in the singular (all genders), εἰδώς in the plural (all genders). Inflect ἔρη in its tense and voice. Turn the clause ἔρη . . ἔκλεισε (l. 5) into direct discourse. Explain the subjunctives ἔξελεγχόσι (l. 6), ἦ (l. 10).

II. Translate into Greek:

When Cyrus heard this, he immediately called an assembly of the generals that they might consult about the present situation. Accordingly all repaired to the tent of their commander in obedience to his order, though they suspected that he was making the expedition against the king. After they had entered and taken their seats, Cyrus spoke as follows, “If we are victorious in the battle, I promise to give each of your soldiers greater pay; and you yourselves know that, if you follow me, I will bestow wealth and honor upon you all.”
I. Translate:

"Ex toioyn dh taw logwv o Tissasaphronhis filouphonovmenov tote mew menein te auton exeleusis kai sundeiwn epoijwato. T'he otheia o Klearchos edhon eti to stratopotethion deilos t'yn panw filioivhs oivmenov diametisw taw Tissasaphroin, kai a elievan ekteinos apygeileven: ethi te chrinai Denpta para Tissasaphroin ovs exeleusis, kai o'yn exeleghidouna diaballonontes twn 'Ellhwn, ws prodoutas autous kai kakhovous tois 'Ellhshon otnas timwphignai. 'Upolpeuse de einai ton diaballonata Mewnna, eiddws auton kai souxegenevmenon Tissasaphroi meta' Ariaioin kai stasieizontas autupi kai epiboulevonta dpwv to strateteuma apan proes eaxnton laseion filoiv Tissasaphroin. 'Exouletu de kai o Klearchos apan to strateteuma proes eaxnton elxevn twn gnwpmh, kai tois paralupoointas expodov einai. Taw de stratwstovn antelleun ton teves autwp, m'h deinai pantas tois logaiovs kai stratmyvov, megde pipetwein Tissasaphroin.

II. Translate:

"Oli o' Athnaioi poliourovmenoi kata grh kai kata dbalataw ypotoyn tis chrh poiein, oute neov oute sumpaxovn autovhs otnov oute sivou 'enomyvou o' othomhain einai sotirhain to ton m' padein a o otmwrfomenoi epoijshen, alla da in h'nh h'nh aivropous mikroulita ovd' eti m' aitia etera h' oti ekteivos sunemhovn. Etei de pantelous yhen o sivov epieleiwv, opecwmen prsaitei par' 'Anon, boukolmenoi sumpaxovn einai Lazedaiumovnous elxontes te teixh kai ton Peirai, kai eti toioin sunvchias poieinai.
I. Translate:

"Ατρέίωνα δ' ἔπειτα χόλος λάβετο, αἵφα δ' ἄναστάς ἦπείλησεν μῶδον, δ' ἂν τετελεσμένος ἐστίν. τὴν μὲν γὰρ σὺν νῦν ὁδή ἐλίκωπες Ἀχαίων ἐν Χρύσην πέμπουσιν, ἄγουσι δὲ ὅρα ἄναχτε. τὴν δὲ νέον χλισίηθεν ἔβαιν κήρυκες ἀρνότης κούρην Βρισάθος, τὴν μοι δόσαν υἱὸς 'Αχαίων. ἀλλὰ σὺ, εἰ δύνασαι γε, περίσχει παιδός ἔτιον ἔλθονδι Θόλομπόνδι Διᾶ λίσατε, εἴ ποτε δὴ τι ἡ ἐπεὶ ἄνθρωπος χραδὴν Διὸς ἢ καὶ ἔργῳ, πολλάκην γὰρ σεο πατρὸς ἐνὶ μεγάροις ἄχουσα εὐγομένης, ὅτε ἐφησὺδα κελανεφεῖ Κρονίων ὁ ἂν ἀδανάτοιον ἀεικέα λοιγόν ἄρνον, ὅποτε μεν Ἰζυνόθισα 'Ολυμπίοι ἡθέλουν ἄλλοι, "Ἡρη τ' ὑδὲ Ποσειδᾶν καὶ Παλλᾶς 'Αθηνή, ἀλλὰ σὺ τῶν γ' ἐλθοῦσα, θεά, ὀπελόουσα δεσμῶν, ὅχι ἐκάθοχερον καλέσαν' ἐν μαχρὸν 'Ολυμπον, ὅπερ ἄφρεων καλένωσι; θεοῖ, ἄνδρες δὲ πάντες Αἰγαίων'· ὁ γὰρ αὐτὲ βῆς ὁ πατρὸς ἀμέτοιον· δεῖ βα παρὰ Κρονίωνι καθέσετο κίδεοι γαίων· τῶν καὶ ὀπέδεισαν μάχαρες θεοὶ οὐδὲ τ' ἐδήσαν. τῶν νόν μὲν μνήσασα παρέζεοι καὶ λαβὲ γοῦν.
II. Translate:

 dó filoi, óion óq tiavmázoun "Extopa óin
 aixmhtin t' emeai kai tharssaléon puleimistan'
 tò δ' aiei pára eis' ge theon, òq logon ariónu:
 kai nóv oì pára xeínos 'Aρης τρις ἄνδρι ἐνικώς.
 álla pros Tiwás tetraménoi aïen ópíssow
 eixete, meb de theois me neanémēn ífi mácheiatai.
 òws áp' éfē, Tiwés òe mála xhedon ἕλυθον αὐτῶν.
 éνθ' "Extop óδo φώte katéxtanen eidothe xármyis,
 eín én dífero énnte, Menēsūn 'Aγγιαλον te.

III. In the first passage scan lines 8, 9. Give the Attic for
the Homeric forms in lines 10, 11.
BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

FRENCH.  (Counted as three sections.)

Spring, 1899.—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 feminine form of gentil, cher, faux, décisif, paîen, égal, roux.

2. Give the masculine form of fidele, lyrique, publique, grossière, juive, intégre, légère.

3. Give the plural form of verrou, clou, lieu, feu, réveille-matin.

4. Put the following French sentence: J'ai acheté une belle cravate blanche. (a) in a plural form (putting subject, verb and object in the plural); (b) in a negative form; (c) in an interrogative form.

5. Give the first person singular and plural of the present subjunctive of suffire, bénir, faire, vouloir, oser.

6. Conjugate in full the imperative of vouloir, dire, venir, jeter, percer, coudre.

7. Give the first person singular of the preterite of lire, voir, boire, courir, obtenir, vouloir, faire, savoir, contraindre, moudre.

(41)
8. Give the first person singular and plural, of the future of faire, courir, pouvoir, obtenir, acquérir, vouloir, joindre, pourvoir, revoir, devoir.

9. Give the first person singular of the perfect indicative of s'en aller.

II. Translation.

1. Je ne sais quelle suggestion de hasard m'a fait entrer aujourd'hui à Saint-Sulpice, pendant la grand'messe. Depuis combien de temps n'avais-je pas passé le seuil d'une église que pour des mariages ou des enterrements où mille préoccupations étrangères vous suivent?

Ce culte est vraiment un beau spectacle, qui ne s'impose pas seulement par la magnificence du décor et la pompe de la cérémonie, mais par le monde d'idées dont vous y êtes assailli. Les cierges, l'encens, la grande voix de l'orgue, les chants du chœur et la psalmodie du prêtre répandent dans votre âme un trouble qu'augmente encore la contagieuse de la foule agenouillée.... Entré en indifférent, curieux de renouveler une impression oubliée, je l'ai trouvée plus forte que je n'aurais cru, et tout autre: ce fut d'abord comme un effroi mystérieux qui se changeait en étourdissement, un vertige confondant les têtes, une exaltation qui montait avec les cantiques; puis, le vertige et l'effroi tombèrent, les têtes cessèrent de tourner, et il me sembla qu'au lieu d'osciller comme battu par des vents contraires, je me trouvais sur un point fixe, sur un abri d'une solide certitude. ... Autour, roule le monde, avec ses chimères, ses caprices, ses tempêtes: la puissance des états s'effrite comme de vieux murs, les formes des sociétés changent, les grands hommes disparaissent dans l'oubli, ou les révolutions renversent leurs statues, la violence défait l'œuvre de la violence dans une incessante succession de fins et de renouvellements; seule l'Eglise reste debout, immuable,—fixée par la volonté des hommes ou de Dieu, qu'importe?

