Circular issued by the University of Wisconsin to schools and academies on the character and extent of instruction desired in the preparatory studies. 1891

[s.l.]: [s.n.], 1891

1891

CIRCULAR

C

ISSUED BY THE

UNIVERSITY OF WISCONSIN

TO SCHOOLS AND ACADEMIES,

ON THE

CHARACTER AND EXTENT OF INSTRUCTION DESIRED IN THE PREPARATORY STUDIES.

MADISON, WIS.:
STATE JOURNAL PRINTING COMPANY,
1891.

CIRCULAR

ISSUED BY THE

UNIVERSITY OF WISCONSIN

To Schools and Academies,

ON THE

Character and Extent of Instruction Desired in the Preparatory Studies.

MADISON, WIS.:
STATE JOURNAL PRINTING COMPANY,
1891.

CHARACTER OF PREPARATION

DESIRED BY THE UNIVERSITY IN THE SEVERAL PREPARATORY STUDIES; METHODS OF INSTRUCTION.

GREEK.

I.

GOODWIN'S GREEK GRAMMAR.

Special attention should be given to the mastery of the paradigms. The most important forms should be so thoroughly committed to memory that the student can repeat them orally or write them without hesitation.

A manual like White's *Greek Lessons* should be used as a companion book with the *Grammar* to make the rules and paradigms intelligible.

The beginner in Greek retains the knowledge which he applies, but easily forgets what he acquires by a mere effort of the memory. Hence practice in translation from English into Greek must begin when he enters upon the study of the language, and must continue until the Etymology and much of the Syntax of the *Grammar* are mastered.

The continental sounds of the vowels and diphthongs, and pronunciation according to the written accents, as explained in the preface to Goodwin's *Grammar*, are recommended.

Hesitating and careless habits of pronunciation can be overcome only by constant practice in reading aloud. A student who is really prepared to enter the Freshman class should find as little difficulty in the pronunciation of Greek as in reading a page of English prose. Modern devices, like the so-called "Inductive Method," for making the study of Greek attractive are undoubtedly good for those who know

---

For further information concerning entrance requirements in the several studies, see page 23 of this circular; also the *University Catalogue*, which will be sent free on application.

how to use them, but to attempt to make them take the place of thorough drill in the inflection of words and the committing to memory of the principal parts of verbs, is not to be recommended. There is no substitute for the regular and thorough use of the Grammar and Lexicon.

II.

JONES'S GREEK PROSE COMPOSITION, OR ITS EQUIVALENT.

In teaching composition, instructors are recommended to make constant use of the blackboard in order to familiarize the pupil's mind with the rules and principles of accent. To insure accuracy the exercises should be copied on paper, or in a note book, and inspected by the teacher. The command of a working vocabulary is of the highest importance. It requires not a little resolution to make the instruction in this part of the work effective and complete; and as it is a necessary accomplishment for a Freshman to be able to turn an easy English sentence into correct Greek, it should be the ambition of the classical instructor to secure this end, and enable his students, by the number and excellence of their written translations from English into Greek, to gain a real knowledge of Syntax.

III.

THREE BOOKS OF THE ANABASIS.

The student should own and use, in connection with this reading, a Classical Atlas, a Classical Dictionary and a History of Greece. To the beginner in Greek who is content to read the Anabasis without such helps the historical and geographical references have only a dim and uncertain meaning. Under such circumstances the place of Xenophon

in the history of literature is not understood and the story of the Ten Thousand becomes a mere parsing book, destitute of human interest.

IV.

TWO BOOKS OF HOMER'S ILIAD.

Every classical instructor finds considerable difficulty in teaching his pupils to scan readily and well the Greek hexameter. A good essay on scanning, like Keep's or Seymour's, if carefully studied and applied, will help to give the reader of Homeric verse the confidence which comes with knowledge. The beginner should persevere in scanning until he can read aloud a few verses from the *Iliad* as readily as he could a like number from *Evangeline*.

Another difficulty is encountered in the dialectic forms. The beginner will do well to make lists of all the Homeric forms found in his lessons, to write them with their Attic equivalents, and to keep up the practice until he can distinguish these forms at sight.

LATIN.

REQUIREMENTS FOR ADMISSION.

Cæsar, four books; Cicero, seven orations, including that for the Manilian Law; Vergil, six books (including prosody); Latin Composition, forty lessons in Jones's *Latin Composition* (or an equivalent). Instead of the above requirement in Cicero, six orations and Sallust's *Catiline*, as heretofore required, may be presented in the fall of 1891.

For admission to the Greek Class, four books of Cæsar and the four Orations of Cicero against Catiline will be re-

quired. Instead of the requirement in Cicero, two orations and Sallust's *Catiline*, as hitherto required, may be presented in the fall of 1891.

PRONUNCIATION.

This is of the first importance. The Roman pronunciation (as given in Allen and Greenough's *Latin Grammar*, § 16; Harkness, §§ 5, 6, 7) should be followed, and special attention be paid to accentuation and vowel quantity. The quantity of all vowels should be observed, so far as it can be determined,—not only in the terminations and before single consonants, but also before two consonants or a double consonant, *e. g.*, *Quīntus*, not *Quĭntus; crēsco*, not *crĕsco; ĕst* ('he is'), not *ēst*. A full list of all words which have a long vowel before two consonants is found in Marx's *Hülfsbüchlein für die Aussprache der Lateinischen Vokale in positionslangen Silben*. This little manual can be obtained of B. Westermann, 812 Broadway, New York; price ninety cents. Although the book is in German, the lists, which form the bulk of its contents, can be used by any one.

