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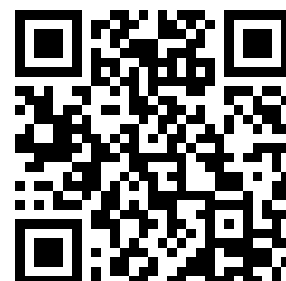
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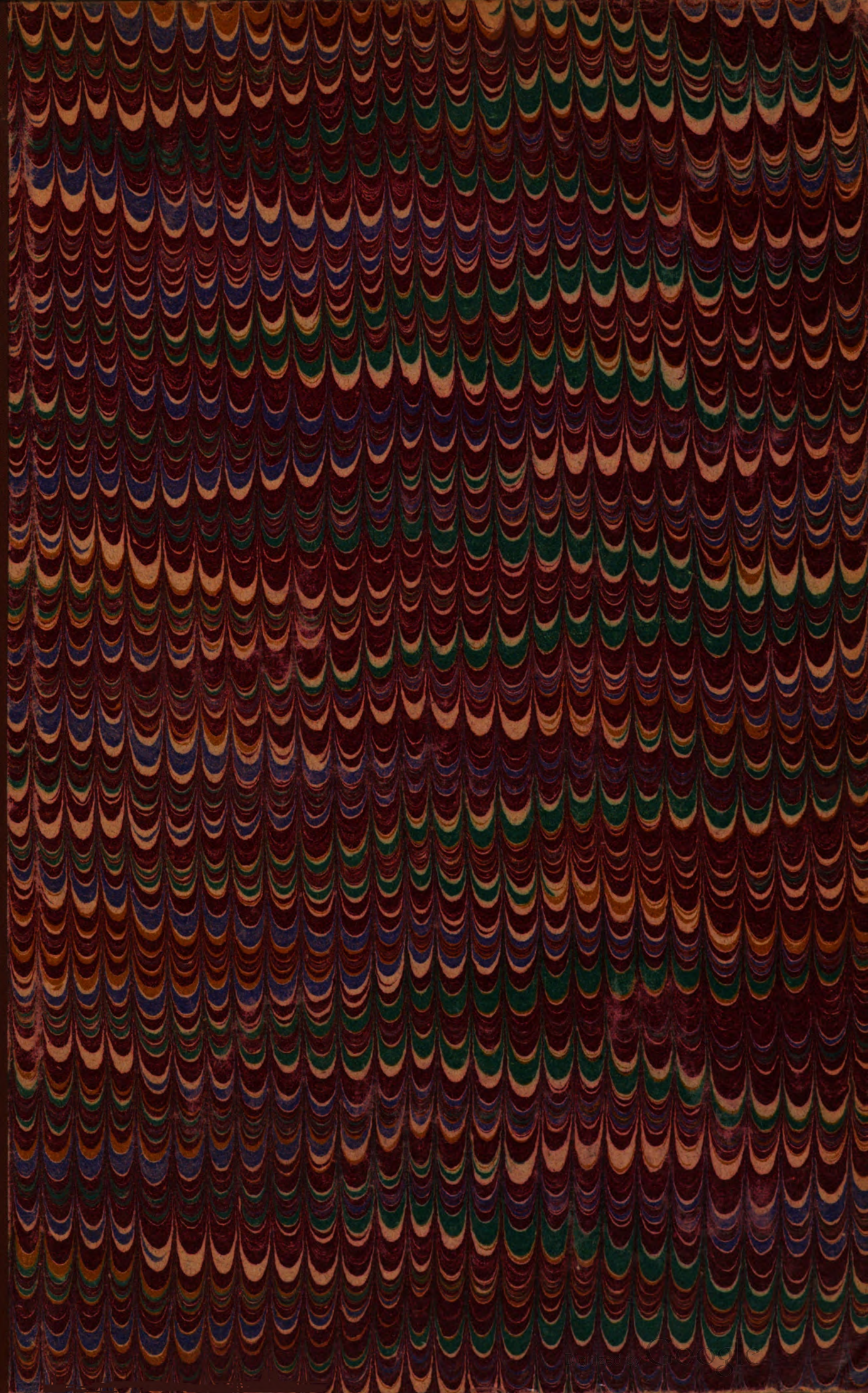
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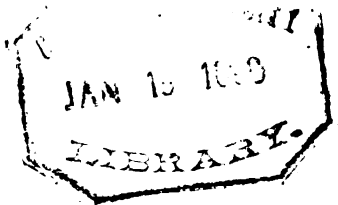
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AND
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Vol. LII.] New Series, No. 453.

JANUARY 1, 1899.

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COLLEGE OF PRECEPTORS.—
The Half-Yearly General Meeting of the Members of the Corporation will be held at the College, Bloomsbury square, W.C., on Saturday, January 21st, at 3 p.m.
C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
EXAMINATIONS FOR 1899.

1. **DIPLOMAS.**—The next Examination of Teachers for the Diplomas of the College will commence on the 3rd of January, 1899.—At the Midsummer Examination, persons who have previously passed in Theory and Practice of Education at the Diploma Examination may be examined practically for Certificates of Ability to Teach.
2. **CERTIFICATE EXAMINATIONS.**—The Midsummer Examination for Certificates will commence on the 27th of June.
3. **JUNIOR FORMS EXAMINATIONS.**—The Midsummer Examination will commence on the 27th of June.
4. **PROFESSIONAL PRELIMINARY EXAMINATIONS.**—These Examinations are held in March and September. The next Examination will commence on the 7th of March, 1899.
5. **INSPECTION AND EXAMINATION OF SCHOOLS.**—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—In addition to the Doreck Scholarship of £20, the following Prizes will be competed for:—Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Natural Science, £5.

Certificate Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes will also be awarded to the Third and Fourth in General Proficiency, and to the First and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Sciences, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History. Two Medals will be awarded to the best Candidates in Shorthand.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

PRELIMINARY EXAMINATION OF MEDICAL STUDENTS.—The COLLEGE OF PRECEPTORS will hold an Examination for Certificates recognised by the General Medical Council as qualifying for Registration as a Medical Student, on the 7th, 8th, and 9th of March, 1899.

The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

Examination Fee, 25s.

Regulations and Entry Forms may be obtained on application to the Secretary of the College of Preceptors, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
EXTRACT FROM THE BY-LAWS.

Section II., clause 5.—"The Council may grant the privileges of Membership, without payment, to holders of Diplomas of the College, as long as such persons are engaged in teaching in Secondary Schools."

Holders of the College Diplomas who are not Members of the College are requested to send their Addresses to the Secretary of the College, Bloomsbury Square, W.C.
C. R. HODGSON, B.A., *Secretary.*

WINTER MEETING FOR TEACHERS (JANUARY, 1899)

conducted by the

COLLEGE OF PRECEPTORS
(Bloomsbury Square, London, W.C.)

The success of the last Winter Meeting has encouraged the Council to make arrangements for another similar Meeting, to take place at the College of Preceptors in the first fortnight in January, 1899.

The Meeting will extend over two weeks, and the Programme will comprise an Inaugural Address by Sir Joshua Fitch, Lectures on educational subjects, Visits to educational institutions, a Conference on the Training of Modern Language Teachers, a Conference on Science Teaching, and a Conversation at the Clothworkers' Hall. (For complete programme, see page 1.)

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.
(Bloomsbury Square, W.C.)

LECTURES FOR TEACHERS.

The First Course of Lectures (Twenty-sixth Annual Series), by JAMES SULLY, M.A., LL.D., Grote Professor of the Philosophy of Mind and Logic in University College, London, on "Mental Science in relation to Education," will commence on Thursday, February 16th, at 7 p.m.

* * A Doreck Scholarship, of the value of £20, will be awarded at the Diploma Examination at Christmas next to the Candidate who, having attended two courses of the Training Class Lectures during the preceding 12 months, and having passed the full examination for a College Diploma, stands first in the examination in the Theory and Practice of Education.

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NOTICE.—The "EDUCATIONAL TIMES" for FEBRUARY will contain the CLASS LISTS of CANDIDATES who have passed at the recent CHRISTMAS EXAMINATIONS of the College of Preceptors.

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The Educational Times.

A Year of Discussion.

Last year saw no actual advance towards the organization of secondary education—unless the drafting and introduction of the Duke of Devonshire's Bills, as a pledge of the intentions of the Government, may be regarded in the light of material achievement. However that may be, we are far from thinking that the year has been lost to progress; nor have those who are keenest for legislation any good reason for lamenting the delay. At the present moment there is every probability that the Bills will be reintroduced next Session. In that case, they ought to be passed into law, always assuming that the fairies who preside at their birth do not kill the twins by excess of controversial zeal. Reform is always more expeditious in the long run by the avoidance of raw haste. It is better to keep dinner back for half an hour than to dish up a half-roasted joint. Will any one deny that the discussion of the past year has brought us to a clearer conception of what we really need and want? Part, at any rate, of our most urgent wants has been conceded by the Government; and on that part which the Government propose to defer—including the statutory creation of Local Authorities—there has not been so near an approach to universal conviction and consent as there has been in regard to the main provisions of the drafted Bills. Unquestionably the teaching profession and the country as a whole have come very far during the year 1898 towards a definite conclusion in favour of a Central Authority for all education, with a special Department for secondary education, of a Central Council within or by the side of this Authority, and of representation based upon a Register. Give us these, as we have said before, and all the rest will follow. But, as for the Local Authorities, do those who clamour for them "immediately" know precisely what kind of Authorities they desire? Are they all agreed as to the pattern? Have they settled in their own minds how these Authorities ought to be constituted and how they ought to be elected? What are to be the proportions of County Councillors, School Board members, educational experts, and women? Above all, what are to be the powers of the Authorities as to expenditure, creation of new schools, control over existing schools, responsibility to their electors and to the Central Authorities, and the right of appeal? Can we be sure that legislation on these points during the Session of 1899 would be cool, wise, and safe? If not, would it not be better to wait—to take the Government

Bills as a foundation, and think a little more about the design for the superstructure? That question about the guarantees of freedom, variety, and elasticity is a great deal too important to be risked on a Parliamentary scramble, or even on a Parliamentary deal.

If, then, the year 1898 has been marked rather by industry in discussion than by actual progress and irrevocable conclusions, we shall be none the worse for it in the end. Let us take encouragement from the fable of the wise father who, on his deathbed, having nothing to leave to his sons but a little vineyard, and fearing that they might begin by neglecting it, told them that there was a treasure hidden somewhere underground. When the old man died the sons began to dig, and, though they found no gold, after turning over the whole of the soil, the increased yield of the vineyard in succeeding years was a veritable treasure to them. There was never a time in England when the problems of secondary education were more thoroughly discussed. We have been digging hard for treasure; and nothing is more certain than that the turning of the educational soil will be, after all, our greatest gain.