Edourd Rod.
2. Les seigneurs avaient le droit de chasser; de traverser les moissons, de ravager les récoltes dans toutes les saisons; et le paysan qui tuait une seule pièce de gibier, même sur son propre champ, risquait les galères.

Le seigneur et l’abbaye avaient aussi le droit de troupeau à part, ce qui signifiait que leur bétail allait à la pâture une heure avant celui du village. Le bétail du paysan n’avait donc que le reste et déperissait.

La ferme du seigneur ou de l’abbaye avait de plus le droit de colombier; ses pigeons innombrables couvraient les champs. Il fallait semer double chanvre, double pois, pour espérer une récolte.

Après cela, chaque père de famille devait au seigneur, dans le cours de l’an, quinze mesures d’avoine, dix poulets, vingt quatre œufs. Il lui devait pour son compte trois journées de travail, trois pour chacun de ses fils ou domestiques, et trois par cheval ou chariot. Il lui devait de faucher sa prairie autour du château, de faner son foin et de le charroyer à sa grange au premier son de la cloche, sous peine de cinq sous d’amende pour chaque défaillance. Il lui devait aussi le transport des pierres et du bois nécessaires aux réparations de la ferme ou du château. Le seigneur le nourrissait d’un croustillon de pain et d’une gousse d’ail par journée de travail.

Eckmann-Chatrian.

3. Dans la correspondance de Mme. de Sévigné, ce qu’il y a de plus intéressant, c’est elle. Il faut donc chercher d’abord à la connaître d’après ce qu’elle dit, ou ce qu’on lui dit. Nous possédons près de quinze cents lettres qu’elle a écrites ou reçues: c’est plus qu’il ne faut pour qu’on l’y découvre tout entière. Il est bien vraisemblable qu’une femme qui a tant écrit, quand elle serait mystérieuse et dissimulée, ce qui n’est certes pas le défaut de Mme. de Sévigné, doit avoir laissé échapper tous ses secrets.

Gaston Boissier.
LES YEUX.

4. Bleus ou noirs, tous aimés, tous beaux,
Des yeux sans nombre ont vu l’aurore;
Ils dorment au fond des tombeaux,
Et le soleil se lève encore.

Les nuits, plus douces que les jours,
Ont enchanté des yeux sans nombre;
Les étoiles brillent toujours,
Et les yeux se sont remplis d’ombre.

Oh! qu’ils aient perdu le regard,
Non, non, cela n’est pas possible!
Ils se sont tournés quelque part
Vers ce qu’on nomme l’invisible;

Et comme les astres penchants
Nous quittent, mais au ciel demeurent,
Les prunelles ont leurs couchants
Mais il n’est pas vrai qu’elles meurent.

Bleus ou noirs, tous aimés, tous beaux,
Ouverts à quelque immense aurore,
De l’autre côté des tombeaux
Les yeux qu’on ferme voient encore.

_Sully Prudhomme._
BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

GERMAN. (Counted as three sections.)

Spring, 1899.—Three Hours.

I. Grammar.

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

- Axt (f.) Qual (f.)
- Fach (n.) Schuh (m.)
- Garten (m.) Soldat (m.)
- Geschoss (n.) Staat (m.)
- Herr (m.) Stadt (f.)
- Mann (m.) Stätte (f.)

2. Decline "Das abgeerntete Feld" and "Ein abgeerntetes Feld."

3. Give the third person singular of (1) the present indicative, (2) the preterit, (3) the preterit subjunctive, also (4) the past participle of the following verbs:

- absetzen sterben
- aussteigen unterschlagen
- betrügen verabreichen
- eintreten verbergen
- entfliehen vorenthalten
- erschrecken zerschellen
- leiden zurufen
- schneien wissen

(45)
II.—TRANSLATION.

I.


(Eichendorff.)

II.

Er hatte schon fast die Moselbrücke wieder erreicht, als ihm ein Herr begegnete, der ihn, als er ihn fast erreicht, scharf fixierte und etwas erstaunt schien; Fritz achtete allerdings nicht auf ihn und wollte vorüber gehen, als der Fremde auf ihn zutrat, ihm die Hand auf die Schulter legte und ausrief:

"Bist du's denn wirklich oder bist du's nicht?"

Fritz, eben nicht besonders guter Laune, warf nur einen raschen Blick auf den Fremden und knurrte dann ärgerlich:

"Lassen Sie mich!—ich bin's nicht."—Und damit schritt er weiter.

"Aber das ist ja gar nicht möglich!" rief jener hinter ihm drein: Wladimir?

Bei dem Namen zuckte Fritz zusammen: Wladimir?—er blieb fast unwillkürlich stehen.

Nun, ich wusste doch, dass ich mich nicht geirrt haben konnte; sage mir nur, Mensch, wie kommst du jetzt noch.
nach dem Vorgefallenen in Ems, hierher in die preussische Festung? Bist du denn wahnsinnig?"

Fritz hatte sich umgedreht und sah ihn starr und aufmerksam an; der andere mochte aber doch jetzt wohl, da er ihn genauer betrachtete, etwas Fremdes in seinen Zügen entdeckt haben, denn er war wieder zweifelhaft geworden.

"Was wünschen Sie eigentlich?" fragte Fritz ruhig.—

"Habe ich Ihnen nicht eben gesagt, dass ich es nicht bin?"

"Gut, mein Herr!" sagte der Fremde verdutzt; "es ist möglich, dass Sie es wirklich nicht sind; wenn aber doch, so erlauben Sie mir, Ihnen mitzuteilen, dass Sie mit einem Gesicht hier spazieren gehen, hinter dem ein Steckbrief erlassen ist, und Sie also eine sehr gefährliche Ähnlichkeit mit einer dritten Person haben.—"

"Die Wladimir heisst?"

"Allerdings!"

(Gerstäcker.)

III.

Oh, da ist er ja!

Mit diesen Worten Urbans wurde Franz empfangen, als er das Haus in der Nachbarstrasse betreten hatte. Die ganze Familie war im grossen Balkonzimmer versammelt, dessen Krystallkrone (chandelier) im Lichterglanze funkelte. An jedem ersten Mittwoch im Monat während der Winterzeit pflegte Frau Urban ihrer Tochter wegen eine kleine Gesellschaft zu geben. Die heutige war die erste, seitdem sie ihren Witwenstand aufgegeben hatte. An solchen Abenden wurden nur der Familie nahestehende Personen eingeladen, unter denen selbstverständlich die jungen Männer nicht fehlen durften. Es wurde musiziert, gesungen, ein kleiner Scherz arrangiert; man ass und trank gut (eine Beschäftigung, die gewöhnlich am längsten ausgedehnt wurde), klatschte ein wenig, verabredete grössere gesellschaftliche Zusammenkünfte, wagte zum Schluss ein kleines Tänzchen und trennte sich erst nach Mitternacht mit der gegenseitigen Versicherung.
seit langer Zeit ein derartiges Amüsement nicht genossen zu haben — eine Redensart, die jeder so nachdrücklich äusserte, als wollte er das Recht ihrer Erfindung für sich in Anspruch nehmen.

Kretzer.

IV.

MORGENFAHRT.

Wie morgenstill die weite Welt!
   Die Nacht ist kaum vergangen;
Noch liegen Berg und Fluss und Feld
   Vom Nebel dicht umhangen.
Ich hab' mich auf's Verdeck gesetzt,
   Der Stunde zu geniessen,
Obwol noch oft sich, feucht benetzt,
   Die müden Augen schliessen.
Dazwischen dampft der wilde Schlot,¹
   Die Schaufelräder ² rasen,
Und lustig in das Morgenrot
   Vom Land die Wächter blasen.

(Bern.)

¹Schlot=funnel.
²Schaufelräder=paddles.
1. Find the value of
   \[ a^2 + b^2 + c^2 + 2bc + 2\, c\, a + 2\, a\, b \]
   when \( a = y - z, b = z - x, c = x - y. \)

2. An open cistern is 6 ft. 4 in. wide, 10 ft. 6 in. long, 5 ft. 9 in. deep. Find the cost of lining it with sheet lead at 36 cents per square foot.

