

such an interlocked manner, that when the "points" are moved so as to allow a train to pass, the signal-arm necessarily falls, and the remaining arms keep up—barring the path until the first train has passed. With his time-tables, the signalman knows what trains to expect; with the aid of his telegraphs, he knows of the actual whereabouts of coming trains; and with his machinery of levers and flags, he must keep the line clear of less important trains until others have passed.

It is a busy scene. From the windows, you may glance down into the carriages of passing trains, may investigate the contents of loaded waggons, or may guess by the ancient and fish-like smell at those of others, though hidden from the eye. Nor is it devoid of attraction, for along the line, creeping as it does under bridges and through cuttings, and passing over embankments and bridges, there are glimpses of scenes varying in their beauty, colour, and nature; and to these the passing presence of the brightly-painted carriages, with the fitful puffs of grey smoke to show the progress of the locomotive, adds rather than lessens. But it is at night that the scene becomes spectacular. Then, from fire and flaring gas-jets, the cabin is illuminated, and the light is flung far into the darkness. The trees that crest a hill near are in one dark and indefinable mass, behind which the occasional twinkle of light in the town beyond may be seen, as the mass sways to and fro in the wind, and moans like the sea on a lone shore. Along the course of the line, on every hand, are stars of light at regular intervals, varied in shape of combination, and varied in colour—white, red, and bluish-green—forming the points of triangles, squares, and perpendicular rows; far off, long lines of light, equi-distant, pointing out the platform and the station. A river-side manufactory throws from its many windows a gleam of light down on the dark waters; whilst from the rolling-mills there spreads a halo of light, throwing into bold relief the cottages near, and rendering spectral in their

greyness the ascending streaks of smoke. Through this scene there dashes a stream of traffic: mail trains, lit until every compartment shows the sides to us as plain as in the day; slower-travelling "parliamentary" trains, with noisier cargo, excursionists venting their impressions of popular tunes; and less visible but, perhaps, more audible goods trains; engines, flying by like riderless steeds, and leaving fiery gleams in their track, long and dark lines of mineral waggons—are each in some shape grim reminders of the vast traffic which is ever rolling on across the narrow steel rails, in apparently endless confusion, but each marked, its time and turn assigned in the working time-tables, and each gauged, controlled, and directed over the domain he has charge of by the signalman. Still more shrilly, in the quiet night-time, rings out the tinkle of the bell; still louder seems to sound the boom of the gong, and the very rattle of the handles or the name-plates of the levers, as they rise and fall, convey a greater idea of their importance.

From conversation with the signalman, it appears that the cabins are divided into ranks, classified according to their importance as defined by the number of trains, or the amount of traffic; and this determination affects the pay of the signalmen, and the hours of their labour. In the typical cabin we have visited there are three signalmen employed, who divide the twenty-four hours equally, and so arrange their respective "shifts" of work that night-work comes equally to each of the three once in three weeks. As the number of trains of all sorts passing the signalman's cabin and needing his attention is, on the busier days of the week, close upon 300 in each "shift," the work of eight hours is by no means light—even physically. It does not vary much between day and night, the falling off in the passenger traffic at night being counterbalanced by the increased amount of heavy goods and mineral traffic. The post, therefore, of the signalman is none the less onerous because it is unseen, and the "cherub up aloft" has no sinecure.

## HIGHER EXAMINATIONS FOR WOMEN.



towards the close of the eighteenth century, and compare it with that now existing, what a contrast is at once apparent! What man of our forefathers a century back could ever have imagined that in the year of grace eighteen hundred and seventy-eight women would be competing *with* men

**I**F we were asked to give one of the great signs of the progress of the modern age, perhaps we could not do better than point to the present education and intellectual status of women. If in imagination we take even the most cursory glance at the education of women

on equal terms in public examinations, would in many instances wrest prizes for intellectual superiority out of their very grasp—aye, and in some cases work their way to the front ranks in the learned professions? Yet so it is. The dame-schools for the girls of the poorer classes, where they learnt to spell, and knit and sew; the home education of the middle and higher classes, with its elementary instruction, and its modicum of accomplishments—these are things of the past, and their place is now taken by Board schools in the first instance, and in the second by high-class seminaries and high schools, colleges—aye, and universities also—where lectures are delivered to women by learned professors representing the highest intellects of the day.

But it is with one feature only of this great change that we now propose to deal—the Higher Examinations for Women—excluding also all consideration of



those more special examinations which women must pass who wish to enter the medical profession; these may, perhaps, be dealt with in another paper.

Already in a paper on "Local Examinations" (published in the August, 1877, Part of this Magazine) we have fully considered a number of examinations—all high-class in their way, and open in most instances to young people of both sexes alike; what we have now to discuss is a series of still higher examinations, more especially designed for women of an elder growth.