ELEMENTARY STUDY.

The object should be first to secure a thorough knowledge of the grammatical forms. Good work in one's subsequent study of Latin is absolutely impossible without this, and many students in the University find themselves seriously handicapped from lack of adequate preliminary training in the declensions, conjugations and syntactical principles.

As a beginning Latin book, Collar and Daniell's is recommended. This, however, takes considerable time to master, and for classes whose purpose is to begin the study of continuous prose, as Cæsar, at an early stage of Latin study, Allen's *New Latin Method* is recommended, as much better

adapted to their needs. An ordinary class will be able to take enough of this work in thirteen weeks, to enable them to begin the study of simple prose, as Cæsar or Cornelius Nepos.

TRANSLATION.

In translation stress should be laid upon securing a good *idiomatic* rendering of the thought of the original Latin. Literal translations are often useful as indicating a student's grasp of the structure of a sentence, and may be appropriately called for as a test of his knowledge; but literal translation as an habitual practice cannot be too severely condemned. Nothing can be more serious in its effects upon the student's employment of his native tongue, than the use of such "translation English." Instead of this he should be required from the outset to give the *very best* equivalent in English idiom, of the passage to be translated. A large part of the value of Latin study is to be found in the wider knowledge and fuller grasp of one's native English which comes as a result of such careful translation, and teachers are urged not to neglect the important disciplinary results which may be secured in this way.

LATIN COMPOSITION.

This part of the Latin course is too generally neglected. Latin Composition is of the greatest importance in increasing the pupil's familiarity with the forms, syntax and general structure of the language, and should receive *constant attention* (at least one weekly exercise) during the entire preparatory course. Most of the beginners' books contain exercises adapted to the early stages of this study. These may be followed later by the thorough study of some standard book, such as Jones's *Exercises in Latin Prose Composition* (40 lessons). In these exercises it is sug-

gested that pupils be required to mark the vowel quantities, in order to increase their familiarity with the correct pronunciation.

ACQUAINTANCE WITH THE SUBJECT MATTER OF AUTHORS READ.

Attention is called to the importance of training the pupil to appreciate the subject matter of the authors read. The study of Latin should not consist merely in grammatical training. A clear conception of the general character of the Roman people and of the general course of development of Roman history should be inculcated. In reading Cæsar, Cicero, or Vergil, the bearing of what is read should be constantly brought out. This will not only serve to stimulate the interest of the student, but will tend to counteract the narrowing, mechanical tendency of mere grammatical drill. The truly liberalizing effects of Latin study can come only in this way. Otherwise it must fail to impart the real culture which ought to be expected of it.

GERMAN.

For those courses in which German is required for admission, *viz.*, the Scientific and Modern Classical, a knowledge of the Grammar and of any standard German Reader is expected.

Special attention is called to the importance of making the grammatical foundation very thorough. The forms should be made the subject of constant drill until they have been fully mastered; the methods of plural formation, the principal parts of irregular verbs, the principles involved in the inflection of separable and inseparable compounds,—points which are likely to prove a serious stumbling-block

to the pupil, should be early impressed upon his memory by careful study. This grammatical work, including also drill in the syntactical principles of the language, should command the chief attention from the outset; even after the student has begun to read continuous German, caution should be exercised against neglecting the principles of the language for the purpose of making apparent progress in the Reader. No work can be sound which does not involve constant study of the language itself. Regular practice in turning English into German is also advised as of prime importance, and, after some skill in this has been acquired, practice in giving orally in simple German a synopsis of the matter read in class.

ALGEBRA.

One full school year should be devoted to Algebra. Special stress should be laid upon factoring, the use of exponents (integral and fractional, positive, negative and zero) and radicals. Too often the teaching of Algebra consists in requiring students to commit to memory certain rules which are then followed with servility. There is no objection to rules, if students will become their masters instead of their servants, but it is better to work from principles than from rules.

Too often the symbols are mysterious to students and conduct to results by a sort of magic, and even the results are often unintelligible. To prevent this, students should be closely questioned about the meaning of the symbols used, and should be required over and over to give concrete illustrations of their meaning. They should also be questioned as to the reason for and the validity of each step taken in any process.

We are convinced that the subject of positive and nega-

tive quantities is *usually* presented *wrongly*. Perhaps the reason is that it is presented too early. We recommend that nothing be said about this subject until after the four fundamental operations are completed, and that then students be shown that a letter may stand for *either* a positive or negative quantity, and also that a letter with a minus sign before it may stand for either a positive or negative quantity. Attention to this matter will save much trouble to the student when he enters the University.

GEOMETRY.

For entrance to the Ancient Classical Course in the University only Plane Geometry is required, but for all other courses, and for special students, the whole of Geometry, Plane and Solid (including Spherical), is required.

It is very important that students should get clear ideas of the limits of geometric magnitudes and be able to use the method of limits in proving certain propositions. Students should be taught that under certain circumstances a polygon may have a circle for its *limit*, but the polygon can never *become* a circle.

In the demonstration of any proposition, students should be able to prove any proposition to which reference is made, and should frequently be required to prove one or more of these previous propositions.

The memorizing of demonstrations should always be discouraged and students should be taught that ability in Geometry consists, not in understanding and proving a few set propositions, but in possessing the power to prove other propositions than those proved in the book or by the teacher. To this end a number of propositions should be assigned for original demonstrations and encouragement given students to work out these as well as those given in the text.

PHYSICS.

It is desirable that the high schools of the State furnish as thorough instruction as possible in the elements of Physics.