3. Solve
   (i.) \[ \frac{x + 1}{x - 1} - \frac{x - 2}{x + 2} = 6 \]
   (ii.) \[ x + y = \frac{7}{4}, \]
   \[ 4\, x^2 + y^2 = 10. \]

4. Prove that a quadratic equation cannot have more than two roots. If \( \alpha \) and \( \beta \) are the roots of the quadratic equation
   \[ ax^2 + bx + c = 0, \]
   prove that \( \alpha + \beta = -\frac{b}{a} \) and \( \alpha\beta = \frac{c}{a}. \) Also prove that the equation whose roots are \( \frac{\alpha}{\beta}, \frac{\beta}{\alpha} \) is \( aex^2 + (2\, ac - b^2)\, x + ac = 0. \)

5. Solve the equations
   \[ \begin{align*}
   x^3 + y^3 &= 9, \\
   x + y &= 3
   \end{align*} \]
6. Prove that when several fractions are equal, each of them is equal to the sum of all the numerators divided by the sum of all the denominators, provided each of these sums differs from zero.

Define ratio and determine which of the ratios \( a : b \) or \( a + x : b + x \) is the greater, all the quantities being positive.

7. Two casks, \( A \) and \( B \), contain mixtures of wine and water, \( A \) in the ratio of 8 : 3 and \( B \) in the ratio of 5 : 1. In what ratio must liquid be drawn from each cask to give a mixture in the ratio of 4 : 1?

8. Investigate a formula for the sum of any number of quantities in arithmetical progression. Find the sum of 11, 10\(\frac{1}{3} \), 9\(\frac{2}{3} \), \ldots to 33 terms.

9. If \( a : b :: b : c \), show that (i.) \( a - b : b - c :: b : c \), (ii.) \( a : c :: a^2 + b^2 : b^2 + c^2 \).
1. Define parallel straight lines. 
Prove that if two parallel straight lines are cut by a third straight line, the sum of the interior angles on one side of the cutting line is equal to two right angles.

2. Prove that if two triangles have the three sides of the one equal to the three sides of the other, the three angles of the one are equal to the three angles of the other.
Is this true if the words "side" and "angle" are interchanged?

3. Prove that triangles on the same base and between the same parallels are equal in area.
On the sides BC, CD of a parallelogram ABCD points P, Q are taken such that PQ is parallel to BD. Prove that the triangles ABP, ADQ are equal in area.

4. Define a circle.
Prove that a radius perpendicular to a chord of a circle bisects the chord.
Equal chords of a circle whose centre is C intersect at E. Prove that CE bisects the angle formed by the chords.

5. Prove that if through a fixed point within a circle two chords are drawn, the product of the two segments of one is equal to the product of the two segments of the other.
Apply this to the case of a diameter and a chord perpendicular to it.

[over.]
Prove that if the perimeter of a rectangle is given, the area is greatest when the rectangle is a square.

6. Prove that in two similar triangles corresponding altitudes have the same ratio as any two corresponding sides.
   Hence prove that the areas of similar triangles are proportional to the squares of corresponding sides.

7. Show how to draw tangents to a circle from a given external point, proving that two such tangents can be drawn, and that they will be equal in length.
   Prove that the line joining the point to the centre of the circle bisects the angle between the tangents.
   Apply this to show that no parallelogram other than a rhombus can be circumscribed to a circle.

8. Prove that the angle in a semi-circle is a right angle.
   Show how to draw through two given points two parallel lines at a given distance apart.

9. Prove that the square described on the hypothenuse of a right-angled triangle is equal to the sum of the squares described on the sides.
   Represent accurately, in one diagram, four lines whose lengths shall be that of a given unit $\times \sqrt{2}$, $\sqrt{3}$, 2, $\sqrt{5}$. 
I. She told me that she had lived for six years in Pennsylvania, and for three months in Philadelphia; that she had come hither to learn Latin, and that she needed many books to study it with. I asked her how much these books cost. "The city," she replied, "is full of old ones, so I can buy them for less than I could buy new ones." She consulted me about her work, and I persuaded her to work less and think more. How many of your friends have you seen this month? Are they all of great beauty? Do they present you with pretty things and ask you for gifts too? And when you see these gifts, do you enjoy them? Many people envy you, I know, but you can rely upon the friendship of a few.

II. Hannibal was once besieging a Roman city. The inhabitants had no food; therefore a Roman general who was not far distant filled many jars with corn, and threw them into the river which flowed beside the city. He also sent a messenger to say: "Take up the jars which the river is bringing down." The following night the jars were brought down by the river. The corn was equally divided among all the inhabitants; the same thing was done the next day. Hannibal, having detected the affair, threw chains across the river, and intercepted the jars. Then the Romans threw nuts into the river, which were carried down to the city, and taken up by the inhabitants with baskets. By this provision their want was lessened.

1 incola. 2 urna. 3 frumentum. 4 dividó. 5 res. 6 nux. 7 corbis.

Postquam nulla condicione cogere adversarios poterat, ut in aqueum locum descenderent legionumque periculum facerent, neque ipse propius hostem castra ponere propter aquae penuriam se posse animadvertbat, adversarios non virtute eorum confidere, sed aquarum inopia fretos despicere se intellexit, II Non Apr. tertia vigilia egressus ab Aggar, XVI milia nocte progressus, ad Thapsum, ubi Vergilius cum grandi praesidio praecerat, castra ponit oppidumque eo die circummuniire coepit locaque idonea opportunaque complura praesidiis occupare, hostes ne intrare ad se ac loca interiora capere possent. Scipio interim cognitis Caesaris consiliis ad necessitatem adductus dimicandi, ne per summum dedecns fidissimos suis rebus Thapsitanos et Vergilium amitteret, confestim Caesarem per superiora loca consecutus milia passum VIII a Thapsobinis castris consedit.

Erat stagnun salinarum, inter quod et mare angustiae quaedam non amplius mille et D passus intererant; quas Scipio intrare et Thapsitanis auxilium ferre conabatur. Quod futurum Caesarem non fefellerat. Namque pridie in eo loco castello munito ibique III legionum praesidio relicto ipse cum reliquis copiis Thapsum operibus circummuniit.

II. Translate either A or B.

A. Translate Livy II., XII., 9-14. Scaevola’s reply to King Porsena.

“Romanus sum” inquit “civis, C. Mucium vocant. Hostis hostem occidere volui, nec ad mortem minus animi... [OVER.]
est quam fuit ad caedem: et facere et pati fortia Romanum est. Nec unus in te ego hos animos gessi; longus post me ordo est idem potentium decus. Proinde in hoc discrimine, si iuvat, accingere, ut in singulas horas capite dimices tuo, ferrum hostemque in vestibulo habeas regiae. Hoc tibi iuventus Romana indicimus bellum. Nullam aciem, nullum proelium timueris; uni tibi et cum singulis res erit.” Cum rex simul ira infensus periculoque conterritus circumdari ignis minitabundus iuberet, nisi expromeret propere, quas insidiarum sibi minas per ambages iaceret, “en tibi ” inquit, “ut sentias, quam vile corpus sit iis, qui magnam gloriam vident;” dextramque acceso ad sacrificium foculo inicet. Quam cum velut alienato ab sensu torreret animo, prope attonitus miraculo rex cum ab sede sua prosiluisset, amoverique ab altaribus iuvenem iussisset, “tu vero abi” inquit, “in te magis quam in me hostilia ausus. Iuberem macte virtute esse, si pro mea patria ista virtus stare: nunc iure belli liberum te intactum inviolatumque hinc dimitto.”

B. Translate Cicero Verr. IV., 32. How Pamphilus saved his goblets.

EXAMINATION FOR MATRICULATION

LATIN.  (Counted as three sections.)

THIRD SECTION: LATIN POETS.

Autumn, 1899.—One and Three-Quarter Hours.

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

A.

1. Translate Phaedrus, II., 8 (?).
   Muli gravati sarcinis ibant duo:
   unus ferebat fiscos cum pecunia,
   alter tumentes multo saccos hordeo.
   ille onere dives celsas it cervice eminens
   clarumque collo lactans tintinnabulum,
   comes quieto sequitur et placido gradu.
   subito latrones ex insidiis adyolant
   interque caedem ferro mulum sauciant,
   diripiant nummos, neglegunt vile hordeum.
   spoliatus igitur casus cum fieret suos:
   "equidem" inquit alter "me contemptum gaudeo,
   nam nil amisi nec sum laesus vulnere."
   Hoc argumento tuta est homium tenuitas;
   magnae periclo sunt opes obnoxiae.