The Headmasters' Conference at Shrewsbury spoke the last word of the year on the Government Bills, and it spoke, on the whole, judiciously. In the resolutions which it passed, in those which it amended, and even in those which it declined to accept, it may be taken as having reflected the general desire of the profession to follow a practical and prudent course. Its counsel is (1) to advance at once, and, for that purpose, to put a certain pressure on the Government by closing with the offer of their Bills, and not pressing the demand for "immediate" Local Authorities; (2) to strengthen the Bills on their own lines, especially in respect of the Charity Commission and the Consultative Council. It is understood that the Government are at least as much disposed as ever to insist upon and carry out their educational policy, but they have not shown any inclination to make the Education Bill more comprehensive, and to provide facilities for protracted discussions on points of special controversy. In one or two respects, within the scope of the Bill as it stands, there is ground for believing that the Government are open to persuasion; and it is possible that they may begin by making some concession to the expressed opinions of the educational bodies when re-introducing the measure. It may be that those who desire the greatest possible comprehensiveness—who think that the whole question is ripe for settlement, and that it is their duty to try and settle it—will fight for the immediate creation of the Local Authorities. But we cannot help thinking that such an effort would be premature.

NOTES.

THE action of the Medical Council in respect of the examinations which it has hitherto recognized as a preliminary test has, in one sense, been deliberate enough; but, in another sense, it is impossible to close one's eyes to the fact that the Council has allowed itself to be hurried into a course which is anything but logical. It resolved, in November, 1897, to confine its recognition to examinations intended for "students who have at least attained the age of sixteen years"—a limit which excludes the Oxford and Cambridge Junior examinations and the Second Class of the College of Preceptors' examination. The Council has now, by adopting a report drawn up by a member of their body who is also a member of the Cambridge Local Examinations Syndicate, excluded the College Second Class after Jan 1, 1900, while retaining, for a time at least, the Oxford and Cambridge Juniors. The statements which have been put before the Council, and on which it has acted, have been impugned in almost every particular; but they have prevailed. The Council of the College has not yet had an opportunity of discussing the communication of the Medical Council; and, for the present, we abstain from drawing the inferences which the facts above mentioned seem inevitably to suggest.

SOME of our daily contemporaries have, we think, been a little unreasonable in their criticisms on the Headmasters' Conference. One bases a charge of inconsistency on the fact that the Conference, on Thursday, welcomed the Government Education Bill "as marking an important step towards the organization of secondary education," and on Friday indicated various particulars in which it is capable of improvement. Is it an unusual thing in England to accept a measure in principle, and then go into Committee for the purpose of amending it? Another daily paper chaffed the Headmasters for passing from educational politics to such questions as school hymnals and boxing in schools. But the business of a conference is to confer, and, if the Headmasters are interested in proposed legislation, they cannot forget that in the meantime each of them has a school of his own. The talk on boxing was very sensible and helpful. The "knock-out blow" is virtually an importation from the prize-ring, and the Headmasters are quite right to put it in the school taboo. Mr. Lyttelton's boxing anecdote is worth preserving:—

A very curious exhibition of the blow was given last summer at Haileybury. A distinguished stranger from the Far East was being entertained, and, among other things, a display of boxing was given by the professional teacher and some of the boys. One of the boys, quite a small fellow, was engaging in trying to hit the professional on the face as often as he could, and the professor was, of course, merely playing with him. All of a sudden the professional tumbled straight upon the ground. At first it was thought to be a joke, but on inquiry it was found that he had been touched very gently on the tip of the chin by the boy, and had been for a second or two incapacitated. This was a very significant incident, because it showed what an astonishingly vulnerable point had been struck.

THE second day of the Modern Language Conference at Cambridge—when Professor Skeat entered on his term of office as President—produced a very interesting and useful discussion on the subject of examinations. The President himself declared that most of the examination papers he saw were absolutely unmerciful. The student was supposed to know all kinds of

things which were entirely beyond him. He suggested that the examiners should try to put themselves in the place of the examined, and see whether they could answer the questions themselves. Replying to Mr. Milner Barry, Dr. Keynes (Secretary to the Cambridge Local Examinations Syndicate) said that the Syndicate would carefully consider any suggestions which might be made to them. Mr. E. J. Gross, on behalf of the School Examinations Board, and the representative of the Oxford Local Examinations Syndicate, made similar replies. It would thus seem that the Association has a congenial task before it. Every one will be glad if the accepted models of examination papers can be successfully revised.

THE informal conference between the London School Board and the County Council on the question of Local Secondary Authorities has not succeeded in bringing about an understanding. The desire of the School Boards throughout the country is to secure adequate representation on the secondary Authorities. We print this month in our Summary the resolutions passed by a special meeting of the Association of School Boards, in which the arguments for cooperation are vigorously set forth. It seems that, whilst a deputation from the London School Board were exchanging views with certain members of the County Council, the latter body had come to the resolution to apply for recognition as an Authority under the famous Clause VII.; and the Board, considering that this action prejudiced the whole question, has sent a protest to the Lord President and the Secretary of the Science and Art Department. The fact is that there is no machinery to create a composite Education Authority, and, until such machinery is provided, the alternative for the County Councils lies between adopting Clause VII. and doing nothing for secondary institutions.

WILL there ever be a systematic and uniform pronunciation of Latin in England? We very much doubt it. The *Preparatory Schools Review* printed a "more correct" system in its July number, and the editor wrote to the headmasters of all our public schools, asking them (1): "Are you in favour of the preparatory schools adopting this pronunciation?" and (2): "If the majority of preparatory schools will use it, are you prepared to adopt it in your school?" The December number of the *Review* contains the result of the inquiry. Both questions are answered in the affirmative by the headmasters of Marlborough, Clifton, Bradfield, Haileybury, Rossall, Uppingham, Fettes, Blackheath, King William's College, Christ's Hospital, Dover, University College School, King's College School, Nottingham, Glenalmond, Ipswich, Weymouth, Birmingham, St. Peter's, York. Partial or qualified affirmation comes from the headmasters of the City of London, Winchester, Shrewsbury, Wellington, Rugby, Brighton. It is a strong array. An "unqualified No" comes from the headmasters of Harrow, Cheltenham, Manchester, Radley, Loretto, Dulwich, Merchant Taylors', Malvern, Bromsgrove. "The High Master of St. Paul's" writes very kindly, but is not prepared to make any change." Clearly that was *not* an unqualified No. Eton, Westminster, Charterhouse, and many other schools, do not appear in the list. On the whole, the majority of the preparatory schools, which favour the so-called Continental pronunciation, may feel reasonable encouragement.

A SUBJECT which has been exercising the attention of prominent men in Wales of late is the teaching of English. Many are beginning to feel that the county schools will be rendering more real service to the cause of Welsh education by giving the children a thorough and systematic training in the use of the English language than by imparting to the child a smattering of various subjects, the very text-books upon which the child is not always able fully to understand. It is often the case, too, that some of the children, from an imperfect acquaintance with English, do not completely grasp the meanings of the English words used by the teacher, and, consequently, can form but a vague idea of the subject taught. There are some districts in which English must be taught as a foreign language, both as a spoken and as a written language. In such districts, unless English be taught systematically, the children obtain very little acquaintance with the language, beyond the use of certain expressions connected with school life. Much, too, could be done to teach Welsh children to pronounce English with an English accent, as this is far more important for them in life than to make futile attempts at acquiring the correct pronunciation of French. One of the great dangers of Welsh education arises from a tendency to attempt building an imposing superstructure before the foundation has become firm enough to bear it. The result is that the whole educational machinery is hampered by the necessity of teaching much that should have been thoroughly learnt in the years of childhood.

A GREAT deal of genuine secondary work is done by the county schools, and it is only fair to state that the University colleges do a considerable amount of work of a University character; but, so long as English is imperfectly learnt in childhood, we shall see the spectacle of secondary schools, and even University colleges, teaching some of the most elementary facts of English. It is most important that those who have the guidance of the schools should, in framing their curricula, not follow blindly what may do admirably in English secondary schools, but is unsuitable to the schools of Wales. The Central Board and the governing bodies, in concert with the masters and mistresses of the schools, would do well to ascertain from the reports upon the schools the underlying defects in the work of the children, and proceed to remedy them, even at the cost of doing much elementary work. It is not improbable that much of the weakness shown in languages such as Latin and French arises from insufficient training in the principles of grammar, as illustrated by the grammar of English, or from an inability to grasp the meanings of words used in their best books.

THE conference which took place in Manchester during the first half of December ought to help considerably towards reducing the number of half-timers. It was well attended and produced a number of interesting letters, all of course, condemning the half-time system, from members of Parliament and others interested in the question. Half-time, however, must be considered in the light of all the facts which are being collected with regard to the employment of elementary school children out of school hours, a subject now engaging the attention of the Education Department, which will shortly, no doubt, give us the result of its inquiries. The recently published minutes of the Hull School Board show that 1,248 children

were working from five to twenty-five hours weekly in addition to their school attendance. Besides these, 98 were working from thirty to sixty-five hours, for a wretched pittance of, say, "9d. and food" up to the magnificent sum of 5s. In one instance, where a cowboy of eleven worked sixty-two hours, the return states the weekly wage of the parents as *nil*. The custom of working children long hours over and above school attendance is common enough in the South. It would be ridiculous to legislate for the half-timer, whose hours are, at least, known and regular, and leave untouched a state of things which is none the less deplorable because it is unsystematic and very difficult to deal with. One is reminded of Dr. Lawrence's dictum at the Education Congress in 1897: "Do not suppose that you have convinced the people of this country of the need of education. . . . The great problem of education has not yet been solved."

A CORRESPONDENT writes to us: "It is just a hundred years ago this Christmas that Pestalozzi began his wonderful work among the orphans at Stanz. 'Imagine my position,' he wrote afterwards, 'I alone—overseer, paymaster, almost servant-maid, in an unfinished house, surrounded by ignorance, disease, and poverty of all kinds. The number of children increased gradually to eighty, all of different ages—all, except a few, wholly ignorant. What a task to form and develop these children! What a task!' And yet, in a spirit of simple faith and utter self-surrender, he undertook it. Nothing daunted him. Opposition, hatred, misrepresentation, squalor, poverty—all were braved for the love of the children. And love conquered all foes. More than this, it was at Stanz that there broke on Pestalozzi the first clear conception of the true method of teaching little children, and of following nature in the development of the child's mind and character. Every infant school in England is a happier place to-day because Pestalozzi went to Stanz." A meeting to commemorate this educational centenary will be held at the College of Preceptors on Wednesday, January 4, at 8 p.m., when it is hoped that Prof. Rein, of Jena, will speak.