The burden of purely elementary instruction, should rest upon the preparatory schools. Otherwise the University will find itself unable to satisfy the great and increasing demand for instruction in the higher applications of Physics.

Industries are developing on every hand requiring men who have a good knowledge of General Physics, and a more extensive acquaintance with some particular branch,— for example, Electricity and Magnetism. The University is doing its best to meet the demand, but it could do better if the students had a better knowledge of Physics on entering.

The accredited schools of the University should aim to give a knowledge, and a *thorough* knowledge, of the most elementary principles in Mechanics, Hydrostatics, Sound, Heat, Light, Electricity and Magnetism; and emphasis should be laid upon the *principles*. It is not the particular form of an experiment that is wanted, but the principle that is behind the experiment. If that is understood, the forms of apparatus, *etc.*, will follow as a matter of course. Thus if a student firmly grasps Pascal's Law, and the changes in its simple statement necessitated by the action of gravity, his progress in Hydrostatics and Pneumatics is plain sailing, for nearly everything follows as a necessary result of that principle.

BOTANY.

The student should have mastered Gray's *Lessons in Botany*, or its equivalent. Preparation in Gray's *How Plants Grow* or *How Plants Behave*, or in Steele & Wood's *Fourteen Weeks in Botany*, is not considered adequate. Gray's

Lessons in Botany is not too large to be completed in one term of twelve weeks with daily exercises, provided the whole time is given to the text. In that case the other term should be given wholly to the study of plants themselves, for it is assumed that, in accordance with the provisions of the courses of study recommended by the State Superintendent, two terms will be given to preparation in Botany. It is preferable, however, to intersperse the study of plants with the study of the text, and to make it the important feature. At the time the study of Botany is usually begun, the gardens, woods and waste places are full of germinating seeds. The pupil should be required to study and report upon these or be given garden seeds to sprout for himself. For the study of the root, the examination of the roots of these seedlings, of the perennial plants which can be found in every fence row, and of the fleshy-rooted vegetables, such as the radish, carrot, turnip, beet and sweet potato, suffice. For the stem, require the observation of the woody stems of trees, shrubs and vines, and the study of the development of the young shoots as the spring advances; so with the leaves and flowers. Require in all cases verbal or written reports of the observations made. After the examination of these, proper suggestion and guidance can be given for the further study of the same specimens, to correct or add to the report already made.

The preparation of a so-called herbarium is usually a waste of time as a required exercise, since it involves the expenditure of a considerable amount of time in what is simply manual labor. When the collection is mounted in a fancy portfolio, or in any other way than that adopted the world over as a standard, it is worse than useless, since it gives the student an idea that he has done something right, when he has really done it wrong. It is far more desirable to spend the time necessary for drying and mounting the

plants, in a careful study of them and in writing down the description of the facts observed. This can be most briefly done by the use of the proper technical terms.

After such a description has been written correctly, it will be easy for the pupil to ascertain the name of the plant by the use of a flora, such as Gray's *Manual of Botany*, and instruction should be given in the use of such books. In connection with this work it is desirable to give the pupil definite ideas of the terms "genus" and "species," and of the construction of scientific names.

If it is desired to prolong the study of descriptive botany after the beginning of winter, pupils may be required to dry a certain number of plants in flower in the summer, or the teacher may provide them. These, if properly preserved, may be studied with almost as much ease as the fresh specimens, by softening the parts in boiling water.

PHYSIOLOGY.

The subject of Physiology is the body considered as a working machine. The method of its working should be taught,— not merely its structure. Hygiene is the art of furnishing to the body the best conditions of work.

The tissues are the elementary machines, or the framework in which these work. Muscle, nerve and gland are the chief members of the first group.

Physiology shows three main divisions:

1. The handling of the food and disposition of waste,— nutrition, in the broadest sense.

2. The expenditure of energy,— motion, heat.

3. The correlation of work, internal and external,— nervous work in general.

In discussing each of these divisions, attention should be

directed to the underlying principles, rather than to the details of the processes.

The relation of food and waste, the place of oxygen among the foods, the reason why proteid food is necessary, the significance of waste in the life of the body, the origin and fate of urea, are a few of the topics generally neglected but necessary to a clear view of the subject. The mechanics of circulation and respiration should be carefully studied. In the former, the significance of arterial pressure is usually neglected. In the latter, the way in which the oxygen is used, should be studied, as well as how it gets into the lungs.

The gland should be studied as a machine for doing chemical work, and the analogies between muscle and gland should be made clear.

The student should know what a waste substance is; why it is such; how it became a waste; and how it is disposed of.

Under the second head some attention must be given to the idea of the correlation of energy. The body's supply of energy and its expenditure of energy must be made plain, as well as income and outgo of matter. Students must not think that matter is turned into energy.

Under the third head, the functions of sense-organs, nerve and central organ, must be carefully distinguished. The student must learn why the blind spot in the eye is blind, as well as the fact of its existence. Attention should be given to making clear the working principles of these organs rather than to the details of structure.

The text-books used should be of the grade of those recommended by the State Board of Health. The study of inferior or antiquated books, will not be accepted as a sufficient preparation for the University.

HISTORY.

The Department of History makes the following recommendations:

The entrance requirements embrace the History of the United States, which is requisite for admission in all departments of the University, and Ancient and English History, which are required for the English and Classical courses, but not for the others.