2. Explain the syntax of service, fieret, me, argumento, periclo.

3. Translate Phaedrus, V., 2.
   Duo cum incidissent in latronem milites,
   unus profugit, alter autem restitit
   et vindicavit sese forti dextera;
   latrone occiso timidus accurrit comes
   stringitque gladium, dein reiecta paenula:
   "cedo" inquit "illum: iam curabo sentiat
   quos adtemptarit." tunc qui depugnaverat:
“vellem istis verbis saltem adiuvisses modo;
constantior fuissem vera existimans.
nunc condite ferrum et linguam pariter futilem,
us possis alios ignorantes fallere.
ego, qui sum expertus, quantis fugias viribus,
scio quam virtutis non sit credendum tuae.”
Illi adsignari debet haec narratio,
qui re secunda fortis est, dubia fugax.

4. Explain the syntax of incidissent, latrone, sentiat, adtemptarit, adiuvisses, possis, virtuti.

B.

Ascanius, after making a vow to Jupiter, kills Remulus.

Talia iactantem dictis ac dira canentem
Non tulit Ascanius; nervoque obversus equino
Contendit telum, diversaque bracchia ducens
Constitit, ante Iovem supplex per vota precatus:
“Iuppiter omnipotens, audacibus adnue coeptis.
Ipse tibi ad tua templola feram sollemnia dona,
Et statuam ante aras aurata fronte iuvencum
Candentem pariterque caput cum matre ferentem,
Iam cornu petat et pedibus qui spargat arenam.”
Audiit et caeli Genitor de parte serena
Intonuit laevum; sonat una fatiier arcus.
Effugit horrendum stridens adducta sagitta,
Perque caput Remuli venit et cava tempora ferro
Traiect. I, verbis virtutem inlude superbis!
Bis capti Phryges haec Rutulis responsa remittunt.
Hoc tantum Ascanius; Tecri clamore sequuntur
Laetitiaque fremunt animosque ad sidera tollunt.
Aetheria tum forte plaga crinitus Apollo
Desuper Ausonias acies urbenque videbat,
Nube sedens, atque his victorem adfatur Iulum:
Macte nova virtute, puer; sic itur ad astra,
Dis genite et geniture deos. Iure omnia bella
Gente sub Assaraci fato ventura resident;
Nec te Troia capiti.
2. Scan vv. 621-624, marking the principal caesura in each.

C.

Aeneas and Tarchon raise funreal pyres and burn the bodies of their friends.

Aurora interea miseris mortalibus almam
Extulerat lucem, referens opera atque labores:
Iam pater Aeneas, iam curvo in litore Tarchon
Constituere pyras. Huc corpora quisque suorum
185
More tulere patrum; subiectisque ignibus atris
Conditur in tenebras altum caligine caelum.
Ter circum accensos cineti fulgentibus armis
Decurrere rogos, ter maestum funeris ignem
Lustravere in equis, ululatusque ore dedere.
190
Spargitur et tellus lacrimis, sparguntur et arma.
It caelo clamorque virum clangorque tubarum.
Hinc alii spolia occisis derepta Latinis
Coniiciunt igni, galeas ensesque decoros
Frenaque ferventisque rotas; pars munera nota,
195
Ipsorum clipeos et non felicia tela.
Multa boum circa mactantur corpora morti,
Saetigerosque sus raptasque ex omnibus agris
In flammam iugulant pecudes. Tum litore toto
Ardentis spectant socios, seminustaque servant
200
Busta, neque avelli possunt, nox humida donee
Invertit caelum stellis ardentibus aptum.

2. Scan vv. 182-185, marking the principal caesura in each.
GREEK HISTORY.

1. Outline briefly the constitution of Sparta as established by Lycurgus. Were any changes made later in this constitution? What were the functions of the Ephors? What the Gerousia?

2. Give an account of the circumstances leading to the battle of Salamis. When was the battle fought?

3. What parts were taken by Alcibiades, Tissaphernes, Callicratidas, and Lysander in the third period of the Peloponnesian War?

4. What war was brought to an end by the peace of Antalcidas? Give a brief account of this war.

5. When was the period of the Theban supremacy? What was the importance of the battles of Leuctra and Mantinea?

ROMAN HISTORY.

1. Why are the stories and legends of early Roman history not to be accepted as reliable? What are the most reliable sources of information?
2. Trace the territorial growth of Rome from the sack of the city by the Gauls to the close of the war with Pyrrhus.

3. What was the cause of the second Macedonian War? Give the terms of the peace which followed the battle of Cynocephalae.

4. Trace the course of Pompey’s career from the war of the Gladiators to the first triumvirate (73-60 B. C.).

5. What troubles arose between Rome and the Gallic and German tribes between 110 B. C. and 10 A. D.? How much of German territory became a part of the Empire during this period?
ENGLISH HISTORY.

1. Give the circumstances under which Magna Carta was drawn up and signed. Why is the document so important?

2. Give a brief outline of the chief phases of the Hundred Years' War. Note especially the share of Henry V. in the war. What was the final result?

3. What form did the Government of England take from 1653 to 1660? Why was Charles II. restored to the throne?


5. What was the Catholic Emancipation Act and during whose ministry was it passed?

AMERICAN HISTORY.

1. When and under what circumstances did the Dutch settle in America? How long were they in control of New York?

2. What was the object of the Stamp Act Congress? When was it called and what did it accomplish?

3. In what ways did the Articles of Confederation prove to be a failure? When were they drawn up, by what body, and how long were they in force?

4. Give the causes of the War of 1812, explaining particularly the Embargo and the Non-Intercourse Act.

5. What was the Missouri Compromise? When was it passed and under what circumstances was it repealed?
(a) Compare the picture of a young girl and her surroundings given by Keats in *The Eve of St. Agnes* with that given by Coleridge in *Christabel*, stating which seems to you the more interesting and suggestive. Illustrate as fully as possible.

(b) Give a brief account of the qualities that Carlyle believes the most essential for a poet, in so far as such an account may be collected from the *Essay on Burns*.

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

1. He argued that if it was admitted that women were as capable of holding public office as men, it would only be just that they should be given the same education if they were to successfully compete with them.

2. Although Poe's delicacy of imagination is inferior to Hawthorne, I cannot help but think that it is far more solid, and that his power of giving plausibility to the wildest inventions exceeds not only any writer of his day but is hardly inferior to Defoe, if at all.

3. I will be glad to help you in this matter and would have offered to have done so earlier, but shy and unwilling to intrude, it seemed to me you did not want to be helped and so did not offer it, which I now see was a mistake.
4. Bare ground is not so apt to draw frost as it would otherwise.

5. We will often hear it said that, of the two qualities, it is worse to be ill-natured than indiscreet. But I cannot help but believe that an indiscreet man does as much if not more harm than an ill-natured one; for while the latter will only attack his enemies and those he wishes ill to, both friends and foes indifferently are injured by the other.

6. In this unhappy affair I will never know whether I ought to have kept silent or not, for if I had not spoken I would have been forced to have implicated others—a thing I never have and I hope I never will do, yet not to have spoken seems to me equally as bad.

7. The inquiry shewed how right General Miles had been in his statements about the supplies, and that the public was justified in their demands for a thorough investigation of the case.
8. This pessimism of Leopardi's not only lowers, in Arnold's eyes, his moral worth, but because of it he is just neither to the deep feeling or beauty of style that characterise his verse.

9. Like Huxley his belief in the survival of the fittest often made him seem hard and cruel, for he appeared to think the poor and weak were rightly downtrodden by them.

10. His health began to fail in 1819 and his Doctor pronounced it consumption—a cruel blow to a man who, like Keats did, felt within himself powers which he neither had or could now ever fully shew to the world.