LIVERPOOL is about to raise £1,000 for a memorial to the late Miss Anne J. Davies, for many years a member of the School Board of that city. Miss Davies was an enthusiastic believer in the training of teachers, and in an unostentatious way she assisted many pupil-teachers to meet the expense incidental to training, even when a Queen's Scholarship has been gained. In a day training college, such expense might include board and lodging. Some years ago a pupil-teacher in whom Miss Davies was interested, and who came out third of all England in the scholarship list, would have had to forgo training but for her wise help. Thenceforward she kept floating a small sum of money, £40 in all, and lent it in two sums to those requiring help, on condition that it should be repaid within five years out of the trained teacher's earnings. This condition was always honourably fulfilled, and some prominent citizens of Liverpool, including the Lord Mayor and Lady Mayoress, Mr. Wm. Rathbone, M.P., and Mrs. Alfred Booth, have decided that Miss Davies's scheme shall be placed on a permanent footing. The wonder is that there should be any great city where help is not forthcoming to train those who need training. Women are still educationally in the day of small things.

SUMMARY.

THE MONTH.

THE Headmasters' Conference met at Shrewsbury on December 22 and 23, under the presidency of Prebendary Moss. Amongst those present were the Hon. and Rev. E. Lyttelton (Haileybury), the Rev. Dr. Rendall (Charterhouse), the Rev. W. H. Keeling (Bradford), the Rev. Dr. Baker (Merchant Taylors' School), Mr. J. E. King (Manchester), Rev. G. C. Bell (Marlborough), Mr. H. W. Eve (University College School), the Rev. R. de Courcy Laffan (Cheltenham), the Rev. R. D. Swallow (Chigwell), the Rev. M. G. Glazebrook (Clifton), Mr. J. D. McClure (Mill Hill), Mr. W. G. Rushbrooke (St. Olave's), and Dr. Gow (Nottingham). The Conference proceeded to the consideration of a series of resolutions relating chiefly to the Government Board of Education Bill.

MR. LYTTELTON moved the first resolution: "That this Conference heartily welcomes the Board of Education Bill, introduced by the Duke of Devonshire on August 1, as marking an important step towards the organization of secondary education in England." He said that it certainly was a moment of importance to all of them when they realized that the expectations of many years seemed now to be nearer fulfilment than ever before; and the prospect of a Bill intended not only to be brought in, but passed, in the next Session gave them a stimulus in the labours before them.

As a humble member of the Royal Commission, it was certainly interesting for him to feel that the labours of that Commission were not to be thrown away. In 1896 a Bill was brought in which dealt with the great educational organization problem from a totally different point of view from that of the Bill brought in by the Duke of Devonshire last summer. The Bill of 1896 dealt with the problem of Local Authorities, whereas the latter Bill left that subject alone, and proposed the establishment of a Central Authority. Perhaps the method adopted in 1896 was the more practical, but he hoped the votes on this subject would not be divided by any such feeling as that, because, whether they agreed with it or not, it was necessary to bear in mind that the Government were showing a willingness to meet what was in the main a professional need and a professional demand with regard to the organizing of secondary education. The grave difficulties which beset any Government proposing to deal with the problem of Local Authorities had been felt to be so serious by the present Government that they left it on one side, wishing to pass the less contentious portion of the subject first, and proceed to the more difficult portion later on. The prospect seemed to be that, though the establishment of Local Authorities was delayed for a time, it was not delayed permanently, and the question was whether the Conference would not be wise in supporting the Government in their endeavour to provide the Central Authority next Session.

This resolution was supported by Mr. Laffan, Mr. Phillpotts, and Mr. Vardy, and carried by 27 votes against 5. Mr. Swallow moved a resolution which led to a lively discussion: "That this Conference wishes to express its conviction that immediate legislation is needed to establish strong Local Authorities for the management of secondary education, as well as a strong Central Authority." He said that County Councils were beginning to show that they recognized the great importance of the trust reposed in them, and were ready to act for the higher interests of secondary schools. With regard to the word "immediate" in the motion, he took it that it meant that the Legislature should deal with the Central Authority first and with the Local Authorities afterwards. It was of great importance to let the County Councils know that they cordially welcomed the appointment of Local Authorities. Mr. Keeling said that there was almost entire unanimity as to the necessity of establishing Local Authorities. He urged the necessity for the creation of statutory Local Authorities willing and able to consider the claims, not only of commercial and technical education, but of a literary and liberal culture. Dr. Rendall thought that the passing of the resolution would increase, not diminish, the danger of having that form of Local Authority which would be unwelcome to the main body of the Conference. The whole point of the proposal lay in the word "immediate." The present Board of Education Bill changed the aspect of the question as regarded the immediate creation of Local Authorities. Before that Bill was introduced this matter did seem urgent, but he thought the right policy now was rather to wait than press forward the creation of these Local Authorities. They hoped that, if the Bill were passed, and the Consultative Committee constituted, one of the first problems with which that committee would deal

would be this one. Mr. Field supported the resolution. Mr. Eve proposed the substitution of the word "early" for "immediate." This was seconded by Mr. Lyttelton, who said that, if the Government were forced to bring forward both Bills in the next Session, both would probably fail. The amendment was carried by 32 votes against 9, and the resolution was then carried unanimously.

The third resolution was moved by Dr. Fry: "That, in the opinion of this Conference, the Consultative Committee to be appointed under the Act should be a permanent Committee." The Headmaster of Berkhamstead said that there was no point in the report of the Royal Commission on which they were more emphatic than the need of a Consultative Committee. If any such body was contemplated by the Government, the terms in which it had been suggested in the Bill were singularly inadequate.

The Bill did not define the constituent parts of the Committee, as the Commission did. They might be all nominees of some partisan or some faddist. There was to be no permanency in the body, but it was to be created from time to time. It was a sort of in-and-out clause which could be used by one Minister and discarded by another. Further, there was no definition of sphere. "Any matter" was far too wide and weak an expression. His resolution proposed a permanent body, which would be not a master, but a friend, because only a permanent body could have continuity of principle, could be backed by public opinion, and could not be packed. The backing of public opinion was essential. He spoke without distrust of the personnel of the present Education Department.

Mr. Phillpotts seconded the resolution. Dr. Bell hoped the Conference would give a decided majority in favour of the opinion that the Consultative Committee should be permanent and not liable to the discretion of individual Ministers, who might totally alter the powers from time to time. Canon Armour proposed as an amendment: "That, in the opinion of this Conference, it is essential to the national interests involved in a proper organization of secondary education that the Consultative Committee of the Board of Education Bill (1) should be a permanent body, containing representatives of the Universities and of the teaching profession; and (2) should have a constitution and duties assigned, and, if necessary, varied from time to time, by Order in Council." Mr. Dyson seconded. After some discussion, the amendment was lost by 28 votes against 7. The original resolution was then carried unanimously.

MR. KEELING proposed: "That, in the constitution of Local Authorities, provision should be made for the adequate representation of the governing bodies and teachers of secondary schools." He said that the difficulty was how to secure an adequate representation of secondary schools. The recommendations of the Royal Commission were that in the counties the majority of the members of the Local Authority should be taken from the County Councils, and that the other members should either be nominated by the Central Authority, or should be co-opted by the whole number; that in the boroughs one-third of the representatives should be taken from the County Councils, one-third from the School Board, and one-third should consist of members nominated or co-opted, who might be taken to represent secondary schools. The Bill of 1896 proposed that the Local Authority should be composed wholly or in part of members of the Councils themselves, and the election of additional members was, therefore, entirely optional. The resolution having been passed unanimously, Mr. Vardy moved a fifth resolution: "That, in consideration of the fact that the questions which will be referred to the Consultative Committee will be almost exclusively questions affecting secondary education, this Conference regards it as important that the interests of secondary schools should be adequately represented upon the Committee." He said that the Education Minister would often be anxious to seek the advice of the Consultative Committee, and the Local Authorities would need guidance. The questions referred to the Committee would be almost exclusively questions affecting secondary education, because primary education did not need further organization at the present time. Dr. Baker seconded the resolution. Dr. Bell proposed to add as a rider "and also that its duties should be prescribed, and, if necessary, varied from time to time, by Order in Council." Mr. Eve seconded. Mr. Swallow said that they should do everything to keep as close as possible the connexion between the Universities and newly organized secondary schools. The resolution was carried unanimously, the rider being agreed to by 22 votes against 3.

AFTER the carrying of one or two resolutions of minor importance, and one moved by Mr. Laffan, in favour of "a Secondary Education Department proper, distinct from the Department for Elementary Education," Mr. Eve proposed: "That the registration of schools, as well as of teachers, is imperatively necessary in the interests of education." He said that

among the conditions for the registration of teachers it was almost certain that one would be a stated amount of service in an efficient school, and among the conditions for the registration of an efficient school one would be that among its staff there should be a certain proportion of teachers registered as efficient. It would, therefore, be difficult to register teachers without registering schools at the same time. Another point of view was that of the private schoolmaster, who, as far as he could gather, dreaded most that public money should be used to establish schools that came directly into competition with private schools doing good work—a result assuredly to be very much deprecated. The best protection these schools could have was some means by which their schools could be registered as being efficient for the work required by the district where they were. Anything that would win them to the support of legislation in the direction of organization would be a very distinct gain, not only for their own sake, but also for the sake of the country and of the Government, who were very anxious to pass a measure.

Mr. Dyson seconded the resolution, saying that, as far as he knew, all private schoolmasters who were interested in education were quite as anxious as public headmasters could be to have some means by which inefficient schools could be kept down. Mr. Eve, in reply to a question, said that, as far as he could judge from the Bill, registration would at first be voluntary. The resolution was then carried unanimously.

THE last resolution of the series dealing with proposed legislation was moved by Mr. Lyttelton, to the effect "That in the registration of teachers a distinction should be clearly drawn between persons qualified to teach in (1) secondary and (2) elementary schools." The question as to the nature of the register had excited, Mr. Lyttelton said, a great amount of interest among both elementary and secondary teachers, as to whether the register was to be inclusive or not, whether it was only to deal with secondary teachers, or whether it was to embrace all members. He had great sympathy with the sentiment that the registration should be inclusive as far as it went. They ought to lay down distinctly that the register, whether exclusive or inclusive, should be useful. He imagined that what was wanted was a list which would enable anybody looking for a teacher to ascertain at a glance what was the nature of the qualification which would place the name on the register, and whether the qualification was one which applied to elementary or secondary teaching. Mr. Hobhouse (Durham) seconded the resolution. Dr. Rendall said that, if the resolution went out in its present form, it might be taken to mean separating elementary and secondary teachers. He therefore proposed a rider modifying the resolution so that admission to the one register should not exclude admission to the other. Dr. Field (Rudley) seconded. The resolution and rider were both carried unanimously. It was also decided to forward copies of the series of resolutions to the Lord President of the Council.