The following text-books are best suited to our requirements and will be taken as the standard: Myers's and Allen's *Ancient History*, Gardiner's or Montgomery's *History of England*, Johnston's *School History of the United States*, or Montgomery's *Leading Facts of American History;* or Eggleston's *History of the United States.*

If it is possible to give two terms to Ancient History (which we recommend), the use of Myers and Allen's *Ancient History* is advised. If General History must be taught from a single text-book, Myers's *General History* is recommended.

We recommend that United States History be taught in the high schools, or, at least, that a review of the subject be taken there.

A thorough review of Physical and Political Geography should be made in the high school, either in connection with the study of History or separately.

In place of the course in General History, which we find most of the high schools give, we strongly recommend the substitution of Ancient and English History. As a rule the work in General History does not satisfy our requirements in these two fields; Modern History, moreover, is so complicated, it covers so many nations, that, to give the high school student an adequate understanding of the subject, in the time at the teacher's command, is almost impossible. A general

survey of Modern History may be given by taking England as the country to be studied. The teacher will be able to make such references to continental events, in connection with the various periods of English History, as will bring out the leading facts of Modern History.

The course recommended includes five portions: The early Empires of the Orient, Greece, Rome, England, and the United States. The teacher should possess Allen's *Reader's Guide to English History*, Allen's *History Topics* (Heath & Co., Boston) and Freeman's *Primer of General History*. These little handbooks will indicate the leading lines of history and show where material is to be found. The teacher would also do well to own Andrews's *Institutes of General History*, for his own guidance. Heath & Co. publish good and inexpensive outline maps, suited to map drawing, by means of which Historical Geography may be taught.

We quote the following words of Professor William F. Allen, to suggest the method of instruction:

"The place of Greece in the history of civilization is inferior to none, and when we regard it from this point of view, the mind at once fixes upon these four as the principal fields of Grecian activity — free government, art, literature and philosophy. Now the boy or girl of fifteen, who has read abundantly in stories from Greek history, is not yet in a condition to study its constitution; still less to appreciate its art, literature and philosophy. He needs a skeleton of events to clothe with the fair flesh and active nerves of the higher life,— a skeleton, an outline of events; not a knowledge of all the events, great and small, the knowledge of which has come down to us. If then we ask, as a second question, what are the names and events of vital moment, in which the life of the Grecian nation may be said to consist,

I think that, while few would answer the question in precisely the same way, the answers would nevertheless not vary very greatly. My own answer would give seven names and events as summing up all that is best worth knowing in Grecian history — Homer, Lycurgus and Solon, as affording the key to Greek life and character; the Persian wars, resulting in the splendor of Athens; the Peloponnesian War, establishing the dominance of Sparta; the career of Epaminondas, with the short-lived supremacy of Thebes; and the victories of Philip and Alexander, out of which grew the Macedonian Empire. Whoever knows these seven things may be said to know Greek history."

"I have taken the history of Greece to illustrate my point, as being the simplest and easiest to deal with. I cannot expect that all should agree with me in all these points, and in the other portion of our course the process of selection and elimination is much more difficult. But as to the governing principle I feel no hesitation — our preparatory course should teach those names and events, and those only, in which the life of the nation may be said essentially to consist. And while I have made these remarks merely with reference to a *preparatory* course in history, I do not hesitate to say that the same rule should govern a school course which is final for the members of the school — that is, a course for high schools, the members of which do not expect to enter the University, should be arranged upon the same plan. All persons who concern themselves with history at all — nay, all educated persons — ought to be equipped with certain fundamental facts of external history: The changes of dynasty — the Julian and the Flavian Cæsars, the Antonines, the Plantagenets, the Hapsburgs and the Bourbons; certain great names — Pericles, Scipio, Constantine, Mohammed, Charlemagne, Cromwell, Chatham,

Napoleon; certain decisive events — Marathon, Cannæ, Pharsalia, the capture of Jerusalem, the Norman Conquest, the Crusades, the Hundred Years' War, the French Revolution. Just what should be selected and what omitted, is a question for every person to decide for himself; but life is too short to spend in learning a multitude of facts that have no meaning or lesson for us."

ENGLISH.

The accredited high schools are now giving the pupils for the English Course one year of English Literature, amounting to about two hundred exercises (five lessons a week for forty weeks); they are giving rhetorical exercises once a week through the entire four years, amounting to one hundred and sixty exercises.

If these two courses should be combined, amounting to three hundred and sixty exercises, the time would be ample for giving the pupils two exercises a week, throughout their high school course, in the study of literature and in rhetorical exercises based on that study, as is now done in the Madison High School, whose treatment of these subjects is explained by Principal Mac Ewan in *Education*,— the number for June, 1890.

This would doubtless be far better than the present method. The burden of rhetorical work would be lifted; pupils would no longer be saying, "Where can I find a piece for declamation?" or "What subject shall I write about?" They would declaim selections which they had already come to appreciate, and would write upon themes (scenes, characters and topics) with which they were already familiar.

Many schools would be unable to put a special teacher in charge of this work; but if the principal took it in hand himself, it is likely he would find it a relief from the present state of things.

The plan referred to contemplates the reading and study of two or three speeches of Webster or Burke; the *Sketch-Book* and *Tanglewood Tales; Evangeline, Miles Standish, The Wayside Inn;* two or three essays of Macaulay, Addison or Emerson; lyrics of Burns, Gray and Tennyson; and four or five plays of Shakespeare. Good editions of all these masterpieces can now be had in pamphlet form at very low prices.