11. Burns then settled down, marrying Jean Armour at Ellisland, in Dumfriesshire, on a small farm and a post in the Excise, which, when his farming failed and he moved to Dumfries, itself became his only means of support.
Punctuate (on the printed text) the following passage:

It is common to hear the depreciators of State action run through a string of ministers names and then say Here is really your State would you accept the action of these men as your own representative action In what respect is their judgment on national affairs likely to be any better than that of the rest of the world In the first place I answer Even supposing them to be originally no better or wiser than the rest of the world they have two great advantages from their position access to almost boundless means of information and the enlargement of mind which the habit of dealing with great affairs tends to produce Their position itself therefore if they are men of only average honesty and capacity tends to give them a fitness for acting on behalf of the nation superior to that of other men of equal honesty and capacity who are not in the same position.

Have the goodness to write Jane under my dictation said Sir Pitt rising and throwing himself into an attitude of command like The Portrait of a Gentleman in the Exhibition and begin Queens Crawley September 14 1822 My dear brother

Hearing these decisive and terrible words Lady Macbeth who had been waiting for a sign of weakness or vacillation on the part of her son in law rose and with a scared look left the library Lady Jane looked up to her husband as if she would fain follow and soothe her mamma but Pitt forbade his wife to move
PHYSICS.

1. How are velocities compounded? Find the resultant of 2 velocities, one of which is 5 miles an hour north, and the other 3 feet per second east. Explain carefully what is meant by acceleration. How are accelerations compounded?

2. Tell in your own words, what is implied in the second law of motion. Express it in a mathematical formula. Deduce from it the unit of force.

3. What are the characteristic properties of liquids? Explain the action of the siphon, giving an account of the principles involved in its action.

4. How is a thermometer made and graduated? What laws does the expansion of a liquid like mercury obey? What is meant by the absolute zero of temperature?

5. Discuss the action of a current of electricity upon a magnet, giving a short sketch of the galvanometer as an instrument for measuring currents.

6. Explain what is taking place in a medium conveying waves of sound. Account for the phenomenon of resonance.

7. Find the position and magnitude of the image of an object placed before a concave mirror. What is meant by the focus of a mirror?
1. What is the composition of water, by volume and by weight? How can water be separated into its components, and how can it be made from them?

2. Starting with free sulphur, how would you prepare the following sulphur compounds: hydrogen sulphide, sulphur dioxide, sulphuric acid?

3. What is an acid? Write out equations illustrating the reactions between
   (1) an acid and a base,
   (2) an acid and a metal,
   (3) an acid and a salt.

4. How is phosphorus obtained? Give sources for phosphorus compounds, method employed for isolating the element, reactions involved, and method of keeping it.

5. How would you prove that charcoal, graphite and diamond are modifications of the same element?

6. What are the properties of metallic potassium? What are the most important potassium compounds? How could you make potassium hydroxide from potassium? How could you make it from potassium carbonate?
7. What is the formula for quick lime? How is it obtained? What is "slaking" lime? What chemical change takes place when mortar hardens?

8. How does silver occur in nature? What is "sterling" silver? What is "german silver"? What is an alloy?

9. Complete the following equations:
   \[
   \begin{align*}
   \text{MnO}_2 & + \text{HCl} \\
   \text{BaO}_2 & + \text{H}_2\text{SO}_4 \\
   \text{Fe} & + \text{H}_2\text{SO}_4 \\
   \text{CaCO}_3 & + \text{HCl}
   \end{align*}
   \]

10. How many grains of sulphur dioxide would be obtained by burning 160 grams of sulphur? \( S = 32 \quad O = 16. \)
BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

SCIENCE.  (Counted as one section.)

AUTUMN, 1899.—Two Hours.

BOTANY.

1. What is the function of leaves?  Of tubers?

2. Describe the structure and germination of the bean, and of Indian corn.

3. In what parts of the green plant is chlorophyll found? What is its function?

4. In what different ways is pollen carried from one flower to another?

5. What are fibro-vascular bundles? What is their use?

6. What is the cambium? What does it do?

7. Describe a mushroom. To what class of plants does it belong?

8. From what sources do green plants derive their food?
1. Describe the movements and changes of a piece of bread and butter when eaten.

2. Structure and function of bone. Name three kinds of bone with examples.

3. Structure and action of the heart. Do not describe the blood nor the vessels, except those lying close to the heart.

4. Structure of the eye. What is the function of each part, and how does it act? Do not enumerate the layers of the retina.

5. What is the structure of a nerve? What is meant by "sensory" and "motor" nerves? Are any nerves both?

6. Distinction between "tissues" and "organs."

7. Describe the kidneys and explain their action.

8. Explain briefly these words: Duodenum, dura mater, Eustachian tube, Peritoneum, medulla oblongata.
1. What has been the history of the crust of the earth, and what changes is it now undergoing?

2. How is the crust of the earth affected by the two outer envelopes of the earth? How by the interior nucleus?

3. Discuss three conditions determining the formation of valleys. How may the age of a valley be determined from its shape?

4. Do rivers ever alter their courses, and if so, why?

5. What are the effects of glacial action in America, and where can they be seen?

6. What is the nature and the final history of the deposits of the sea?

7. Why are there temperature zones, and why do not isotherms and parallels coincide?
BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION.

GREEK. (Counted as three sections.)

FIRST SECTION: GRAMMAR AND COMPOSITION.

Autumn, 1899.

(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 first prose passage give the principal parts of κατέκαυσαν, καλεσάμενος, διάγων, ὁρφην, ἐδοξέων. Decline ὅτου (all numbers and genders), εὖσον. Explain the mood of ὁρφην, δέοτο, δυνάμεθα, ἀποκλώῃ. Inflect ὁρφην in its tense and voice. Turn the sentence εἰ ὦ ὄν to oratio obliqua after an ἔφη to be supplied.

II. Translate into Greek:

As they now perceived that it was impossible to return against the will of the king, they resolved to send messengers to ask him what he purposed to do. Five men were chosen to perform this task and all thought they would be killed when they appeared before Artaxerxes. After a journey of three days they entered the country of the Persians and proceeded with all swiftness to the camp of the king, by whom they were received in a friendly manner. "If I had known of your plan," said the monarch, "I would have sent guides to conduct you hither.
Examination for matriculation.

Greek. (Counted as three sections.)

Second section: Prose Authors.

Autumn, 1899.

(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:

Τούτων λεχθέντων ἀνέστησαν, καὶ ἀπελθόντες κατέκαιναν τὰς ἀμάξας καὶ τὰς σκηνάς· τῶν δὲ περιττῶν ὅτων μὲν ἄθικτο τις μετεδίδοσαν ἄλληλοι, τὰ δὲ ἄλλα εἰς τὸ πῦρ ἐρρίπτωσαν. Ταῦτα ποιήσαντες ἥραστορούντο. Ἀριστοποιομένοι δὲ αὐτῶν ἔρχεται Μιθρι-δάτης σὺν ἔπεδουν ὡς τρίασσα, καὶ καλεσάμενος τοὺς στρατηγοὺς εἰς ἐπίκουρον λέει ὁδε· 'Εγὼ, ὦ ἄνδρες Ἑλλήνες, καὶ Κύριω πιστὸς ἄγνως ως οὕτως ἐπιτάδεη, καὶ νῦν ὧμιν εὗνοις· καὶ ἐνθάδε ἡ εἰμὶ σὺν πολλῷ φύσι διάγον. Εἰι ὧν ὤρφην ὕμιν σαρτήρας τι βουλευομένοις, ἐλθοῦμι ἄν πρὸς ὑμᾶς καὶ τοὺς θεράποντας πάντας ἔχων. Λέεις ὃν, ἔφη, πρὸς με τί ἐν νῷ ἔχετε ως πρὸς φίλον τε καὶ εὗνοι καὶ βουλευομένοιν κοινῷ σὺν ωμόν τὸν στόλον ποιεῖσθαι. Βουλευομένοις τοῖς στρατηγοῖς ἐδὼζε ἀποκρινθαγάτα τάδε· καὶ ἔληγε Νειρίσουφος· ' Πρῶς δοξεῖ, εἰ μὲν τις τῇ ἡμέρᾳ ἀπένεαν οἰκαδε, διαπαράσπεσθαι τὴν χώραν ὅσ᾿ ἄν δοξόμεθα ἀποκάθατα· ἦν δὲ τις ἡμῶν τῆς ὁδὸς ἄποκλολόγη, διαπολεμεῖν τούτῳ, ως ἄν δοξόμεθα κράτιστα.