THE Modern Language Association held its annual meeting on December 22 in the debating hall of the University Union Society. Mr. A. T. Pollard, Headmaster of the City of London School, presided, and about a hundred members and friends were present, including Dr. Peile, Master of Christ's, Mr. Chawner, Master of Emmanuel, Prof. Skeat, Dr. Reid, Dr. Postgate, Dr. Keynes, Dr. Hobson, Rev. E. S. Roberts, Mr. E. J. Gross, Mr. Gerrans, Mr. Sadler and Mr. Morant (Education Department), Dr. Breul, Dr. Fiedler (Birmingham), Prof. Priebsch (University College, London), Mr. F. Heath, Prof. Borsdorf (Aberystwyth), Prof. Schüddekopf (Leeds), and Mrs. Henry Sidgwick (Newnham College). The Secretary (Mr. W. G. Lipscomb) read the annual report, which spoke of the continued prosperity of the Association. The number of members was now 317, an increase of 52. The Committee appointed to consider the question of a phonetic alphabet suited to the requirements of English pupils, and of the use of phonetics generally in modern-language teaching, had not yet completed its labours, but would present an interim report. The President, in his address, said:

It seemed to him more natural that they should proceed in teaching from modern languages to the ancient. For this utility appeared to him the strongest argument. It was only because he thought the

teaching of modern languages did not sacrifice training to utility, either immediate or remote, that he strongly advocated for them a more conspicuous place in our educational system. The opinion of his colleagues who taught on the modern language side at the City of London School was that modern languages were of high educational value, and for those who did not stay at school till eighteen or nineteen were as good a training, everything considered together, as the older languages were. But the question presented a broader aspect. He should not only like to see modern languages taking a more prominent place, but he should like to see the teaching of the classical languages put later in the school course. This specially merited consideration at the time when the problem of secondary education seemed likely to come before Parliament. The State was forced to consider how boys of talent might pass from the public elementary school to the secondary school, whether first grade or second grade. If there were a sequence more or less defined of school subjects applied to first grade, second grade, and public elementary schools alike, the transfer of boys from school to school would be comparatively easy. He hoped that the Universities would adapt themselves to the conditions under which modern languages were likely to be taught in schools in the future, and he was glad that this meeting had been held in Cambridge. It showed, at any rate, that the teachers of modern languages would like to associate themselves with the Universities, to whom he for one looked to secure that the modern side of first grade schools retained the real spirit of education, and the second grade schools approximated as nearly as might be to the high standard to be maintained in higher schools under the dominating influence of the Universities.

Dr. Breul, Cambridge (local secretary), subsequently opened a discussion on the mutual relations of schools and Universities in regard to the study and teaching of modern languages. Prof. Schüddekopf (Leeds), Prof. Fiedler (Birmingham), Dr. Heath (London), Mr. Howard Swan, Mr. A. Tilley, Mr. A. A. Somerville, Mr. W. Rippmann, and Mr. de V. Payen-Payne took part in the debate. Prof. E. A. Sonnenschein afterwards contributed a paper on "Terminology."

THE following resolutions, as approved by the Council of the Incorporated Association of Headmasters, are to be moved at the annual meeting of the Association:—

(1) That this Association cordially welcomes the Board of Education Bill as a first step towards the organization of secondary education in England, and is of opinion that the Consultative Committee proposed therein ought to be permanent and to contain representatives of the Universities and of bodies of teachers. (2) That this Association records with satisfaction the statement made by the Lord President in introducing the Board of Education Bill—viz., that the proposed Education Office would probably be so organized as to consist of three Departments, dealing with primary, secondary, and technical education respectively. (3) That, in the opinion of this Association, the Secondary Education Department of the Education Office should include inspectors, appointed by the Education Office, for the inspection of secondary schools. (4) That, in the opinion of this Association, the Education Office should recognize *pro tanto*, as an alternative to the inspection required under Section 11. (4) of the Board of Education Bill, a system of inspection and examination conducted by any University in England or Wales, and approved for the purpose by the Consultative Committee of the Education Office. (5) That this Association is strongly of opinion that the Government should proceed, at an early date, to provide for the establishment of Local Authorities for secondary education; and that in no case should the area administered by such Authority be less than that of an administrative county or county borough.

THE "Joint" Committee of the Association of Headmasters has resolved (as we have already stated in substance): "That, in the opinion of this Committee, it is essential to the national interests involved in a proper organization of secondary education that a Consultative Committee of the Board of Education should be instituted; that such Committee (a) should be a permanent body containing representatives of the Universities and of the teaching profession, and (b) should have a constitution and duties assigned—and, if necessary, varied from time to time—by Order in Council." The Committee has also recommended that the Memorandum as to registration of teachers—indicating causes of previous failures in legislation, and suggesting that "the framing of rules for registration be in the hands of the Consultative Committee made statutory for registration purposes, and the application" of these rules be in the hands of the Education Office—should be revised and communicated to the proper authorities.

A CONFERENCE on secondary education took place at Owens College, Manchester, on December 3, under the presidency of Dr. Bodington, Principal of the Yorkshire College. Discussion had

reference mainly to the Board of Education Bill laid before the House of Lords by the President of the Council in the last Session of Parliament. Resolutions were passed urging that a Minister of Education, of Cabinet rank, should represent the Education Department in Parliament; that the creation of the Consultative Committee should be obligatory, and that the Committee should be competent to advise on technical as well as on secondary education; that immediate provision should be made for the institution of Local Authorities for secondary education; and that the relations of the proposed Board of Education to the Charity Commissioners should be more clearly defined in the Bill. The resolutions will be communicated by a deputation to Lord Salisbury, Mr. Balfour, and the President and Vice-President of the Council.

THE Association of School Boards (England and Wales) held a special meeting on December 6. The Dean of Manchester presided. The following resolutions were adopted:—

That, provided the School Board for the County of London and the School Boards in the county boroughs have one-third of the total membership of the proposed Secondary Education Boards, and that these Secondary Education Boards are independent of any external Local Authority in their administration, the Association of School Boards is willing that the County Council boroughs shall have one-half the representation. That in administrative counties the County Councils shall nominate a majority of the members of the Local Authority for secondary education, and that of the remainder a portion up to one-third of the whole be allocated to the School Boards in the county. The Education Department shall determine how many members shall be allotted to the School Boards, and, in doing so, shall have regard to the proportion the population under School Boards bears to the whole population, and shall determine how, if necessary, School Boards shall be grouped for the purpose of electing representatives. Provided always that the Education Department may, on application from the locality, constitute on similar lines a separate Local Authority for any part of an administrative county, if satisfied that such area has separate educational interests or that it is otherwise desirable. That the Association of County Councils be asked to co-operate with the Executive in promoting a deputation to the Lord President of the Committee of Council for the purpose of representing to him the desirableness of so extending the scope of the Board of Education Bill as to include proposals for the creation of Local Authorities for secondary education on the basis of the foregoing resolutions.

IN view of the reconstitution of London University, the Council of University College have passed the following resolution:—

That a deputation be appointed to represent to the Statutory Commission that, inasmuch as (1) University College, London, was founded as the University of London, with the object of providing a complete University education in London of the highest type, (2) the intention of the founders and benefactors of University College will only be carried out by the incorporation of the College in the University, so that its resources shall still be utilized for the furtherance of the highest educational work and for research, the Council of University College are prepared to summon a general meeting of the members of the College, and to propose to them that such steps should be taken as may be necessary for placing the site, land, buildings, and endowments of the College at the complete disposal of the reconstituted University. In making this offer the Council do not desire to throw any obstacle in the way of any other institutions in London which may be disposed to place their resources at the disposal of the governing body of the University. It will be necessary, in accordance with the precedent afforded by the Universities Act (Oxford and Cambridge), to protect the interests of the existing teachers and executive staff of the College. The existing teachers are, however, to have no claim as such to any rank in the reconstituted University, or to any vested interest other than that they now have in the College. Special provisions will probably have to be made as to the boys' School and its endowment, and, perhaps, for appropriate buildings on another site being provided for this department of the College work. Arrangements will also have to be made with regard to the Hospital and its funds, of which the College is now the trustee.—Signed, on behalf of the Council, T. GREGORY FOSTER, Acting Secretary.

THE twenty-fifth annual report of the Oxford and Cambridge Schools Examination Board has been presented to the Convocation of the University of Oxford and the Senate of the University of Cambridge, and it states that inspections under the authority of the Board were held at 101 boys' schools, the number in the previous year having been 94, and at 82 girls' schools as against 76 in 1897. In the examination for Higher Certificates held in July, there were in all 2,027 candidates, 1,357 boys and 670 girls,

of whom 1,070 obtained certificates, and 308 of these obtained distinction in one or more subjects. Out of the 2,027 candidates 416 had already obtained certificates in a former examination, and of these 167 gained a certificate with distinction in the present year. Of the girls 424 were candidates for letters only, and 288 were given letters.

MISS E. P. HUGHES, Principal of the Cambridge Teachers' College, delivered an address in her native town (Carmarthen) on December 14. She accepted the cordial welcome accorded to her as one given to her father's daughter, Dr. John Hughes having resided in their midst for half a century. She said it was twelve years since she crossed the Dyke of Offa and invaded the land of the Saxon, but she must confess that the English had been very good to her. Speaking generally on the education movement, Miss Hughes stated that, although the Welsh had made a good start in secondary education, and secondary schools had been planted all over the Principality, still, the work of education was really only beginning, and, as compared with England, and, still more, as compared with Scotland, Wales was an uneducated country.

DURING the past month a fund of over £100,000 has been subscribed, on the suggestion of Lord Kitchener, in order to establish a college at Khartoum for the "civilization" (by way of education) of the Soudan. The decision to make the Gordon College a purely secular institution is used by Archbishop Walsh (in a letter to the *Times*) as an argument for giving Irish Roman Catholics the kind of University they want. Englishmen, he says in effect, without being necessarily secularists, are setting up a secular college at Khartoum, simply because they fear that, if they insisted on its undertaking religious instruction, it would fail to accomplish any educational object whatever. In Ireland the case is exactly reversed, for, unless education is allowed a religious environment, the majority of the people will have nothing to do with it. Practical common sense, therefore, suggests one treatment for the Soudan and another for Ireland. By refusing to look this fact in the face, Englishmen "are ruining the utility of more than one institution which has been set up and is being maintained in Ireland at a heavy cost to the public taxpayer, ruining, I mean, the utility of those institutions as regards the main object for which they exist—the conferring of the boon of higher education upon the people of Ireland."

YET another Education Bill. The Executive Committee of the Scottish Association for the Promotion of Technical and Secondary Education has presented a report, in which it urges that a Bill should be introduced into Parliament providing, amongst other things,

(1) That the available technical and secondary education grants shall be apportioned and paid to Local Authorities representing the counties and the following urban areas:—Edinburgh, Glasgow, Aberdeen, Dundee, Leith, and Govan—to be administered by them upon a general plan for the promotion of secondary and technical education. (2) That the Local Authorities for these areas shall be the several County and Burgh Councils; that these Councils shall each appoint an Education Committee, two-thirds of the members of which shall be members of the Council, and one-third additional members. These additional members of the Committee shall be persons possessing experience in connexion with education, especially secondary and technical, and shall be nominated for appointment by the Council. Women shall be qualified for appointment as additional members of the Committee. (3) That, subject to the approval of their educational schemes by the Scotch Education Department, these Local Authorities shall have administrative powers in regard to secondary and technical education in their areas; that the several Councils may delegate to their Education Committees all their powers in regard to education; that adequate arrangements shall be made for the efficient inspection and careful examination of all schools and classes carried on under the schemes of County and Burgh Education Councils. (4) That an Advisory Council be appointed by the Secretary for Scotland; that to this Advisory Council the Scotch Education Department shall refer all questions as to the limits of primary, secondary, and technical education, or with regard to the classification of schools, or to the regulation of the inspection and examination of secondary and technical schools and colleges, and that the Education Department shall not decide on any matter so referred to the Council until they have considered the report of the Council in relation thereto.