To those teachers who are using as a text-book a *History of English Literature*, it ought to be said, that their pupils will not be properly prepared, unless they have a clear conception of the different periods of the literature,— Chaucerian, Elizabethan, Augustan, Romantic, *etc.*, and also have some idea of the causes operative in these different periods; unless they are able to name the different authors in the several periods and to describe some of their works. It should be insisted that the pupils be able to pronounce and write correctly the names of these authors and their works. This recommendation may seem elementary and useless; but outrageous errors on the part of teachers and pupils alike may be heard in many of our schools,— schools, too, that are supplied with cyclopedias and pronouncing dictionaries.

A few minutes before the recitation begins, each member of the class might be required to write on the blackboard an abstract of the lesson or parts of the lesson, to be viewed and criticised by the class; or the pupils might be required to bring written abstracts, exchange papers and criticise as before. The blackboard seems to offer some advantages

in giving the whole class the benefit of instruction through the eye.

It is believed that Swinton's *Masterpieces*, in some schools, is used simply as a reading book, without any attempt to discover beauties of style, sentiment or characterization,— without observing apt or beautiful figures of speech, or any serious endeavor to have the pupil get an idea of the different forms of literature in prose and verse,— the lyric, the epic, the drama, the pastoral, *etc.*

It must be left to the discretion of high school teachers, how far their classes shall enter into the study of words. In reading masterpieces, especially the older ones, there occur frequent suggestions as to the processes of word-building, forms that throw light on the derivation of words, words in old forms, in old meanings, rare and peculiar uses of words. Very fascinating subjects of study these, and some of them very profitable. "Nothing gives one a grip on a word like knowing its derivation." There are words which we not only know, but feel. They speak to every drop of Saxon blood in us. It is very useful for teachers to give their pupils a taste, at least, of this acquaintance with words, which comes of knowing their origin and history.

In reading poetical selections, attention should be given to the forms of verse. The pupil should be able to explain the meter of each selection that he reads.

A thorough teacher will not be satisfied till the biographical, historical, mythological and geographical allusions convey to the mind of the pupil all that they were meant to convey by the writer.

Whether a history of literature is used or not, some complete masterpieces, similar to those mentioned above, should be studied.

APPENDIX.

Sample Sets of Examination Questions.

GREEK.

I.

GRAMMAR AND COMPOSITION.

1. Write out the declension of *τιμή*, *ὁδός*, *παῖς*, *πᾶς* and the pronoun *ἐγώ*.

2. Give the synopsis of second aorist passive of *φαίνω*.

3. Give rules for the formation of the (1) future stem, (2) first aorist stem, (3) perfect active stem.

4. Define Crasis, Elision, Enclitic and Proclitic.

5. Translate into Greek:

a. The soldiers, when they heard this, refused to go forward.

b. The king sends for him from the province which he holds.

c. That city is large and prosperous, and full of both gardens and palaces.

d. After this he collected his army and crossed the river.

e. If we besiege the city, we shall take it.

II.

XENOPHON.

1. Translate Anabasis I. 7, 1 f.

Ἐντεῦθεν ἐξελαύνει διὰ τῆς Βαβυλωνίας σταθμοὺς τρεῖς, παρασάγγας δώδεκα. ἐν δὲ τῷ τρίτῳ σταθμῷ Κῦρος ἐξέτασιν ποιεῖται τῶν Ἑλλήνων καὶ τῶν βαρβάρων ἐν τῷ πεδίῳ περὶ μέσας νύκτας· ἐδόκει γὰρ εἰς τὴν ἐπιοῦσαν ἕω ἥξειν βασιλέα σὺν τῷ στρατεύματι μαχούμενον· καὶ ἐκέλευε Κλέαρχον μὲν τοῦ δεξιοῦ κέρως ἡγεῖσθαι, Μένωνα δὲ τὸν Θετταλὸν τοῦ εὐωνύμου, αὐτὸς δὲ τοὺς ἑαυτοῦ διέταξε. μετὰ δὲ τὴν ἐξέτασιν ἅμα τῇ ἐπιούσῃ ἡμέρᾳ ἥκοντες αὐτόμολοι παρὰ μεγάλου βασιλέως ἀπήγγελλον Κύρῳ περὶ τῆς βασιλέως στρατιᾶς. Κῦρος δὲ συγκαλέσας τοὺς στρατηγοὺς καὶ λοχαγοὺς τῶν Ἑλλήνων συνεβουλεύετό τε, πῶς ἂν τὴν μάχην ποιοῖτο, καὶ αὐτὸς παρῄνει θαρρύνων τοιάδε·

a. Construction of *σταθμούς*, *βαρβάρων*, *ἥξειν*.

b. Give the present, future and aorist active of *ἀπήγγελλον*.

2. Translate Anabasis III. 3, 6 f.

Μετὰ ταῦτα ἀριστήσαντες καὶ διαβάντες τὸν Ζαπάταν ποταμὸν ἐπορεύοντο τεταγμένοι, τὰ ὑποζύγια καὶ τὸν ὄχλον ἐν μέσῳ ἔχοντες. οὐ πολὺ δὲ προεληλυθότων αὐτῶν ἐπιφαίνεται πάλιν ὁ Μιθριδάτης ἱππέας ἔχων ὡς διακοσίους καὶ τοξότας καὶ σφενδονήτας ὡς τετρακοσίους μάλα ἐλαφροὺς καὶ εὐζώνους. καὶ προσῄει μὲν ὡς φίλος ὢν πρὸς τοὺς Ἕλληνας, ἐπεὶ δ' ἐγγὺς ἐγένοντο, ἐξαπίνης οἱ μὲν αὐτῶν ἐτόξευον καὶ ἱππεῖς καὶ πεζοί, οἱ δ' ἐσφενδόνων καὶ ἐτίτρωσκον. οἱ δὲ ὀπισθοφύλακες τῶν Ἑλλήνων ἔπασχον μὲν κακῶς, ἀντεποίουν δ' οὐδέν· οἵ τε γὰρ Κρῆτες βραχύτερα τῶν Περσῶν ἐτόξευον καὶ ἅμα ψιλοὶ ὄντες εἴσω τῶν ὅπλων κατεκέκλειντο, οἵ τε ἀκοντισταὶ βραχύτερα ἠκόντιζον ἢ ὡς ἐξικνεῖσθαι τῶν σφενδονητῶν.