II. Translate:

'Εσεὶ δ᾿ ἐπόδοντο δ᾿ Μίνδαρος ἐν Κοζίκω εἰς καὶ Φαράξαζος μετὰ τοῦ πεζοῦ. ταῦτα μὲν οὖν τῇ ἡμέρᾳ αὐτοῦ ἔμεναν, τῇ δὲ ωστεραίᾳ Ἀλκιβιάδης ἐκκηλίσαι ποιήσας παρεκκλῆσετο αὐτοῖς δ᾿ ἄναγκη εἰς καὶ ναυμαχεῖν καὶ πεζωμαχεῖν καὶ τεχνομαχεῖν· οὐ γὰρ ἔστων ἔφη, χρήματα ἡμῖν, τοῖς δὲ πολεμίσῳ ἄρθονα παρὰ βασιλέως. τῇ δὲ πρωτεραίᾳ, ἐπειδὴ ἄρθισατο, τὰ πλοία πάντα καὶ τὰ μικρὰ συνήρθοντο παρ᾿ ἑαυτῶν, δῶς μηδείς ἔσαρξεῖται τοῖς πολεμιστοῖς τὸ πλῆθος τῶν νεῶν, ἐπεξήρυζε τε, ὡς ὥν ἀλλάσχηται εἰς τὸ πέραν δια- πλέων, θάνατον τὴν ζημιὰν.
EXAMINATION FOR MATRICULATION.

GREEK. (Counted as three sections).

THIRD SECTION: HOMER.

AUTUMN, 1899.

(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:

"Ἡμος δ' ῥέλιος κατέδυ καὶ ἐπὶ κρέφας ἁλθεν, οὐ τότε κυριόσαντο παρὰ πρωμάσα νηώς, ἤμος δ' ἤριγενεα φάνη μοδοδάκτυλος 'Ἡώς, καὶ τότ' ἔπειτ' ἀνάγροντο μετὰ στρατῶν εὕρον 'Αχαιῶν· τοιαύτα δ' ἵκεμνόν οὖρον ίτι εκάέργος Ἰ'Απάλλων, οἵ δ' ἱστόν στήσαντ' ἀνά 8' ἱστία λευκὰ πέτασαν· ἐν δ' ἀνέμοις πρῆςεν μέσον ἵστων, ἄμφι δὲ κύμα στείρα πορφύρεων μεγάλ' ἱσχε νηώς ἔνοσης· ἡ δ' ἔθενεν κατὰ κύμα διαπρόσοουσα κέλευθον, αὐτάρκ ἐπεὶ β' ἵκοντο κατὰ στρατῶν εὕρον Ἀχαϊῶν, νήμα μὲν οἱ γε μέλανεν ἐπὶ ἱπτεροῦ ἔρυσαν ὄψαί τι παράδοχος, ὅπο δ' ἔρματα μακρὰ τάνυσαν, αὐτοὶ δ' ἐσαξίδαντο κατὰ διασάς τε νέας τε. αὐτάρκ ὃ μήνει νηώς παράφενοι ὀκυπόροισιν διωγένης Πήλιος νῆς, πόδας ὥκους Ἀχιλλεύς· οὔτε ποτ' εἰς ἄγορὴν πωλέσακεν κυδακέεραν οὔτε ποτ' ἐς πόλεμον, ἀλλὰ φθινόθεεσις φίλον χήρ αὖθι μένων, παθέσασε δ' ἀυτήν τε πτόλεμον τε.
II. Translate:

η τοι ὦ γ' ὅς εἰπὼν κατ' ἄρ' ἔζητο, τοῦτο δ' ἀνέστη
Δάρδανιδος Πρίαμος, θεὸν μηχανῷ ἀτάλαντος,
ὅ σφιν ἐν φρονέων ἀγορήσατο καὶ μετέειπεν·
κέκλυτέ μεν, Τρώες καὶ Δάρδανοι ἣδ' ἐπίκουροι,
ὅφρ' εἶποι, τά μὲ ὅμοιο ἐνι αὐτήθεσι κελεύει,
νῦν μὲν δὸρπον ἔλεσθε κατὰ πτόλιν, ὡς τὸ πάρυς περ,
καὶ φυλαξῖς μνημάσσε καὶ ἐγρήγορὶς ἑκαστοὺς·
ἡδην δ' Ἰδαίος ἔτω κοίλας ἐπὶ νῆας
εἰπέμεν ὁ Ατρείδης ὁ Αγαμέμνον καὶ Μενελᾶῳ
μοῦν ὁ Ἀλεξάνδρος, τὸν εἶνεκα νεῖχος ὁφαῖρεν.

III. In the first passage scan lines 5, 6. Give the Attic for the Homeric forms in lines 11, 14, 15.
I.—Grammar.

1. Give the plural form of corail, chef-d'œuvre, ciseau, chou, trou, canif, cheveu, bleu.

2. Give the feminine form of épais, exprès, sec, ture, sot, frais.

3. Give the masculine form of franche, fidèle, cruelle, rebelle, discrète, jumelle.

4. Put the following French sentence: Je vous apporte un livre, (a) in a plural form (putting subject, verb and object in the plural), (b) in a negative form, (c) in an interrogative form.

5. Give the first person singular and plural of the present subjunctive of tenir, appeler, savoir, obéir, craindre, aller, vivre, boire vaincre.

6. Conjugate in full the imperative of vouloir, partir, s'endormir, se tenir.

7. Give the first person singular and plural of the present indicative of courir, se souvenir, pouvoir, vouloir, savoir, s'asseoir, se lever, périr, fuir, vaincre, contraindre.

8. Give the first person singular of the future of courir, pouvoir, pourvoir, acquérir, joindre, faire, savoir.

9. Give the first person singular of the preterite of recevoir, prendre, résoudre, coudre, mouvoir, voir, croire, lire, pouvoir, savoir, vaincre.

EXAMINATION FOR MATRICULATION.

FRENCH. (Counted as three sections.)

Autumn, 1899. Three Hours.
II. TRANSLATION.

1. Dans la saison pluvieuse, ils passaient le jour tous ensemble dans la case, maîtres et serviteurs, occupés à faire des mottes d'herbes et des paniers de bambou. On voyait rangés dans le plus grand ordre, aux parois de la muraille, des râteaux, des hâteches, des bêches; et auprès de ces instruments de l'agriculture, les productions qui en étaient les fruits: des sacs de riz, des gerbes de blé et des régimes de bananes. La délicatesse s'y joignait toujours à l'abondance. Virginie, intruite par Marguerite et par sa mère, y préparait des sorbets et des cordiaux avec le jus des cannes à sucre et des citrons.

Bernardin de Saint-Pierre.

2. Un bruit produit par plusieurs centaines de voix nous réveilla le lendemain avec le jour. Nous-même le nez à la fenêtre, le marché se tenait devant l'hôtel.

La mauvaise humeur que nous avait causée le réveil matinal se dissipa bien vite à l'aspect du tableau pittoresque de cette place publique encombrée de paysans et de paysannes en costumes nationaux. Une des choses qui m'avait le plus désappointé, en Suisse, était l'envahissement de nos modes non-seulement dans les hautes classes de la société, les premières toujours à abandonner les mœurs de leurs ancêtres, mais encore parmi le peuple, conservateur plus religieux des traditions paternelles. Je me trouvai certes bien dédommagé de ma longue attente par le hasard qui réunissait sous mes yeux, et dans toute leur coquetterie, les plus jolies paysannes des cantons voisins de Berne.

Dumas.

3. Il faut qu'un homme soit bien fat ou bien naïf pour croire qu'il connaît les jeunes filles. Il en a vu de près trois ou quatre dans sa vie, et encore, pour différentes causes, ne les a-t-il pas vues comme elles sont. J'avais pris beaucoup de notes sur ce sujet; mais il m'est arrivé un jour de jeter au feu toutes celles qui n'étaient pas flatteuses; puis, six mois après, j'étais amené à brûler les autres; si bien que je suis réduit à consulter sur ce point l'expérience d'autrui.