THAKORE SAHEB, the ruler of Gondal, one of the Kathiawar States, who received his education in England, has signaled his

return to India by instituting various large-minded domestic reforms. From the *Times of India* we take the following account of his new Girasia College at Gondal, which was formally opened by Lord Sandhurst, Governor of Bombay, on November 26:—

An indication of the spirit which characterizes the administration of the Thakore Saheb was afforded by the nature of the institution, to open which was the principal reason for Lord Sandhurst's brief visit to this interesting State. The Girasia College is a bold and enterprising attempt to grapple with one of the most serious problems affecting the welfare of Kathiawar. The position of the Girasias, the cadets of the ruling and wealthy landowning families, has become one of the most serious concern. Formerly noted for mental and physical superiority, they have sadly deteriorated. A false notion of family pride has led them to be extravagant when the cruel process of division and subdivision of estates enjoined frugality. They often become the prey of fraudulent money-lenders, and their lack of education renders them peculiarly open to fraud and chicanery. They are too proud to send their children to the ordinary schools, and too poor to afford a special institution like the Rajkumar College and the Talukdari Girasia School at Wadhwan. Realizing that the first step towards raising the Girasias to their former position must be the giving to them of a sound education, the Thakore Saheb has founded the Gondal Girasia College, a noble building, completely equipped in every respect at a cost of three lakhs, and has placed it in charge of Mr. Moor, a gentleman of large educational experience. A feature which differentiates Gondal College from similar institutions is the attempt that is made to run it upon the lines of an English public school. There is a common dining-hall, and boys are lodged in large airy dormitories. All boys, except under the doctor's orders, fare alike, and no private servants are allowed. Physical culture occupies a prominent position in the curriculum. A swimming bath has been made in the river, and a rowing club is in contemplation. At the present time about forty young Girasias are under instruction, but there is accommodation for several times that number.

Certain Oxford students have determined, in conjunction with a number of young residents there, to place, as far as they may be able, the advantages of Oxford at the disposal of men of small means. They find that a poor man who can afford £25 a year for board and lodging, and can pay in addition £6 a year for tuition fees, will be able to spend that period as a University student. But there are two conditions attached. One is that he shall supplement his year of residence with three years of home reading on the University Extension principle, and the other is that he shall join the "Ruskin Hall." To meet the case of promising young men who may not be able to make the initial outlay of £25, a generous donor, who wishes to be anonymous, has given a hundred free bursaries of £6 each. Among the University Extension students there are, no doubt, many who will avail themselves of this unique advantage. Those desiring to know more of the scheme should communicate with Mr. Beard, 41 Banbury Road, Oxford.

OUR Welsh Correspondent writes:—"During December there was issued to the Central Welsh Board and its examiners a report on the inspection and examination of the county schools for the year 1897-98. The report, which is confidential to members of the Board and to examiners, is a bulky volume printed at the Clarendon Press, and contains a mass of information which will be invaluable to the future historian of Welsh education. A smaller document, containing for the most part the general reports of the examiners in their various subjects, has been issued to members of the various county governing bodies. A general report upon the work of the schools for the past school year will shortly be published.—The Welsh county schools seem for the most part to be holding their prize distributions in December. At several of these meetings addresses have been delivered by prominent Welshmen and others. These meetings will doubtless do much to create an interest in education in the districts where they are held, but their chief value, it is hoped, will be in showing to parents that the home-training of the child should proceed hand-in-hand with the school training.—Mr. Edgar W. Jones, M.A. Lond., the new Headmaster of the County School, Barry, Glamorganshire, has already attained to a distinguished position among the headmasters of Welsh county schools, being a member of the Central Welsh Board, and of its Committees on Welsh Text-books, on Pensions, and on Oral Examinations. He is also a member of the Court of the University of Wales, and of the Standing Committee of the Guild of Graduates, as well as a Governor of the University College of Wales, Aberystwyth."

UNIVERSITIES.

(From our Correspondents.)

Cambridge. The Senate has now definitely approved the scheme for holding the Little-go four times a year, namely, at the end of each term, and at the beginning of the October term also. All who are entered for admission at a college are eligible as candidates, while in the case of women they must have been actually entered at one of the recognized colleges—Girton or Newnham. It is believed that the effect of the new regulations will be to make the Little-go practically an entrance examination. The colleges will now be able to say to the schools: "The University prescribes a definite test of proficiency in ordinary school work, which can and ought to be satisfied before entry; a candidate who is not up to this standard will be wasting his time by coming to Cambridge." It remains to be seen, however, whether all the colleges will be sufficiently self-denying to adhere to this rule.

A report of the Financial Board recently published makes it fairly clear that the system of borrowing money from external sources for the purpose of erecting new buildings is one which must be strictly limited in the future. The Board points out with great cogency that not only has the capital debt to be repaid in a fixed number of years, but also the new buildings will entail increased charges for maintenance and repair. The needs of the scientific side are urgent and unsatisfied, yet during the past few years we have seen one most important professorship suppressed, and two others instituted in subjects already well equipped with teachers.

A suggestion might be thrown out on the following lines. Why should not the University take a hint from other places of learning—create a readership in any subject, make the appointment for two or three years only, and give a nominal salary? The distinction conferred by the appointment would attract the best men. At present a life appointment of professors means that the statutory number of lectures must be delivered, but beyond that the University has no guarantee that effective work is done. A record of the attendance at certain professors' lectures would open the eyes of the Senate and the public.

The special examination in Political Economy, as remodelled some years ago, has been found to be too thorough and searching a test for the average pollman. It is now to have its rigour mitigated with a view to encouraging candidates. Doubtless the changes will be for the best, as the names of the signatories to the new scheme command respect.

The authorities at the Observatory have recently completed the erection of a new polar reflecting photographic telescope, which it is hoped will lead to highly important results.

The discussion on the report of the Library Syndicate was of a somewhat acrimonious character. It was proposed to make structural changes of a somewhat extensive character in the Library itself, and also to enlarge the numbers of the Library staff by the addition of a paid secretary. In the course of the debate, the Regius Professor of Physic, Dr. Allbutt, took occasion to pronounce the scheme to be emphatically mischievous; he spoke of the antiquated and chaotic state of the Library, and stated that to scientific men it was practically useless. Members of the Syndicate disagreed with the professor, but there is no doubt the proposed changes will meet with opposition when the necessary grace comes before the Senate.

The Vice-Chancellor has now published for the information of the Senate the full text of certain documents bearing on the entrance scholarship question. On October 20 the Committee of the Headmasters' Conference addressed a letter to the Chancellor setting forth the following facts:—(1) The academical and school year runs from autumn to autumn, and all scholarship examinations are held early in the academical year, twelve of the most important colleges this year having fixed their examinations between November 2 and December 7. (2) The elected candidates do not go into residence till the following October. A boy whose nineteenth birthday falls in December would be nearly twenty before commencing residence. (3) Elected scholars naturally become remiss during their last term at school. (4) The last year at school, in the case of the stronger candidates, is a time of rapid development in intellect as well as in character, and any interruption to work at the beginning of the year is disastrous. The Headmasters suggested as a remedy the shifting of the examinations to a later period in the academical year; for example, not earlier than January, or later than the Easter Vacation. In 1894, and again in 1896 and 1898, the views of the Headmasters were accepted in principle at Cambridge, but the

Oxford authorities would not co-operate. Now again a memorandum, signed by all the Cambridge tutors, reaffirms a resolution passed by the representatives of the Cambridge colleges on May 24, 1894. So the matter stands at present. It remains to be seen how the Oxford tutors will deal with the matter.

The University lately lost the services of one of the most promising teachers in the Medical School, Dr. E. H. Douty, of King's, who was urgently bidden to recruit his health on the Continent. Dr. Douty has now taken up his residence at Davos Platz, and is going to utilize his enforced absence from Cambridge in founding an institution for the treatment of phthisis on the Nordrack system. All Dr. Douty's friends and pupils in Cambridge wish him success in re-establishing his own health and that of others, while students will be interested to learn the results of his researches on the subject of the origin and treatment of tubercular disease.

Personal items of the month:—Crosse Scholarship: C. E. Garrad, Jesus; W. Outram, Pembroke (*eq.*). Walsingham Medal: J. G. Kerr, Fellow of Christ's College. Seatonian Prize: Rev. G. W. Rountree, M.A. Clare College. Whewell Scholarship: (1) J. E. R. de Villiers, LL.B. St. John's; (2) H. M. Adler, B.A. St. John's. Cobden Prize: S. J. Chapman, Trinity.

A CURIOUS state of affairs has arisen out of the London question of housing the new University. The real origin of the question is to be found in the inadequacy of the building in Burlington Gardens to the requirements even of the existing University. The Senate of above thirty years ago and the Office of Works of that day thought they were putting up a building for all time. They did not foresee the rapid spread of middle-class education, or, and more especially, the effect of throwing open all examinations and degrees to women on the same terms as to men; and, indeed, if they had foreseen, not much more could have been done than was done on the limited site at their disposal. Anyhow, for ten years past, at least, in the case of the larger examinations, notwithstanding that towards half the total number of candidates have been provided for at provincial centres, for a large proportion of the remaining number accommodation has had, and still has, to be found outside of, and generally at a considerable distance from, the University; while the absence of proper and adequate laboratories has reduced the authorities to all sorts of shifts for meeting, as nearly as may be, the ever-advancing demands of practical science.

But, at the end of November, the Government came forward with a proposal that the University should shift its seat to the building of the Imperial Institute at South Kensington; and the official memorandum of the Government further proposed to appoint a Committee, representing the University, the Treasury, and the Office of Works, to consider and report on all requirements. The offer of such a home, accompanied, as it is, by other liberal provisions, seems to the unprejudiced outsider an excellent one. The building is spacious and imposing; the situation is open and healthy; and there are some acres of ground attached, offering ample room for future extensions. Moreover, the building stands almost ready for occupation, so that there will be no waiting to find a new site and rear another building. Various trifling objections have been raised; but it seems that nothing short of a fatal disadvantage should prevent the acceptance of the Government's liberal offers.