Foremost among these are the examinations for degree-certificates granted at Girton College, Cambridge. As with University degrees, they are conferred only on students resident in the College, who have kept the requisite number of terms extending over three years, and who have attended the regular courses of lectures, &c. The certificates are held on the same conditions as those in force for degrees in the University of Cambridge, and as a matter of fact are equivalent in value to a degree, the examinations being held in the same papers. Candidates for admission to the College must, except in special cases, be not less than eighteen years of age, and they are required to pass an entrance examination. The inclusive fees, for board, lodging, and instruction, amount to a hundred guineas a year, and this too for a College year of six months only. The expense, therefore, of a Girton certificate is by no means slight, though the cost to young ladies of high attainments and industry may be lessened by the acquisition of scholarships, and prizes.

The Cambridge Higher Local Examinations, for persons of both sexes over eighteen, have already been discussed in the Magazine (Vol. III., page 570); we, therefore, pass on to those held by the sister University for women *only* over eighteen years of age. The second of these examinations will commence on Monday, May 27, 1878, and will consist of a Preliminary and a Further Examination. Candidates who satisfy the delegates in the Preliminary may proceed to the Further Examination at once, or may postpone this latter to a subsequent year. But no candidate will be admitted to the Further Examination unless she has passed the Preliminary or some other examination accepted by the delegates as equivalent.

For the Preliminary every candidate will be required to satisfy the delegates in—

1. English Composition.
2. Any two of the following languages:—Latin, Greek, French or Italian, German.

N.B.—Candidates will be expected to answer questions on the grammar of the languages selected, and to translate a piece of easy English into Latin, French or Italian, and German, as the case may be; furthermore, in Latin and Greek special authors must be brought up, as, e.g., for this year:—Latin: Caesar, *Bell. Gall.*, I. and II.; Virgil, *Æneid*, I. Greek: Euripides, *Alcestis*; Xenophon, *Anabasis*, I. and II.

3. Arithmetic.
4. (a) Euclid, Books I. and II. (or the portion of Geometry treated therein), or (b) Algebra to Simple Equations, inclusive.

The Further Examination consists of a Pass Examination, and an Examination for Honours. The Pass Examination consists of six sections, as follow, of which the candidate must satisfy the delegates in Section A, and in one at least of the other sections:—

- A. Languages. Those prescribed for the Preliminary Examination, but of a higher character. A pass in two languages required.
- B. Ancient History, Greek and Roman.
- C. Modern History. English History of a specified period, and French or Continental History of some stated period.
- D. Mathematics. Algebra, including Quadratic Equations, and the simplest properties of Ratio and Proportion; Euclid, Books I.—IV.; the Elements of Mechanics.
- E. Physical Science. The Elements of Physics, including Mechanics, and either Heat, Light and Sound, or Magnetism and Electricity; the Elements of Chemistry. Candidates have also the option of offering in addition the Elements of Biology and Geology.
- F. Logic and Political Economy: the Elements only.

The Examination for Honours includes eight sections, and candidates may offer to be examined in one or any two of these sections at the same examination. Successful candidates are divided into three classes in each section. The eight sections are:—1. English. 2. Latin and Greek. 3. German, French, Italian, and Spanish—the first language and one, at least, of the remaining three. 4. Mathematics, Pure and Mixed. 5. Ancient History, with Latin and Greek Texts. 6. Modern History, with Original Texts. 7. Mental and Moral Philosophy. 8. Physical Science: Physics, Chemistry, Biology, Geology—one or more of these. It is, of course, impossible to give in our limited space full particulars of the scope of each of these sections. Suffice it to say that they are all of an advanced character, and that full particulars may be obtained on application to the Rev. S. Edwardes, Secretary to the Delegacy, Merton College, Oxford.

The fee payable for the Preliminary Examination is £2; and £2 10s. for the Pass Examination, and for each section of the Examination in Honours.

The University of London holds two examinations for women over seventeen years of age:—I. A General Examination once a year, commencing the first Monday in June, the fee for which is £2. II. Special Examinations for certificates of higher proficiency, open free of charge to all who have passed the General Examination, and commencing the third Monday in June.