Desjardins.
4. Heidelberg est une souriante, une jolie, une exquise petite ville. Après sa bière, ses confitures, ses servantes joufflues, son vieux burg et son vieux pont, ce qu'elle a de mieux est son université. Oui, à mon gré, le fameux tonneau et la cure de petit-lait ne viennent qu'ensuite. Mais le plus charmant dans ce nid des études classiques, c'est que tout y est à la fois très vieux et très vivant. Le château des électeurs, que nous avons eu la sauvagerie d’incendier en 1689, est la ruine de plus gaie que je connaisse. Ici des pans de mur rougeâtres, fouillés et ciselés comme une orfèvrerie de pierre, avec des fenêtres béantes qui n’ouvrent plus que sur le ciel clair, des festons de lierre et de vigne folle, des tilleuls poussant librement au milieu des donjons éventrés, là des toitures pour les buveurs, des étalages de petits marchands sur des nappes bien blanches, des faïences qui reluisent, des écrins gutturaux et des rires épanouis.

Desjardins.

5. O vallons paternels; doux champs; humble chaumière
Au bord penchant des bois suspendue aux coteaux.
Dont l’humble toit, caché sous des touffes de lierre
Ressemble au nid sous les rameaux;
Gazons entrecoupés de ruisseaux et d’ombrages;
Seuil antique où mon père, adoré comme un roi,
Comptait ses gras troupeaux rentrant des pâturages,
Ouvrez-vous, ouvrez-vous! c’est moi!

Voilà du dieu des champs la rustique demeure.
J’entends l’airain frémir au sommet des ses tours;
Il semble que dans l’air une voix qui me pleure
Me rappelle à mes premiers jours.

Oui, je reviens à toi, berceau de mon enfance,
Embrasser pour jamais tes foyers protecteurs.
Loin de moi les cités et leur vaine opulence!!!
Je suis né parmi les pasteurs.

Lamartine.
BRYN MAWR COLLEGE.

EXAMINATION FOR MATRICULATION

GERMAN. (Counted as three sections.)

AUTUMN, 1899.—THREE HOURS.

I. GRAMMAR.

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

- Funke (m.) to Funke (m.)
- Gewehr (n.) to Gewehr (n.)
- Kraut (n.) to Kraut (n.)
- Kuh (f.) to Kuh (f.)
- Mensch (m.) to Mensch (m.)
- Nacht (f.) to Nacht (f.)

- Nagel (m.)
- Planet (m.)
- Rand (m.)
- See (m.)
- Stoff (m.)
- Zahl (f.)

2. Decline "Der zerbrochene Krug" and "Ein zerbrochener Krug."

3. Give the third person singular of (1) the present indicative, (2) the preterit, (3) the preterit subjunctive, also (4) the past participle of the following verbs:

- ablehnen
- anziehen
- aufheben
- ausschneiden
- beschliessen
- dürfen
- erlösen
- genesen

- hauen
- klingen
- sitzen
- unterlassen
- vergelten
- vervollkommnen
- vorschieben
- zurückweisen

II. TRANSLATION.

I.

Hier wurden sie auf einmal alle still, denn zwischen den Morgenlichtern über der schönen Einsamkeit erschien
plötzlich auf einem Felsen ein hoher Mann, seltsam in weite bunte Gewande gehüllt. Als er in der Ferne das Schiff erblickte, that er einen durchdringenden Schrei, dann, beide Arme hoch in die Lüfte geschwungen, stürzte er durch das Dickicht herab und warf sich unten auf seine Kniee auf den Boden, die Erde inbrünstig küssend. Nach einigen Minuten aber erhob er sich langsam und über-schaute verwirrt den Kreis der Reisenden, die sich neugierig um ihn versammelt hatten, es war ein Greis von fast grauhaften verwilderten Ansehn. Wie erschraken sie aber, als er sie auf einmal spanisch anredete, wie einer, der die Sprache lange nicht geredet und fast vergessen hatte. Ihr habt euch, sagte er, alle sehr verändert in der einen langen Nacht, dass wir uns nicht gesehen; (Eichendorff.)

II.

Fritz warf einen flüchtigen Blick umher: der alte Herr hatte in der That recht—es waren einfache Verhältnisse und einfacher konnte eigentlich kein Tagelöhner wohnen, als der pensionierte Major es that. Das Zimmer war einfach geweihsst und das ganze Ameublement bestand in einem grossen in der Mitte stehenden Tisch von weissem aber blank gescheueren Tannenholz, einem kleineren, auf dem Schreibmaterialien lagen, einem kleinen Regal mit Büchern, drei hölzernen Stühlen und einem Miniatur-Spiegel in braunem Rahmen. Nur einige Bilder aus früherer Zeit hingen an den Wänden und im Fenster standen freundliche, sorgfältig gepflegte Blumen. Aber wie sauber sah alles aus—wie leer freilich, aber doch auch wie nett und ordentlich; und Fritz nahm mit grösserer Befangenheit auf einem der hölzernen Stühle Platz, als er wahrscheinlich in dem reichsten und kostbarsten Salon gezeigt haben würde. Der Major, der indessen seine Brille von seinem Schreibtisch genommen hatte, überflog die Zeilen mit dem Blick, dann faltete er den Brief wieder zusammen, legte ihn auf den Tisch und starrte wohl eine halbe Minute lang schweigend vor sich nieder. (Gerstäcker.)
III.


(Freytag.)

IV.

MORGENLIED.

Noch ahnt man kaum der Sonne Licht,
Noch sind die Morgenglocken nicht
Im finstern Thal erklingen.
Wie still des Waldes weiter Raum!
Die Vöglein zischeln nur im Traum,
Kein Sang hat sich erschwungen.
Ich hab' mich längst ins Feld gemacht
Und habe schon dies Lied erdacht
Und hab' es laut gesungen.

(Uhland.)
1. Prove that if two parallel planes are cut by a third plane, the lines of intersection will be parallel.

Two given straight lines, AB and CD, are cut by two parallel planes in the points A, B, C, D. Show that the given straight lines do, or do not, lie in a plane according as AC, BD are, or are not, parallel.

2. Prove the relation connecting the number of edges, faces, and vertices of any polyhedron.

Apply this to find how many triangles are required for the construction of a regular polyhedron, if five triangles are brought together at each vertex.

3. Show that a triangular prism can be divided into three triangular pyramids, equal to one another in volume. Hence find the volume of a triangular pyramid.

4. Define a right circular cylinder. Give and prove an expression for the area of the curved surface.

5. Prove that the line of intersection of two spheres is a circle, whose plane is at right angles to the line joining their centres.

6. Give and prove the expression for the surface of a sphere.

7. A sphere of radius 3 inches is entirely immersed in a tub of water. If the tub be a cylinder of radius 6 inches, by how much is the level of the water raised?

8. Prove that the area of a spherical triangle is equal to the area of its symmetric spherical triangle.
(When this paper is taken with Solid Geometry, 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
\[ \tan^2 A \sin^2 A = \tan^2 A - \sin^2 A, \]
and that
\[ \sec^3 A = \cos^3 A + \tan^2 A \sec A + \sin^2 A (\sec A + \cos A). \]

2. Prove that
(i.) \[ \tan 3A = \frac{3 \tan A - \tan^3 A}{1 - 3 \tan^2 A}, \]
(ii.) \[ \cosec 6A - \cot 6A = \frac{3 \tan A - \tan^3 A}{1 - 3 \tan^2 A}. \]

If A be an acute angle and \( \sin A = \frac{4}{5} \), find the value of \( \tan A + \sec A \).

4. Prove that
(i.) \[ \cos 2A = \frac{1 - \tan^2 A}{1 + \tan^2 A}, \]
(ii.) \[ \tan 75° + \cot 75° = 4. \]

5. Given \( \log 2 = .30103, \log 3 = .4771213 \), find \( L \sin 45°, \]
\( L \sec 30°, \log 3.625, \log .250. \)
6. If \( A, B, C \) be the angles of a triangle, and \( a, b, c \) the sides opposite to them respectively, prove that

(i.) \( \tan \frac{A - B}{2} = \frac{a - b}{a + b} \cot \frac{C}{2} \)

(ii.) \( (a + b + c) \left( \tan \frac{A}{2} + \tan \frac{B}{2} \right) = 2c \cot \frac{C}{2} \)

7. Prove that the area of the triangle \( ABC \) is

\[
\frac{a^2 \sin B \sin C}{2 \sin (B + C)}
\]
1. Which of the six trigonometric functions
\[ \sin A, \cos A, \tan A, \cosec A, \sec A, \cot A \]
are never less than unity, and which may be either less or
greater than unity? Prove that
\[ \sin^2 A + \cos^2 A = 1. \]
Find the number of seconds in the angle subtended at
the centre of a circle whose radius is 4 miles by an arc 22
inches long.