There are two points, however, connected with the official memorandum which have roused more serious opposition in some quarters. In the first place, no provision is made for a representation of the Colleges upon the Committee of Inquiry. This is no doubt a genuine grievance, and a remonstrance on the subject was forthwith lodged by University College with the Government and with the present Senate. In the second place, the claim at the end of the remonstrance, to a voice in regard to "the purposes for which any proposed buildings will be used," is believed to be specially aimed at a clause in the memorandum proposing to provide "accommodation for the teaching side of the University." But such a claim can hardly be allowed. It is true that, when the present University was founded, there was an understanding that it should not interfere with the work of the College, which, on its side, had desisted from its efforts to become a University; and that understanding has been carefully maintained. But the new University will not be so bound. In fact, the recent agitation, in which the College itself was a leader, was for a teaching University; and the Government

obviously thinks and expects that it *will* teach. Nevertheless, it is undesirable that the University should interfere with college work; it might, however, meet a want in London by instituting post-graduate courses and facilities for research of the very highest order; and there is no reason why college professors of adequate attainment and reputation should not also be appointed University professors for organizing and performing such high and honourable service.

It would seem that these or other considerations must have raised some doubts in the College as to its own future position in the new University; for its next move was as strange as it was unexpected out of doors. The Council propose to place all they have and are, "site, land, buildings, and endowments, at the complete disposal of the reconstituted University." The object clearly is to make the College the centre of the "teaching side" of the University, and presumably the headquarters of the administration. For the latter purpose the College buildings, apart from their daily occupation, are as inadequate as the one in Burlington Gardens; and, as to the general proposal, it is one that the University is hardly likely to entertain. It would probably be followed by other similar proposals, and would thus involve the control and working of a heterogeneous group of colleges—a task for which the University, as framed by the Cowper Commission and modified by the recent Act, would be quite incompetent.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council took place at the College, Bloomsbury Square, on December 10. Present—Dr. Wormell, Vice-President, in the Chair; Miss Bailey, Mr. Barlet, Mr. Baumann, Mr. Bidlake, Mr. Brown, Dr. Buchheim, Mr. Butler, Mr. Charles, Mr. Chettle, Miss Dawes, Mr. Eve, Mr. Harris, Miss Jebb, Rev. G. P. Pearce, Mr. Pinches, Mr. Reynolds, Rev. Dr. Scott, Mr. Sergeant, and Mr. Armitage Smith.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the number of entries for the Certificate and Junior Forms Examinations, which had taken place on December 6th-9th, was about 9,500. The number of entries for the Diploma Examination was over 200.

The use of the College Lecture Hall was granted to the Private Schools' Association, for holding their annual meeting, on January 12, and to the Geographical Association, for holding theirs, on January 11.

The Report of the Examination Committee was adopted.

The Draft Report of the Council to the General Meeting was considered, and referred to the President, Vice-Presidents, and Dean, for final revision.

The following persons were elected members of the College:—

- Miss S. A. Arnold, A.C.P., Madras Collegiate School, Ucepery Square, Madras.
- Miss M. E. Baillon, A.C.P., Convent of the Ladies of Mary, Coloma, Croydon.
- Mr. C. D. Baxandall, A.C.P., 46 Balmoral Road, Lancaster.
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- Mr. A. A. Thorne, B.A., 77 Robb Street, Georgetown, British Guiana.
- Mr. A. H. Ulyett, A.C.P., Sandgate School, Folkestone.
- Mr. W. Whiteside, A.C.P., 75 Clifton Street, Brook's Bar, Manchester.
- Miss E. M. Winniffrith, A.C.P., Prospect House School, Hythe, Kent.

The following books had been presented to the Library since the last meeting of the Council:—

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FORECASTS AND COMMENTS.

January 1, 1899.

THE Winter Meeting for Teachers will be Fixtures. opened on Tuesday next, January 3, at the College of Preceptors, when Sir Joshua Fitch will deliver an address in the Lecture Hall at 10 a.m.

* * *

WE understand that both the number of teachers who have paid for tickets and the number of members of the College who have applied for free tickets for themselves (not transferable) largely exceed last year's entries. The success of the Winter Meeting would seem, therefore, to be assured beforehand.

* * *

THE Conversazione at Clothworkers' Hall will be held on Wednesday, January 11.

* * *

THE Association of Headmasters holds its annual general meeting on Jan. 13, 14. Mr. Vardy, of Birmingham, has been selected as President for 1899, and the Private Schools' Association will meet at the College on January 12.

* * *

A PESTALOZZI celebration will be held at the College of Preceptors on Wednesday evening, January 4, under the auspices of the Pestalozzi Society.

* * *

At the Royal Institution Sir Robert Ball began his course of astronomical lectures for young people on December 27. On January 17 Prof. Ray Lankester will give the first of a series of lectures on "The Morphology of the Mollusca." On January 19 Mr. Savage Landor gives the first of three lectures on "Tibet"; on January 20 Prof. Dewar lectures on "Liquid Hydrogen"; and on January 21 Sir A. Mackenzie will give the first of three lectures on "Liszt, Tschaiakowsky, Brahms."

* * *

THE Association of Technical Institutions will hold its annual meeting at Haberdashers' Hall on January 12. The Earl of Spencer, K.G., has consented to be nominated as President for the year 1899; and, in the unavoidable absence of the President, Sir Bernhard Samuelson, Bart., F.R.S., the Vice-President, Mr. Henry Hobhouse, M.P., will preside.

* * *

THE Incorporated Society of Musicians will hold its annual conference at Plymouth during the first week of January.

Education Gossip. THE benefactions of the month include the impulsive endowment of Gordon College, Khartoum, with over £100,000—a happy impulse on the part of Lord Kitchener's countrymen, who are doubtless glad to show that they can build up a new nation where they wiped out an old one. Of course, the plan of Gordon College is to teach the natives of the Soudan through their own language, and with due regard to their own ideas and convictions.

* * *

IN Greater Britain—not yet in Great Britain—the six-figure pious founder has appeared in the person of Lord Strathcona and Mount Royal, now High Commissioner for Canada. He has endowed the Victoria College for women at Montreal with

a sum of one million dollars (£200,000). We may, however, record the gift of £250,000 by Lord Iveagh to the Jenner Institution, for research in bacteriology.

* * *

It has been affirmed that the suggestion made to the Senate of the University of London to the effect that the buildings of the Imperial Institute would be available without rent for the central administration of the University was accompanied, or reinforced, by the offer of an annual grant of £40,000. But statements and figures of this kind must be a good deal more definite before we can deduce much from them as to the future constitution of the University.

* * *

As our London correspondent has discussed the thorny question of headquarters, we shall not for the present add anything to what he has said. So far as we can see, it matters very little where the public offices and the examination schools are to be, provided that they are very grand and very roomy. We are more curious as to what the Statutory Commission is doing. The fixing of the headquarters will doubtless assist its work of organization.

* * *

THE canvassing committee under the Birmingham University scheme state that the total sum promised up to the date of the public meeting in the Council House in July last (£95,658) had already been increased to about £115,000. Mr. Frank McClean, M.A., F.R.S., of Tunbridge Wells, has announced his intention to contribute the sum of £2,000 to the fund. The Lord Mayor of Birmingham announces a donation of £1,000 from Alderman T. S. Fallows, J.P. The committee will hold their next meeting on January 25, after which a second list of donations will be published.

* * *

A "WARRANT OF INCORPORATION"—whatever that may mean has been granted for a branch of the Navy League at Bradfield College, with the following committee:—The Rev. H. B. Gray, D.D. (Warden of Bradfield, a Vice-President of the League), Frederick Jacob, Esq., B.A., Mr. A. M. C. Nicholl, Mr. L. F. Goldsmid, Mr. G. R. Barker, Mr. R. Master, Mr. C. G. Ling, Mr. R. L. Chambers. The "Mr."s, we presume, are boys in the school.

* * *

THE Council of the Cambridge Senate has recommended that the completion of the fiftieth academic year of the tenure of the Lucasian Professorship of Mathematics by Sir George Stokes be formally celebrated by the University on June 1 and 2, 1899, and that a sum of £400 be placed at the disposal of the Council for the necessary arrangements in connexion with the celebration.

* * *

DR. ISAMBARD OWEN thinks that the Welsh Intermediate schools present sundry object-lessons to English secondary schools. Sir William Harcourt, in his recent speech at Aberystwyth, said: "Proud might Wales be that she had given the lead to England in educational efficiency." Dr. Maenamara, speaking to a Welsh teachers' gathering at Merthyr, took a different view. He contended that in many vital respects Wales made a bad third to England and Scotland, and the Chairman of the Merthyr School Board endorsed the statement.

* * *

AN International Conference on Child Study will be held in Buda-Pesth next September.

* * *

ON December 20, the President of Magdalen College, Oxford, unveiled a memorial tablet in Bath College in honour of Mr. T. W. Dunn, who was Headmaster from 1873 to 1897. Mr. Warren had been a pupil of Mr. Dunn's at Clifton.

* * *

MR. ALEX. RITCHIE, J.P., chairman of the Schools Committee of the Corporation, has been presented with a testimonial by the masters of the City of London School, in recognition of several important improvements effected in their position during

his year of office. The presentation, which was made on behalf of his colleagues by Mr. R. F. Charles, one of the senior masters, consisted of an illuminated address, together with a handsome board's head mounted in silver, and surmounted by a silver snuff-box.

* * *

AN address has been presented to the Rev. C. G. Gull, Headmaster of the Grocers' School, Hackney, as a token of confidence from parents and scholars. In making the presentation, Archdeacon Sinclair said they were giving a prize to the Headmaster, who deserved it as much as, if not more than, anybody. The opportunity for the presentation arose through some adverse criticism of an act of Mr. Gull in maintaining the discipline of the school, and the parents have recognized that the whole standing of a great school like this must rest on the judgment and ability of the headmaster. In one sense, Dr. Sinclair said, they felt gratified that the gentleman, who had acted under a mistaken sense of duty, had given them the opportunity of showing their appreciation of the efforts of Mr. Gull, who for the past seventeen years had controlled the destinies of the school.

* * *

It has become necessary, on financial grounds, to give notice of the closing, next June, of Codrington College, Barbadoes, which is affiliated to the University of Durham.

* * *

DURING last session the following new departments were created at University College, London:—the Laboratory of Experimental Psychology, the Pender Chair of Electrical Engineering, and the Edwin Chadwick Chair of Municipal Engineering, and the French and German departments were completely re-organized.

THE BISHOP OF LONDON has nominated the Rev. T. W. Sharpe, M.A., C.B., who was recently elected Professor of Theology, to be the Principal of Queen's College, Harley Street. Mr. Sharpe was a Double First and Wrangham Medallist of Trinity College, Cambridge, Fellow and Lecturer of Christ's College, and Inspector of Schools and Training Colleges. This year he retired from the public service in which he was chief inspector and head of the Administrative Division of the Education Department. Mr. Sharpe is also a member of the Council of the College of Preceptors.

* * *

THE Professorship of Pathology in Cambridge University is vacant by the death of Prof. A. A. Kanthack, M.A., M.D. It was only last year that Dr. Kanthack succeeded the late Dr. C. S. Roy in the Professorship. He went up to Cambridge about eight years ago, having gained the John Lucas Walker Studentship. He was B.A., B.Sc., and M.D. of London, and was for some time Lecturer in Pathology at St. Bartholomew's Hospital, and Jacksonian Prizeman, Royal College of Surgeons. Prof. Kanthack was educated at Liverpool. He was appointed deputy to Prof. Roy during his illness, and succeeded him at his death.

