

"There," he said; "to hear her singing, and to know how she loves him, it quite unmans me."

I gave him some cold water, and he took it and dashed it over his face, and this quieted him.

"Now, Ruth, for the news. Yes, you may well turn pale. You were right about his first love. You were wiser than I. 'Tis all up with Vane. He saw her in the cab even before he got here, and—and—I did not think he'd be such a pitiable creature—but, Ruth, there'll be no wedding to-morrow."

"What do you mean? No wedding!" I stammered.

"Ask Ellen. See what she'll say after she has read that note. There, you may look at it; he gave it to me open."

I took the sheet of paper, on which a few lines were scrawled and blotted:—

*"I will marry you, but I don't love you. Your sister Amy is my first love."*

Of course there was no wedding—but I won't talk of it. Amy, when she heard what she had unwittingly done, went away, and Mr. Vane never came back again. Oh, it was a dark time! but I won't write of it, nor tell how my darling suffered, nor how utterly changed she is now. I love her more dearly and tenderly than before, and I think she likes to have me with her, and, after me, perhaps Charlie next best.

Amy and Mr. Vane were married a month ago. Ellen quite saw that it must be.

Charlie is the only one of us three at all hopeful, and he will go on saying that the right prince will yet find Cinderella.

### "FROM HIS LOVING MOTHER."

BY REV. CECIL MOORE, B.A.



*ONLY a name;* but a mother's hand  
Writes not in perishing faithless sand:  
Back from the vault of long-buried years,  
Rise memories far too deep for tears.

*Only a name;* but 'tis writ in gold,  
For the hand that fashioned the word is cold:  
Spell-bound on the writing the eyes will fall,  
As the Persian gazed on the warning wall.

Yet the gaze shall leave nothing of doubt or dread,  
It appeals to the heart with a voice from the dead,

And the dear loved characters stand to prove  
A truth never doubted, a mother's love.

Such love as she might to a creature of earth,  
She gave to her child when she gave him birth;  
And, perchance, from the bright spirit-world her eye  
Still marks how he moulds his destiny.

Yea, hushes her harp and with bated breath  
Prays while he wavers 'twixt life and death;  
And if tears from the earth could dim angels' eyes,  
Hers are his griefs with his victories.

### POPULAR SCIENCE SCHOOLS AND CLASSES.

BY A FORMER STUDENT.



**I**N a paper on the Sessions of the London Colleges lately published in this MAGAZINE, we had occasion to refer to the aid afforded to many Literary and Scientific Institutions by the Science and Art Department of the Committee of Council on Education.

The nature and value of this assistance are not, we believe, so generally known as they deserve to be, and we feel that no apology is needed for giving our readers some account of the work done, and of the inducements to further effort held out by the Department.

Every year a sum of money is voted by Parliament for scientific instruction in the United Kingdom, and is administered by the Science and Art Department. The grant is intended "to promote instruction in science, especially among the industrial classes, by affording a limited and partial aid or stimulus towards the founding and maintenance of Science Schools and

Classes." Speaking generally, the aid is given in the form of public examinations, in which Queen's prizes are awarded, held at all places complying with certain conditions; payments on results as tested by these examinations; scholarships and exhibitions; building grants; and grants towards the purchase of fittings, apparatus, &c.

A fundamental requisite, before grants of any sort can be claimed, is that Science Classes shall have been established in conformity to regulations laid down by the Department; this done, the prescribed examinations, on the results of which the prizes, scholarships, and exhibitions depend, follow. That classes may be established, some kind of building is required in which to hold them, and sundry appliances are needed, to provide which must be the part of some corporate body—whether Institution, College, or School. In showing then, in the first place, how Science Schools and Classes may be formed, and what assistance they may expect to derive from the Department, we really start at the commencement of our subject.