a. Construction of *διαβάντες* and *ἔχοντες*.

b. Construction of *προεληλυθότων αὐτῶν*, of *τῶν Ἑλλήνων* and *τῶν Περσῶν*.

III.

HOMER.

1. Translate Iliad I. 43–52.

Apollo hears: and begins to slay the Greeks with his bolts.

Ὣς ἔφατ' εὐχόμενος· τοῦ δ' ἔκλυε Φοῖβος Ἀπόλλων.
βῆ δὲ κατ' Οὐλύμποιο καρήνων, χωόμενος κῆρ,
τόξ' ὤμοισιν ἔχων ἀμφηρεφέα τε φαρέτρην·
ἔκλαγξαν δ' ἄρ' ὀϊστοὶ ἐπ' ὤμων χωομένοιο,
αὐτοῦ κινηθέντος· ὁ δ' ἤϊε νυκτὶ ἐοικώς.
ἕζετ' ἔπειτ' ἀπάνευθε νεῶν, μετὰ δ' ἰὸν ἕηκεν·
δεινὴ δὲ κλαγγὴ γένετ' ἀργυρέοιο βιοῖο.
οὐρῆας μὲν πρῶτον ἐπῴχετο καὶ κύνας ἀργούς·
αὐτὰρ ἔπειτ' αὐτοῖσι βέλος ἐχεπευκὲς ἐφείς,
βάλλ'· αἰεὶ δὲ πυραὶ νεκύων καίοντο θαμειαί.

a. Select five Homeric forms from these lines, and write them with their Attic equivalents.

b. Divide verses 43 and 44 into feet, and mark the chief cæsural pauses.

c. Account for the case of νεῶν (48), and βιοῖο (49).

2. Translate Iliad III. 304–313.

After which Priam returns to the city.

Κέκλυτέ μευ, Τρῶες καὶ ἐϋκνήμιδες Ἀχαιοί·
ἦ τοι ἐγὼν εἶμι προτὶ Ἴλιον ἠνεμόεσσαν
ἄψ, ἐπεὶ οὔ πω τλήσομ' ἐν ὀφθαλμοῖσιν ὁρᾶσθαι
μαρνάμενον φίλον υἱὸν ἀρηϊφίλῳ Μενελάῳ·
Ζεὺς μέν που τό γε οἶδε καὶ ἀθάνατοι θεοὶ ἄλλοι,
ὁπποτέρῳ θανάτοιο τέλος πεπρωμένον ἐστίν.
Ἦ ῥα, καὶ ἐς δίφρον ἄρνας θέτο ἰσόθεος φώς,
ἂν δ' ἄρ' ἔβαιν' αὐτός, κατὰ δ' ἡνία τεῖνεν ὀπίσσω·
πὰρ δέ οἱ Ἀντήνωρ περικαλλέα βήσετο δίφρον.
τὼ μὲν ἄρ' ἄψορροι προτὶ Ἴλιον ἀπονέοντο·

a. Explain the significance and appropriateness of the epithet ἠνεμόεσσαν (305).

b. Give the Attic equivalents for μεῦ (304), ἐγών (305), ὀφθαλμοῖσιν (306), θανάτοιο (309), θέτο (310).

c. Construction of ὁρᾶσθαι (306), μαρνάμενον (307).

LATIN.

I.

LATIN GRAMMAR.

1. What is quantity? When is the quantity of a syllable different from the quantity of its vowel? Mark the quantities of *all* long vowels in the following words: *dixi, jussi, dictum, scriptum, gestum, consensus, inferior, ignis, amantis, amavissem, redissem, monendus, maximus, pessimus, mittere.*

2. Decline *filia, vis, iter, fides, domus, nubes,* marking the quantity of the vowel or vowels in the terminations.

3. Decline *hic*, *qui;* compare *similis*, *acer*, *parvus*, *superus*, *ulterior*.

4. What is a deponent verb? What active forms do deponent verbs have? What passive meanings? Give the synopsis of *sequor* in the third singular, indicative and subjunctive; of *patior*.

5. Into what three systems may the forms of a fully inflected verb be distributed? State the principle of classification. Give the parts belonging to any one system.

6. Classify the ablative constructions; classify conditional sentences.

II.

CÆSAR.

1. Translate: Eodem die ab exploratoribus certior factus, hostes sub monte consedisse milia passuum ab ipsius castris octo, qualis esset natura montis et qualis in circuitu ascensus, qui cognoscerent misit. Renuntiatum est, facilem esse. De tertia vigilia Titum Labienum, legatum pro praetore, cum duabus legionibus et iis ducibus, qui iter cognoverant, summum jugum montis ascendere jubet; quid sui consili sit, ostendit.