* * *

MR. T. L. BULLOCK, M.A. of New College, Oxford, has been elected Professor of Chinese, in succession to the late Dr. Legge.

* * *

THE Council of University College, London, have appointed Dr. S. Shechter to the Goldsmid Chair of Hebrew, vacant by the resignation of Prof. Marks.

* * *

MR. STANLEY LANE POOLE has been elected Professor of Arabic at Trinity College, Dublin. There were thirteen candidates. Dr. James Little has been appointed Regius Professor of Physic in the same College. The Rev. M. Kaufmann has been appointed Donnellan Lecturer for 1899-1900.

* * *

THE University Court of St. Andrews has resolved to found new Chairs of Anatomy and Physiology (which will duplicate

similar Chairs at Dundee) in the United College at St. Andrews. The stipends will be respectively £500 and £425.

* * *

MR. G. F. STOUT, M.A., Anderson Professor of Comparative Psychology at Aberdeen, has been appointed Wilde Reader in Mental Physiology at Oxford.

* * *

A LECTURER in Mathematics is required for Mason University College, Birmingham. Applications by January 2.

* * *

MR. J. L. PATON, assistant-master at Rugby, was selected (in lieu of Mr. Barnard) as successor to Mr. H. W. Eve in the Headmastership of University College School.

* * *

IN place of the Rev. Dr. Wood, the new Headmaster of Harrow, the Rev. C. C. Tancock has been appointed Headmaster of Tonbridge School. There were upwards of fifty candidates for the office. Mr. Tancock was educated at Sherborne School and Exeter College, Oxford; took a first class in Classical Moderations in 1872, and a first in Greats in 1874. After being an assistant-master at Charterhouse for eleven years, he was elected to the Headmastership of Rossall School, in Lancashire, in 1886, where he remained until 1896, when he resigned on account of ill-health. Soon afterwards he accepted the living of Leek, near Manchester. He will take office at Tonbridge in January.

* * *

THE REV. EDMUND HENRY ELWIN, M.A. of Merton College and Wycliffe Hall, Oxford, has been appointed to the Principalship of Fourah Bay College, Sierra Leone, vacant by the death of the Rev. W. J. Humphrey, who was murdered by savages in the discharge of his duty some months ago.

* * *

MR. E. W. JONES, M.A. Lond., Headmaster of Llandilo Schools, has been appointed to the Headmastership of Barry Intermediate School; Mr. A. Thornton, M.A. Camb., Headmaster of Bridlington.

* * *

THE death is announced of Miss Belcher, Headmistress of Bedford High School.

* * *

THE second and third volumes of the "Special Reports on Educational Subjects" reach us together from Cannon Row. We must look for early opportunities of returning to some of the more interesting numbers in these two solid books, each of which contains 700 pages, and which are sold respectively for 6s. 2d. and 3s. 3d.

* * *

THE contents of Vol. II. include a valuable statement on the origin and working of the Welsh Intermediate Act, contributed by the Charity Commissioners; a paper by Mr. Sidney Webb on "The London Polytechnic Institutes" (with illustrations which have strayed into the preceding paper); an account of the London School of Economics, by Professor Hewins; "The Curriculum of a Girls' School," by Mrs. Bryant; a series of papers on physical education in various elementary and secondary schools; with many other more or less attractive features.

* * *

THE third volume contains very readable articles on Swiss organization, by Mr. Morant; on the higher schools in Prussia, by Mr. Lipscomb, and in Baden, by Mr. H. E. D. Hammond; on educational tendencies in Germany, by Prof. Rein; and on the teaching of modern languages in various parts of Germany, by Mr. Fabian Ware, Miss Brebner, and Prof. Hausknecht. But the most important contribution to this volume is a study of "Problems in Prussian Secondary Education for Boys, with special reference to similar questions in England," by Mr. M. E. Sadler, which calls for closer attention than we can pay to it this month.

PROF. G. W. PROTHERO, with whose work in the domain of history, whether as a teacher or as an editor, our readers will be familiar, has assumed the editorship of the *Quarterly Review*, on the retirement of Mr. R. E. Prothero from that position.

* * *

THE WARDEN OF RADLEY strongly supports a proposal for a cheap series of facsimiles of interesting historical documents. He writes:—

Some time ago I endeavoured to procure copies of the facsimiles of classical manuscripts published by the Palaeographical Society. I found it impossible to get those I wanted without buying the whole publication, the cost of which, of course, is considerable, while by far the greatest part is quite useless for school purposes. If, however, one could obtain facsimiles of the great codices of the Greek Testament, the Medicæan *Æschylus*, the Palatine *Virgil* (and possibly *Euclid*), a privilege would be secured for which I think all schools where the classics are taught would be grateful. Similarly, I cannot doubt that some of the facsimiles now published would be useful for schools if they could be bought at moderate cost.

* * *

A MEMORIAL volume of "Nature Studies, with Critical Essays and Lectures," by Mr. W. J. C. Miller, B.A., late Registrar of the General Medical Council, and the original conductor of the special "Mathematics" section of the *Educational Times*, is being prepared by Mr. H. Kirke Swann. It will include a biographical notice and a portrait, and will be published about a month hence (on subscription) by Messrs. Bale & Son.

* * *

POLITICS generally fail to retain the whole heart of a man who has made literature his first pursuit. There is always a divided allegiance, even when the truant does not return for good to his *premier amour*. Mr. Justin McCarthy, since he retired from the Irish leadership, has made up for lost time by two or three books in the old vein, one of which, "Modern England (1800-1840)," in the "Story of the Nations Series," we reserve for further notice. It is the forty-ninth volume of this comprehensive series, and we feel inclined to congratulate the publisher on the discovery of the English nation.

* * *

THE QUEEN has accepted a copy of Lieut.-Colonel A. O. Green's "Hindustani Grammar," published in two volumes, by the Clarendon Press, and has commanded Mr. R. R. Holmes to return thanks to the author "for this interesting addition to the Royal Library."

* * *

MESSRS. RIVINGTONS will issue the following books in January:—"An Elementary History of Greece," by C. W. C. Oman, M.A.; "Elementary Hydrostatics," by Charles Morgan, M.A.; and "Hercules Furens," from "Euripides," edited, with Introduction and Notes, by A. F. Hort, M.A., assistant-master at Harrow School—a new volume of Rivingtons' "Middle-Form Classics."

* * *

THE "Intermediate Text-Book of English Literature" was commenced some years ago by the late Mr. W. H. Low, and has now been completed by Mr. A. J. Wyatt, whose experience in lecturing and examining at more than one English University has fitted him for the task. The work will be issued in two parts, the first dealing with English literature from its earliest beginnings to 1660, the second covering the period 1660-1832. Beyond that date "it is considered that English literature cannot yet satisfactorily form a subject of instruction" (!)

A RECORD B.Sc.

THE functions and utility of examinations have been discussed from, I suppose, well-nigh every point of view, and I do not intend to review the whole matter. I wish merely to relate the experience of a much-examined individual, whose career, I fancy, is almost unique. The person to whom I refer must have pretty nearly established a record as regards English examinations, and cannot be very low down in international lists, even if we include the Heathen Chinese. Everybody has heard the story of the man who "went up" year in year out to "have a shot" for his Little-go; how, in process of time, he married and had a

son, who also underwent that ordeal, and returned home saying: "It's all right; I'm through, but the Gov'nor's ploughed again." Such tales are evidently "yarns." Internal evidence condemns them.

The examinations of the London University are reputed hard, the standard is alleged to be high, the examiners are said to be lacking in feeling. These charges may, or may not, be true. I am not going to maintain or dispute them. Dr. Bain, of Aberdeen, would call it a question of relativity, which is true. Relatively to my friend the examinations were "hard," the standard was "high," the examiners have been "cruel." To descend to particulars.

Mr. Dash from his earliest childhood showed a preference for natural science, which resulted in a determination to possess the legal right to place the mystic letters B.Sc. after "Dash." So he proceeded to matriculate at London University, and with a light heart paid his fee, and presented himself at Burlington Gardens. But, if his heart was light, so were the contents of his head. He was rejected in Latin, French, Mathematics, Natural Philosophy, and Chemistry. (Failure No. 1.)

Undaunted, he entered again, paying a smaller fee, which privilege, by the way, appears to be evidence of one spark of humanity in this hard-hearted Body. A marked improvement is to be observed. He failed only in Latin, French, Mathematics, and Natural Philosophy. Chemistry was conquered. (Failure No. 2.)

Did he despair? No. Again he paid the reduced fee, only to be ruthlessly "plucked." He was too weak in French. Modern languages were evidently not his forte, though paper knowledge only was required. Having a scientific bent, this is, perhaps, but natural. High mental development in one direction entails, *ceteris paribus*, a corresponding starving of the other parts. (Failure No. 3.)

I may mention incidentally that Mr. Dash did not receive his quietus in French calmly, but proceeded to interview the Registrar or his representative, and gently but firmly requested him to look out his French papers, to make sure there was no mistake. There was no mistake. But it is a long lane that has no turning, and the tide in his affairs, to change the metaphor, was taken at the flood at the next examination. He got through, and became, *ipso facto*, an undergraduate of the University of All the Talents.

Matriculation is fondly supposed to give proof of a good general education, whatever that may mean; and Mr. Dash, having shown himself generally well educated, was free to specialize in science. But his inclinations pointed to natural science, and the obdurate Body prescribed an Intermediate Examination in Science, which, unfortunately for our subject, was not natural, but highly unnatural. All roads lead to Rome, but there was only one pass to the B.Sc., and that consisted in "satisfying the examiners" in Pure Mathematics, Mixed Mathematics, Experimental Physics, Chemistry, and General Biology. It looks a lot, and so he found it. He was "spun" in each and every subject. (Failure No. 4.)

This would have daunted most men—and women, for London University is asexual, or rather bisexual—but Mr. Dash remembered his matriculation experience, and plucked up heart. The Inter. Sci. is not like the Derby. You may have as many shots as you please. The result of the next essay surprised no one more than the examinee. He passed. How, is to this day a mystery to him. He has never been able to understand it, but regards it as one of the many inexplicable phenomena connected with examinations "*quorum pars magna fuit*." The goal of his wishes and endeavours now loomed large and tangible before his eyes, for, the Rubicon of unnatural science and general knowledge being crossed, the rest would be a labour of love. His heart had always fondly turned to natural science. From his earliest youth beetles and frogs had been his constant companions, to break stones and gather fossils were occupations of pleasure unalloyed with pain, to gather buttercups and daisies had ever been associated in his mind with pure idyllic bliss. Therefore, with a light heart, he selected Botany, Zoology, and Geology from the numerous subjects written plain for all folk to see in the syllabus of the London University.