Prior, then, to the establishment of any Science

School or Class a responsible committee must be formed, consisting of a chairman, a secretary, and at least three other members, all of whom must be "well-known responsible persons of independent position, who have no such personal interest in the school or class as can lay them open to the slightest suspicion of partiality." It is absolutely necessary that the chairman and at least one other member of this executive committee should be persons holding recognised positions of public responsibility in the proposed district, such as mayors, provosts, aldermen, town councillors, magistrates, members of School-boards, trustees of grammar-schools, clergymen of the Established Church in parochial employment, and ministers of religion in charge of legally recognised places of worship. The committee having been arranged, a form (to be obtained from the Science and Art Department) must be filled up and signed by each member of it, undertaking amongst other things to provide a room or rooms of sufficient size to carry out the annual examination, according to the detailed regulations prescribed in the Science Directory. If two or more classes within a reasonable distance of one another apply for the examination of the Science and Art Department, a general examination committee must as a rule be formed by the amalgamation of the several committees to carry out the examinations at some common centre, such as the town-hall or other public building. Committees holding Science and Art Examinations are required to make arrangements for admitting outside students who apply to be examined in any subject in which an examination is to be held, so long as there is room for them. They are at liberty to charge such students a fee not exceeding one shilling for each subject in which they register their names for examination.

It is provided that suitable premises for class instruction, with firing and light, must be maintained; and if at any time the funds do not cover the requisite local expenses, the Department announce that they will infer that there is no such demand for instruction in the locality as the Government is justified in aiding, and its assistance will thereupon be withdrawn. As often as may be necessary an Inspector of the Department will visit the school or class, and report on the condition of the premises, the constitution of the committee, and the manner in which the minor regulations, such as the registry of the students, attendances at lectures, &c., are carried out.

The Science and Art Department holds annually about May, through the agency of the local committees, public examinations in almost every branch of science—in all about twenty subjects—in any place in the United Kingdom which complies with the requisite conditions. The examination in each subject lasts three hours and is held during the evening, under the supervision of three or more members of the local committee, who must carefully watch the whole examination, and see that candidates use no unfair means, either by assisting one another or using books or notes. The examination over, the worked papers must be sealed up by the members of the committee

present and forwarded to the Department. The examinations are of two kinds—ordinary Class examinations, and Honours examinations of a highly advanced character. For the purpose of the former each subject is divided into two stages, the Elementary and the Advanced—except Mathematics, which is divided into seven stages. There is a different examination paper for each stage, and in each there are two grades of success—first and second class. For the second or lowest class of the elementary stage, the standard of attainment required is only such as will justify the Examiner in reporting that the instruction has been sound, and that the students have benefited by it.

At these examinations Queen's prizes of books or instruments are given to all candidates who obtain a first class in the elementary or in the advanced stage of a subject, or in either of the seven stages of Mathematics. In addition to the prizes, three Royal Exhibitions, of the value of £50 per annum, tenable for three years, to the Royal School of Mines, London, and three to the Royal College of Science, Dublin, are annually given in competition. The exhibitions, which carry free admission to all lectures and to the laboratories, are given on the condition that the holders attend the courses of lectures at the Colleges regularly, comply with all the regulations laid down for their guidance, and pass the examinations required for the associateship of the school.

Payments on results of the annual examinations are made at the discretion of the Department, either directly to teachers or to the committee of the school. With the relation of the teacher to the committee the Department does not interfere, so that the payments on results may be taken entirely by the teacher, by the teacher and committee (acting on behalf of the school) jointly, or wholly by the committee. Payments are only made on the understanding that the student has received twenty lessons at least from the teacher in each subject in which payment is claimed—each lesson being an attendance at the school of at least one hour's duration on a separate day. Furthermore, these payments are made to the qualified teacher on account of the instruction of students of the industrial classes only. Under this head are included artisans, operatives, and others in the receipt of weekly wages, teachers of certain elementary schools under Government, and persons in the receipt of less than £200 per annum from all sources. The sums claimable for each student who has passed in either stage of a subject are, in each subject, £2 for a first class and £1 for a second class. For a first or second class in the honours division of a subject £4 and £2 are claimable respectively. Where the class in any science is large at any particular school, and where the lecturer is energetic, it is astonishing how large these capitation payments may become. Take for example the case of a man who lectures on Physics and has 100 students, not at all an out-of-the-way number for such classes. For the purpose of the annual examination Physics is divided into two branches—Magnetism and Electricity, and Acoustics, Light and Heat; the teacher, therefore, must give at least two hours a week to the combined

subject. Let us suppose he passes 80 students out of the 100 in each subject, 40 first class and 40 second; he would then receive no less than £240 in capitation payments. And these figures are not illusory; such results have actually been obtained. As a rule, of course, these payments are all that the lecturer receives; the students' fees go to pay the general expenses of the classes, &c., and in some cases the committee may feel justified in arranging with the teachers to take for the same purpose a proportion of the capitation payment. Nor does this payment on results benefit teachers or managers of Science Schools alone, as might be at first supposed, for on this grant depend the very low fees (merely nominal in some cases, but it is provided by the Department that some charge must be made) payable by the student in return for his instruction. When, then, in addition to the low fees, we consider the inducements held out in the way of prizes and exhibitions, the value of the Departmental aid, as far as students are concerned, can be fully appreciated.