For the General Examination, which is in all respects similar to the Matriculation Examination of the University, candidates will not be approved unless they show a competent knowledge in *each* of the following subjects:—

1. Latin. A specified Latin subject, Latin Grammar, easy Latin Composition, and Roman History and Geography, so far as applies to the specified author.
2. Any two of the following languages:—Greek, French, and German. Consisting, in the case of the Modern Languages, of translation into English, and Grammar; and in Greek, of a specified Greek subject, Grammar, and Greek History and Geography, so far as applies to the specified author.
3. English Language, English History, and Modern Geography.
4. Mathematics, consisting of Arithmetic; Algebra to Simple Equations, inclusive; Euclid, Books I.—IV.
5. Natural Philosophy—the Elements of Mechanics, Hydrostatics, Hydraulics, Pneumatics, Optics, Heat.
6. Chemistry (Elementary).

For Certificates of Higher Proficiency, candidates may be examined in any one or more of the following subjects, either in the same or in different years:—1. Latin. 2. Greek. 3. French. 4. German. 5. Italian. 6. English. 7. Mathematics and Mechanical Philo-



sophy. 8. Natural Philosophy and Chemistry. 9. Botany. 10. Human Physiology. 11. Geology and Palæontology. 12. Political Economy. 13. Logic and Moral Philosophy. 14. Harmony and Counterpoint. In each of these subjects the examination is of an advanced character. Full particulars, together with all regulations, may be obtained on application to the Registrar of the University of London, W.

The University of Edinburgh also holds examinations for women twice in every year, for certificates in Literature, Philosophy, and Science. These, however, are only open to those students in the classes of the Edinburgh Ladies' Educational Association, who have previously passed the Local Examinations of Edinburgh, Oxford, or Cambridge.

Candidates who have attended any three at least of the classes sanctioned by the Association and approved by the *Senatus Academicus*, may, if they have passed any of the aforesaid locals, present themselves for examination in the subjects taught in the said three or more classes, and on passing in not less than three subjects will receive a University Certificate in Literature, Philosophy, and Science.

The certificates are of two grades—Pass and Honour, the latter being awarded to those who, having passed a satisfactory examination in at least three subjects, have exhibited high proficiency, to be tested by a special examination for Honours, in *one* of these subjects, selected by the candidate. It will not be necessary to give further particulars, beyond stating that the fee for the Pass Certificate is £2 2s., and that no additional fee is required for an Honour Certificate.

Trinity College, London, in addition to the Local Examinations in Elementary Musical Knowledge, of which mention has been made in a previous paper, has lately decided to hold Higher Musical Examinations for Women, twice in each year, at Midsummer and Christmas; these examinations are open to all, without respect to age, and afford the only opportunity at present available to women for obtaining a recognised musical diploma.

The subjects of examination, which may be entered for separately, are as follow:—1. Harmony, in not more than four parts. 2. Counterpoint, in not more than four parts. 3. General Musical Knowledge, including Musical History. 4. Pianoforte-playing, or the Organ. 5. Vocal Music. Certificates of two classes will be granted in each subject, any one or all of which may be taken at a time. Any candidate taking *three* first-class certificates is eligible as a

candidate for a further Honours Examination in Music.

The fees payable at these examinations are half-a-guinea on entrance, and half-a-guinea for each certificate. It is, perhaps, needless to point out the value of these certificates to all women-teachers of music; the examinations were, indeed, instituted by the College in answer to continual applications from governesses and teachers for some sort of certificate which should be awarded solely on the results of examinations open to all comers, and yet which should have a recognised value as a guarantee of musical proficiency. The full regulations for these examinations may be obtained on application to the Secretary of Trinity College, London, W.

Examinations for teachers are held half-yearly by the College of Preceptors, for the diplomas of Associate, Licentiate, and Fellow. These are open to persons of both sexes alike, and are of decided value to women engaged in scholastic work.

According to the prospectus issued by the College, "the qualifications required for the grade of *Associate* are somewhat higher than those required by the Committee of Council for certificated teachers of the first class; and those for the grades of *Licentiate* and *Fellow* correspond as nearly as possible to those required for an Ordinary Degree and for an Honour Degree in Arts, respectively, at the principal Universities of Great Britain and Ireland." In one respect these diplomas have a practical value for teachers, as they certify to some extent the holder's ability to teach, as well as her actual knowledge, for the "Theory and Practice of Education" is an obligatory subject of examination for each grade. The fees are as follow:—For all three grades, £1 1s. for each examination for which the candidate is entered; and for the Associateship, Licentiateship, and Fellowship, £1 1s., £2 2s., and £5 5s. respectively, when the diploma is granted. All further information may be obtained on application to the Secretary of the College, London, W.C.

Such, then, are some of the chief Higher Examinations for Women now held annually throughout the country, and forming so important a factor in our educational system. The ground which had lain fallow for so many years is even now but freshly turned, and the real practical value of the work which has been begun will therefore be more plainly evident in a few years' time. But already there is an abundant crop, and present tangible results can be pointed to as earnest of golden harvests of good in the future.

G. W.