2. Give the principal parts of all verbs in this passage (marking the quantity of every long vowel).

3. Explain the principle for the employment of the mood or case of the following words: *die*, *certior*, *hostes*, *consedisse*, *milia*, *passuum*, *essent*, *cognoscerent*. What is the antecedent of *qui* (before *cognoscerent*)? What is the construction of *esse* (after *facilem*)?

4. How did Cæsar happen to go to Gaul? How long did he remain (give dates)? What did he accomplish there? What were the ultimate results of his Gallic campaigns?

III.

CICERO.

1. Translate; Et quoniam nondum est perscriptum senatus consultum, ex memoria vobis, Quirites, quid senatus censuerit exponam. Primum mihi gratiae verbis amplissimis aguntur, quod virtute, consilio, providentia mea res publica maximis periculis sit liberata; deinde L. Flaccus et C. Pomptinus praetores, quod eorum opera forti fidelique usus essem, merito ac jure laudantur; atque etiam viro forti, collegae meo laus impertitur, quod eos, qui hujus conjurationis participes fuissent, a suis et rei publicae consiliis removisset.

2. What was a *senatus consultum* (be precise in the answer)? Explain the duties and functions of a *prætor?* Who is referred to in *collegae meo?* How far is Cicero's characterization of him, as *viro forti*, justified?

3. Account for the mood of *est perscriptum, censuerit, sit liberata, fuissent?* Account for the case of *virtute, periculis, opera, conjurationis.*

IV.

VERGIL.

1. Translate:

Diverso interea miscentur moenia luctu
Et magis atque magis, quamquam secreta parentis
Anchisae domus arboribusque obtecta recessit,
Clarescunt sonitus, armorumque ingruit horror.
Excutior somno, et summi fastigia tecti,
Adscensu supero, atque arrectis auribus adsto:
In segetem veluti cum flamma furentibus Austris
Incidit, aut rapidus montano flumine torrens
Sternit agros, sternit sata laeta boumque labores,
Praecipitesque trahit silvas; stupet inscius alto
Accipiens sonitum saxi de vertice pastor.

2. Scan the first four lines of the above passage, separating the feet, indicating the caesura and marking the quantity of each syllable.

3. When did Vergil live? What works has he left? What is the significance of the Æneid? Name some of Vergil's friends and literary contemporaries.

4. Account for the case of *Austris*, *flumine*. What grammatical figures in *Sternit agros*, *sternit sata?*

V.

LATIN COMPOSITION.

Turn into Latin: When all the men and women had come back home from the country, they said they would never have gone away from the city, if they had known that there were no vacant lands outside the walls.

GERMAN.

1. Translate: (1) When and with whom did you go to school? (2) I have seen the younger son of my rich neighbor in your garden. (3) My good mother wrote me six long letters last year. (4) His high house was built by my father in eighteen hundred and ninety-four. (5) Your sisters will always love our oldest aunt and her daughters. (6) Her boy has translated the new book of your teachers, which they had given him. (7) Where do the two new churches of this city stand? (8) I should like to buy the black horses, that (which) were in the fields. (9) Our little girls would have washed, if they had had cold water. (10) The friends will rejoice that their children love one another.

2. Give the nominative singular and plural of all the nouns in sentences 1–6 inclusive, and the principal parts of all the verbs in 6–10 inclusive.

3. Give the third person, singular, perfect tense; the second person, plural, imperfect; and the first person, singular, future, of four verbs, one regular, one irregular, one reflexive and one passive, no one of which is contained in the above sentences.

4. What prepositions govern: (1) The dative; (2) the accusative; and (3) the dative or accusative? Give sentences containing one preposition from each class.

5. Give, in German and in your own words, a brief synopsis of any of your reading lessons (prose or poetry).

MATHEMATICS.

I.

ALGEBRA.

1. Simplify each of the following expressions:

$$\left(\frac{x}{x-y}-\frac{y}{x+y}\right)\left(x^2+2xy-y^2\right)\div\left(\frac{x}{x-y}+\frac{y}{x+y}\right)$$

$$\left[\left(a^{\frac{4}{3}}b^{\frac{3}{4}}\right)^{-\frac{1}{2}}\left(a^{-\frac{3}{4}}b^{-\frac{4}{3}}\right)^{\frac{1}{2}}\right]^{-24}$$

$$\left(\frac{\sqrt{x+a}}{\sqrt{x-a}}-\frac{\sqrt{x-a}}{\sqrt{x+a}}\right)\frac{\sqrt{x^3-a^3}}{\sqrt{(x+a)^2-ax}}$$

2. Show that $4a$ is the sum and b the product of the roots of $x^2-4ax+b=0$. Form the equation whose roots are 2 and -12.

3. State and explain two different methods of elimination in the case of two equations of the first degree containing two unknown quantities. Find x and y from the equations

$$3x-4y=1$$

$$\frac{x}{3}=\frac{y}{2}$$

4. Obtain a meaning for a^{-n} and for a^{o}.

5. Find two numbers in the ratio of $\frac{1}{2}$ to $\frac{2}{3}$ such that if the first is increased by 6 and the second by 5 the results will be in the ratio of $\frac{2}{3}$ to $\frac{1}{2}$.

II.

PLANE GEOMETRY.

1. Prove that two opposite angles of any quadrilateral inscribed in a circle are together equal to two right angles.

2. About a given circle, describe a triangle similar to a given triangle.

3. Prove that if the vertical angle of a triangle be bisected by a line which cuts the base, the rectangle contained by the sides of the triangle is equal to the rectangle contained by the segments of the base, together with the square on the straight line which bisects the angle.