2. Prove
(i.) \[ \sin 3A = 3 \sin A - 4 \sin^3 A. \]
(ii.) \[ \sec A - \tan A = \frac{\cos A}{1 + \sin A}. \]

3. Find one value of \( A \) that satisfies the equation
\[ -2 \sin^2 A + 5 \cos A = 4 \cos^2 A. \]

4. Prove geometrically that \( \cos A = \sin (90^\circ + A) \), and
\[ \tan (90^\circ - A) = \cot A. \]

5. Write down an expression for \( \tan \frac{A}{2} \) in terms of the sides
of the triangle \( A \ B \ C \). If the sides be 16, 20, 33, find the
greatest angle, it being given that
log 207 = 2.31597, log 1073 = 3.03060,
L cot 66° 18' = 9.64243, diff. for 1' = 34.

6. Given L tan 38° 16' 10'' = 9.8970147,
L tan 38° 16' 20'' = 9.8970580,
find the angle whose logarithmic tangent is 9.8970365.

7. Prove that
\[ \tan\left(45^\circ + \frac{A}{2}\right) + \tan\left(45^\circ - \frac{A}{2}\right) = 2 \sec A. \]

Express sin A and cos A in terms of tan \( \frac{A}{2} \).
I. Give the principal dates in the life of Cicero. What were the circumstances that led to the 2nd Philippic? Why were the Philippics so called? What was the result of this speech? What was the position of Cicero in the state at this time?

II. Translate Livy, XXI., 23-24:

Hoc visu laetus tripertito Hiberum copias traiecit praemissis, qui Gallorum animos, qua traducendus exercitus erat, donis conciliarent Alpiumque transitus specularentur. nonaginta milia peditum, duodecim milia equitum Hiberum traduxit. Ilergetes inde Barquisiosque et Ausetanos et Lacetaniam, quae subiecta Pyrenaeis montibus est, subegit, oraeque huic omni praefecit Hannonem, ut fauces, quae Hispanicis Galliis iungunt, in potestate essent. decem milia peditum Hannoni ad praesidium obtinenda regionis data et mille equites. postquam per Pyreneaeum saltum traduci exercitus est coeptus, rumorque per barbaros manavit certior de bello Romano, tria milia inde Carpetanorum peditum iter averterunt. constabat non tam bello motis quam longinquitate viae insuperabile Alpium transitu. Hannibal, quia revocare aut vi retinere eos aniceps erat, ne ceterorum etiam feroces animi inritarentur, supra septem milia hominum domos residit, quos et ipse gravari militia senserat, Carpetanos quoque ab se dimissos simulans. XXIV. Inde, ne mora atque otium animos sollicitaret, cum reliquis copiis Pyreneaeum transgreditur et ad oppidum Iliberri castra locat. Galli quamquam Italiae bellum inferri audiebant, tamen, quia vi subactos trans Pyreneaeum Hispanos fama erat praesidiaque valida inposita, metu servitutis ad arma consternati, Ruscino-
nem aliquot populi conveniunt: quod ubi Hannibali nuntiatum est, moram magis quam bellum metuens, oratores ad regulos eorum misit, couloqui semet ipsum cum iis velle, et vel illi proprius Ililberrim accederent, vel se Ruscinonem processurum, ut ex propinquo congressus facilior esset: nam et accepturum eos in castra sua se laetum, nec cunctanter se ipsum ad eos venturum. hospitem enim se Galliae non hostem advenisse, nec stricturum ante gladium, si per Gallos liceat, quam in Italiam venisset. et per nuntios quidem haec: ut vero reguli Gallorum castris ad Ililberrim extemplo motis hauad graver ad Poenum venerunt, capti donis cum bona pace exercitum per finis suos praeter Ruscinonem oppidum transmiserunt.

III. Explain the syntax of *visu*, *donis*, *Hiberum*, *montibus*, *Alpium*, *conciliarent*, *est coeptus*, *ancepserat*, *audiebant accederent*.

IV. Translate Cicero, Phil. II., 90–92:

tantium te cepisse odium regni videbatur, ut eius omnem prop-
pter proximum dictatorem metum tolleres. 92. Constituta res
publica videbatur aliis, mihi vero nullo modo, qui omnia te
gubernante naufragia metuebam. Num igitur me sefollit?
aut num diutius sui potuit dissimilis esse? Inspectantibus
vobis toto Capitolio tabulae figebantur, neque solum singulis
venibant immunitates, sed etiam populis universis. Civitas
non iam singillatim, sed provinciis totis dabatur. Itaque si
haec manent, quae stante re publica manere non possunt,
provincias universas, patres conscripti, perdidistis, neque
vectigalia solum, sed etiam imperium populi Romani huius
domesticis nudinis deminutum est.

V. Explain the syntax of fuisses, haberemus, et si...prae-
fuisti, figeretur, dixeris, sustulisti, manent...perdidistis.

VI. What day is referred to? What is the point of figere-
tur? domesticis nudinis?

VII. Translate into Latin: Once Alexander called his
slave, but finding that though repeatedly summoned he did
not come, he went into the vestibule and discovered that he
was asleep. As he was about to arouse him he saw a writing
lying on the ground, which the boy had lately read. Eager
to know more clearly about the character of his slave, Alex-
ander took the tablet up and read it. When, however, he
discovered that it was written by the boy’s mother, who gave
thanks to her son for having sent her money, and exhorted
him to be in all things faithful to so good and great a master,
the king was greatly pleased, and put back the letter into
the bosom of the boy, together with 50 golden darics. Re-
turning quietly to his hall, he with a loud voice woke and
summoned the boy, and when he came trembling and terror-
stricken, angrily asked him why he had not obeyed earlier.
1. Translate Od., II., 15:
Jam pauca aratro jugera regiae
Moles relinquunt; undique latius
Extenta visentur Lucrino
Stagna lacu, platanusque caelebs
Evincet ulmos; tum violaria et
Myrtus et omnis copia narium
Spargent olivetis odorem
Fertilibus domino priori;
Tum spissa ramis laurea fervidos
Excludet ictus. Non ita Romuli
Praescriptum et intonsi Catonis
Auspiciis veterumque norma.
Privatus illis census erat brevis,
Commune magnum: nulla decempedis
Metata privatis opacam
Porticus excipiebat Arcton,
Nec fortuitum spennere caespitem
Leges sinebant, oppida publico
Sumptu jubentes et deorum
Templa novo decorare saxo.

2. Write explanatory notes on Lucrino lacu; platanus caelebs; omnis copia narium; intonsi Catonis; nulla—Arcton; novo saxo.

4. Translate III., 30:
Exegi monumentum aere perennius
Regalique situ pyramidum altius,
Quod non imber edax, non Aquilo impotens
Possit diruere aut innumerabilis
Annorum series et fuga temporum.
Non omnis moriar, multaque pars mei
Vitabit Libitinam: usque ego postera
Crescam laude recens dum Capitolium
Scandet cum tacita virgine pontifex.
Dicar, qua violens obstrepit Aufidus
Et qua pauper aquae Daunus agrestium
Regnavit populorum, ex humili potens,
Princeps Aeolium carmen ad Italos
Deduxisse modos. Sume superbiam
Quaesitam meritis et mihi Delphica
Lauro cinge volens, Melpomene, comam.

5. Write notes on Multa pars mei—Libitinam; Capitolium-pontifex; qua pauper aquae—populorum; princeps—modos.


7. Translate Epod. VI:
Quidimmerentes hospites vexas canis
Ignavus adversum lupos?
Quin huc inanes, si potes, vertis minas
Et me remorsurum petis?
Nam qualis aut Molossus aut fulvus Lacon,
Amica vis pastoribus,
Agam per altas aure sublata nives,
Quaecunque praecedet fera:
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 Bupalo.
An si quis atro dente me petiverit,
Inultus ut flebo puer?
8. Write an account of Horace's philosophy of life, illustrating by reference to particular passages in the Odes or Epodes.

9. Mention the Greek poets by whom Horace was influenced, and point out the extent of their influence.

10. On what principle are the Odes in the different books arranged?