The subject of payments on results brings us to the question of the necessary qualifications of teachers, to entitle them to these payments.

Except in the case of Graduates of any of the Universities of the United Kingdom, or Associates of the Royal School of Mines, London, or the Royal College of Science, Ireland, the teacher, before being in a position to claim payments on results in any subject, must have previously obtained—(a) a teacher's certificate according to the rules of the Department in force previous to 1867; (b) a first or second class in the advanced stage or taken honours at the May Examinations in the subject he proposes to teach; (c) a certificate in the Training Classes at South Kensington.

In certain cases where there is a local organisation for a general system of science instruction, and where local teachers are not available, teachers who are engaged in giving lectures in science in several villages or small towns may receive special grants in aid of their travelling expenses. Under certain conditions, teachers may obtain free admissions to the lectures at the Royal School of Mines and the Royal College of Science; there are also special grants to teachers who wish to visit the London museums, &c., which we cannot here do more than mention, as we must pass on to glance at other assistance offered by the Department.

Grants in aid of a new building, or for the adaptation of an existing building, for a School of Science, may be made at a rate not exceeding 2s. 6d. per foot of internal area, up to a maximum of £500 for any one school. There are, however, certain provisos, the chief of which is that the proposed school must be built either in connection with a School of Art aided by a Department building grant, or under the Public Libraries Act, by which any town, parish, or district is empowered by a vote of the rate-payers to levy a rate not exceeding one penny in the pound for the

establishment and maintenance of buildings, with the requisite appliances, suitable for "Public Libraries and Museums, or both, or for Schools for Science or Art." It will be seen, therefore, that unless the Science School is intended to be more or less of a public character, the building grant cannot be claimed. Grants towards fittings of special construction for laboratories or lecture-rooms, and the purchase of apparatus, diagrams, &c., of 50 per cent. on the cost of them, may, at the discretion of the Department, be made to duly qualified Science Schools and Classes.

Grants are also made to assist local efforts in founding scholarships and exhibitions, on condition that there is voluntary pecuniary aid on the part of the locality, supplied by the contributions of *living* persons. Funds derived from endowments or from moneys held in trust—the donor being dead—will not be held as satisfying this condition. The scholarships are intended to maintain the student while remaining at a day-school, and are of the respective values of £5 and £10. Local exhibitions of the value of £25 per annum will be granted to the managers of any school or educational institution, or any local committee formed for the purpose, who will raise the like sum by voluntary contribution for the maintenance of a student at some college or school where a thorough course of scientific instruction of an advanced character may be obtained. The exhibition may last for one, two, or three years. Amongst other minor conditions attending the grant of the local exhibitions are, that they must be awarded in competition in one or more branches of science at the May Examinations. The place or places where the exhibition is to be tenable may be fixed by the managers, subject to the approval of the Science and Art Department, provided that the exhibitor shall always have the option of going to one of the Government Institutions.

In this slight sketch of the work of the Science and Art Department in respect to Science Schools and Classes throughout the country, we have not of course been able to give full particulars, but these may be gleaned by all interested in the subject—whether managers of Institutions, teachers, or students—from the comprehensive Science Directory issued by the Department.

We think we cannot conclude our subject better than by giving a few figures to show the real work done and the good accomplished by the Science and Art Department. Last year the Science Schools in Great Britain and Ireland were 1,484 in number, with 4,559 classes, and no less than 52,330 students. With such a diffusion of the knowledge of elementary science among the rising generation as these figures proclaim, we may indeed flatter ourselves that we have seen the last of the general ignorance of science so prevalent amongst the masses twenty or thirty years ago, and we may well bring such statistics forward as an earnest of the great inventions and discoveries to be expected in the future.