4. What fractions of a right angle will the angles of a pentagon be if in the ratios of the numbers 1, 3, 6, 9, 11?

5. Describe a square about a given circle. Compare the areas of the squares described about and inscribed within the same circle.

III.

SOLID GEOMETRY.

1. Define a pyramid and its faces, edges, angles, base and apex.

2. Prove that parallel sections of a pyramid are similar polygons.

3. Compare the volume of a sphere 10 inches in diameter with one 10 inches in diameter having a 6-inch cylindrical hole through its center.

4. Prove that two spherical triangles on equal spheres having their angles mutually equal and in the same order are themselves equal. Compare the triangles in case the spheres are *not* equal.

PHYSICS.

1. Prove the formula for the space passed over by a falling body in a given time. Apply the formula to determine the distance when the time is 7 seconds.

2. Distinguish between the uses of the thermometer and the calorimeter:— between specific heat and latent heat.

3. What are the three characteristics of a musical sound? Explain what determines each.

4. What is a spectrum, and why is one produced when sunlight passes through a prism?

5. Describe an electroscope and show how to ascertain whether a body is positively or negatively charged.

6. Enumerate the essential parts of a voltaic battery. Upon what does the current strength depend, and how is it measured?

BOTANY.

1. Name all the parts of a seed and a well-developed embryo.

2. Explain the structure of a root. Define "fibrous" and "tap" root.

3. State essential differences between mono- and dicotyledonous stems.

4. State the chief functions of aerial stems.

5. State the chief forms of aerial and subterranean stems.

6. Describe the structure of a scaly bud.

7. Explain the structure of a leaf.

8. State the chief functions of leaves.

9. What is meant by the *italicized* terms in the following:

"The type or patter flower is *complete*, *regular* and *symmetric* with all the parts *distinct*."

10. Define *drupe*, *capsule* and *berry*.

PHYSIOLOGY.

1. Name and describe the various kinds of joints, and tell the different movements which each can execute.

2. Name and describe the different kinds of teeth.

3. What is the pulse? How is it caused and why is there no pulse in the veins?

4. Why is it more dangerous to cut an artery than a vein, which normally carries the same quantity of blood?

5. Name the glands attached to the digestive tract, and tell what work each has in digestion.

6. How are sugars absorbed? Fats? Trace the course of each to the heart.

7. What is dyspepsia? How caused and avoided?

8. What is the use of oxygen? How is it carried to the tissues of the body?

9. Define and give example of reflex action.

10. Describe the internal ear.

HISTORY.

I.

ANCIENT HISTORY.

1. Write a brief account of the Hyksos, or Shepherd Kings.

2. What is the importance of Phoenicia in ancient history?

3. Enumerate the causes and results of the Persian wars.

4. Describe briefly the government of Sparta.

5. Give a brief history of the Theban supremacy.

6. Describe the geography of Italy and give a brief account of its early inhabitants.

7. What were the results of Cæsar's wars in Gaul?

8. Who were Pyrrhus, Sulla, Crassus, Trajan, Constantine?

II.

ENGLISH HISTORY.

1. Narrate briefly the history of the Romans in Britain.

2. How and when was Christianity carried to England?

3. Mention four important events in the history of the fourteenth century.

4. What can you say of Magna Charta and the Petition of Right?

5. How and when did the English obtain Canada and India?

6. Write a brief account of the Corn Laws and the first Reform Bill.

7. Who were Becket, Simon de Montfort, Strafford, Walpole, Canning?

III.

AMERICAN HISTORY.

1. Give names and dates of first permanent Spanish, French, English and Dutch settlements.

2. Give what is most important in the history of Florida from its discovery until it became a part of the United States.

3. Give names and dates of the principal colonial wars.

4. Give an account of Burgoyne's campaign in New York.

5. When, where and to whom did Cornwallis surrender? What was the effect?

6. Give an account of Arnold's treason.

7. Name the Presidents elected by the old Republican party; the Democratic party; the Whig party.

8. Give the leading events of Polk's administration.

9. How many attempts did Lee make during the Civil War to invade the northern states, and how, where and by whom was he checked?

10. Give the principal military operations under McClellan during the Civil War.

ENGLISH.

I.

ENGLISH LANGUAGE.

1. Classify sentences according to form. Illustrate each form.

2. Write a sentence containing an adjective, an adverb and a substantive phrase.

3. How is the possessive plural of nouns formed?

4. Write the plural of penny, brother, pailful, piano, 6.

5. Define clause.

6. Classify pronouns.

7. Write synopsis of *sing;* active, indicative, third singular.

8. Give the principal parts of lie, lay, sit, set, eat, hang.

9. Correct and give reasons: (*a*) The ship and all her crew was lost. (*b*) It was me whom you say came yesterday. (*c*) I can not hardly believe the report. (*d*) It is not for such as us to decide. (*e*) Let any one do this if they can.

10. Diagram the following: I know the people of these colonies, and I know that resistance to British aggression is deep and settled in their hearts and cannot be eradicated.

II.

ENGLISH LITERATURE.

1. Describe the works of three writers of the Anglo-Saxon period.

2. Describe the effect of the Norman conquest on the English language and literature.

3. Describe Piers Plowman and the Canterbury Tales.

4. Describe the state of English literature in the fifteenth century.

5. Name the principal writers of the Elizabethan age with their chief works.

6. What was the character of the period from Dryden to Dr. Johnson, and who were the chief writers?

7. What was the character of the period from Cowper to Scott, and who were the chief writers?

8. What is the character of the period from 1830 to the present time?

9. Name the leading novelists of this century.

10. Describe the works of Thos. Carlyle.