Visions of high honours floated before his eyes, and already in fancy he placed himself among the Owens and Huxleys, the Darwins and Spencers, of science. But Mr. Dash must have overrated his ability, or underrated the standard of the examination.

Now, when success seemed like a fruit well within his grasp, he was to give the lie to the psychological law that interest determines attention, and attention conduces to the setting up of "lines of least resistance," which, in their turn, are essential to a good memory. "Twas not to be." The nymph was coy, and not to be lightly wooed or easily won. "The passing of Dash" was fated to be a long, long lane. Perhaps the simile of the lane is not the best—we may rather call the course a cross-country one with frequent obstacles.

The obstacles that caused the first spill were Botany and Zoology. (Failure No. 5.)

He practically dropped Geology and went for the other two. Again they proved a stumbling-block. (Failure No. 6.)

He persisted. They once more appeared as joint hindrances to his further progress. (Failure No. 7.)

His next essay was less unsuccessful. Zoology alone stopped his onward course. (Failure No. 8.)

He murmured: "Botany is conquered." Alas! he was "shot" in Botany next time. (Failure No. 9.)

With logical acuteness he dropped Zoology to a great extent, with the result that he next failed to satisfy the examiners in that. (Failure No. 10.)

"Nil desperandum" was his motto, and, girding on his armour, he went forth once more to battle with these Philistines. But the ways of examiners are indeed inscrutable. He was ploughed in Botany and Zoology. (Failure No. 11.)

To any one not of scientific habits of thought this would have seemed a case of degeneration. Far otherwise with Mr. Dash. He tempted Providence once again in 1896. He failed. (Failure No. 12.)

What stumped him on that occasion I do not know, nor have I been told whether he entered in 1897. Probably he did. But 1898 brought him to the desired end. He passed; and he may well be pardoned if he spends the greater part of his waking hours in scribbling the hard-won letters B.Sc. after his name. A little sum in simple addition, with the help of the theory of probability for the last two failures, will tell the reader how many times he has passed the final B.Sc. examination.

This is not the record of the man who is always "going to" read, who "goes in" on the off chance of lighting upon an "easy year," or of finding a less than ordinarily cruel set of examiners. It is the true history of a consistent, continuous, and continual worker. It goes without saying that he is lacking in ability to pass examinations, but, withal, he is a splendid teacher. There are, it seems, no other available means of testing qualifications, and, if any one chooses to take up the position that the man who is unable to pass these examinations is unable and unfit to teach, his argument is unassailable. But inability to pass examinations is not proof of lack of knowledge. To a great extent it was due in this particular case to nervousness. When on the morning of his examination a man's knife and fork bent a tattoo on his plate, it is at least open to question whether that man's condition is normal.

As I have said above, the advantages and disadvantages of examinations have been urged times without number, and the arguments *pro* and *con* are pretty well known. Every one admits their badness—no one denies their usefulness. They are a compromise, and, as such, must stand until a better system can be devised.

At any rate, the above is a true account of a man who has spent some twenty years in trying to pass examinations, whose life has been one long misery therefrom, whose general health is probably impaired, as his nervous system most certainly is. He is a woe-begone specimen of the result of over-inoculation with the examination virus.

One cannot but admire the grim and dogged determination of the man, though there is something sad, too, in the spectacle. He resolved never to cease trying, and I had thought that future years would see a careworn, decrepit old man toiling up the steps of the London University, his mind *une idée fixe*. I am glad it is not so. In conclusion, I may add that I am violating no confidence in giving these details. Mr. Dash gave me full permission to make his case known.

W. T. K.

CORPORATE LIFE AND GAMES IN SECONDARY SCHOOLS.

ON December 7, Mr. F. P. B. SHIPHAM, of St. Olave's Grammar School, read a paper on this subject at the College of Preceptors, the Chair being taken by Mr. C. C. Cotterill, M.A. The lecture, and the discussion which followed it, were of a very interesting character.

In the early part of this year a number of assistant-masters attended a course of lectures, given by Mr. J. J. Findlay, at the College of Preceptors, on "The Organization of a Secondary School." After each lecture, papers on topics arising out of the lectures were read by different members and discussed; and, frequently, at the end of the week, visits were made to schools of interest in or near London. Out of these discussions and visits arose a desire to find out what was being done in day schools, especially in large towns, to overcome the difficulties of fostering games and creating a corporate life. A joint inquiry was, therefore, instituted by the College of Preceptors' Training Department and by the Assistant-Masters' Association.

The circulars of inquiry were answered by 66 schools, containing nearly fifteen thousand pupils. Of these schools, 4 are girls' day schools, and the rest boys' schools. Of the 62 boys' schools, 12 are boarding schools, or schools in which boarders are in the majority, and 50 are day schools, or schools in which day boys are in the majority. Of the 50 day schools, 15 are in London, 18 in other large towns, and 17 in small towns. The schools vary in other ways, being rich and poor; public, proprietary, and private; small and large; and they may, I think, be accepted as representative of the different types of secondary day schools prevailing in England.

The circular of inquiry contained questions relating to reading-rooms and libraries, school magazines, and societies for chess, photography, and natural history, Debating Clubs, and Old Boys' Clubs. Of these there is no mention in this paper.

The following table of statistics will be useful for reference to those reading the essay:—

Description of Schools.	Number of Schools.	Total Number of Pupils.	Day Pupils.	Boarders.	Living more than 14 miles from School.	House System.	Gymnasiums.	Fee for Gymnasium.	Drill.	Athletic Sports.	Systematic Training for Sports.	Physical Measurements.	Boys allowed to belong to Local Clubs.	Compulsory Games.
Girls'	4	1,254	1,168	86	534	0	4	1	4	3	2	2	0	0
Boarding..	12	2,030	434	1,596	86	8	12	10	9	10	2	8	0	10
Day.....	50	11,493	10,614	879	4,259	11	38	8	42	46	8	12	20	12
Total	66	14,777	12,216	2,561	4,879	19	54	19	55	59	12	22	20	22
London ...	15	4,322	4,023	299	1,919	3	14	4	15	15	2	1	*	4

* Information on this point is rarely given in regard to London schools; it is, however, admitted that 1,066 pupils—one-fourth of the total—take no part in the school games.

THE PUBLIC-SCHOOL PRODUCT.

If we review the history of education from the earliest times—I add in haste that I do not to-night propose to make such a review—and among all nations, we find the English “public school” unique in its methods and in its results. Its system of athletics produces men whose physique equals or surpasses in grace, dexterity, and in strength the finest athletes of ancient Greece. “Good heavens! Why are not our boys like that?” exclaims the envious foreigner; and well may he envy and emulate, if, indeed, the race is to the swift and the battle to the strong—if, indeed, M. Gambetta was right when he deplored the physical inferiority of the French nation as the cause of the *déché* of 1870—if, indeed, the passion for athletics run through all classes, and save us from degeneration.

Again, by its anticipation of the battle of life, the “public school” rears men to be makers and rulers of empire. To this let an Etonian Prime Minister bear witness. “Of the last six Viceroy of India,” said Lord Rosebery the other day, “all but one were Etonians, the best part of whose education was not the education of the brain, but the education of character, and it is character that has made the Empire and its rulers.” By its corporate life it helps to intensify that consciousness of nationality and of imperial destiny which answers to the ever-increasing strain. “Among the strong passions of these latter days,” says a former Headmaster of Harrow, “the *esprit de corps* of our public schools is more or less new in man’s history. There is, of course, no trace of this feeling in ancient life, whether Hebrew, Oriental, Greek, or Roman. In modern life there is little or no trace of it on the Continent, or, except quite latterly, even in America. Nay, even here in England you will scarcely find it as an active, visible power till, say, the last century and a-half.” But it has come to remain with us and to increase, because it is valued and fostered. Every strong attachment to a community is a force which makes against egotism. This *esprit de corps*, however, is not a mere sentiment, but a passion fruitful in works and strengthened by works. *Esprit de corps* implies all that we mean by corporate life, that community of life in which each so takes part, and by which each is so influenced, that the school is itself one living organism, and not a mere assemblage of individuals.

These results, then—fine physique, and good health, character, and *esprit de corps*—are becoming more and more the aims of day schools also, and it is the object of our meeting this evening to consider how far, how much further, the unique success in these directions of the public boarding schools can be achieved in secondary day schools.

I.—THINGS AS THEY ARE.

My paper is divided into three parts. The first part is an attempt to review what is accomplished with regard to physical measurements, gymnastics and drill, athletic sports, swimming, cricket, and football clubs. The second deals with the causes of failure, and the third with remedies and sources of success.

PHYSICAL MEASUREMENTS.

From only four schools have we received the report that all the particulars mentioned in our circular of inquiry are recorded under the direction of a physician and reported to parents. Of these, two are girls’ schools, one a boarding school, in which one expects to find more solicitude than in a day school, and the fourth a London day school. Only twelve day schools out of the fifty, or 24 per cent., concern themselves systematically with this matter, and, of these, one merely takes a few measurements “occasionally,” another “optionally,” and another “irregularly.” The intervals of making observations vary, being monthly, terminal, or annual; in one boarding school they are

taken at the beginning and end of term, with a view to comparing the physical results of school life and life at home. Most of the schools report to the parents either regularly or in special cases of defect; and in one case each boy is provided with a printed copy of the report. It would appear, then, from our inquiry, that the importance of systematic measurements is very little realized, and that schoolmasters rely upon their own powers of observation to detect deficiencies of eyesight and hearing, and are unwilling to make a complete physical examination, as being either useless or more properly devolving upon parents.

Our reports show, however, that very practical use is made of the information acquired. The headmaster of a school belonging to the Society of Friends informs us that “boys who are not up to the average in height, weight, drawing power of arm, girth of biceps, girth of empty chest, and breathing capacity of chest, are compelled to practise suitable exercises to bring them up to the standard.” Dr. Dukes, also, in “Health at School,” speaks of a headmaster who, by a careful system, established three conclusions: firstly, that a boy’s chest might be developed by suitable exercises to a high standard; secondly, that a steadily increasing chest is a sign of sound lungs; and, thirdly, that a stationary chest at the growing age demands medical examination. Dr. Dukes further points out that a medical examination shows the boy’s capacity or incapacity to join in the various school games.

In another school, with which I am acquainted, a boy was recently reported by his class-master as falling off seriously in his work. The headmaster, however, discovered that he was also falling off in weight, and hygienic, not penal, remedies were, of course, adopted. With this may be compared the following from a recent publication, entitled “Work and Play in Girls’ Schools”:—“If a girl was found to be persistently idle and inattentive, though apparently in good health, on consulting the weight-book it would usually be found that she was under weight for her age, and a cure was easily effected by cutting off some of her work, and giving her extra nourishment and more time for exercise in the open air.”

For further confirmation one may study the published statistics of the Westminster Training College. Here it was found that in the three weeks preceding the annual examination in a certain year all the students, with two exceptions, decreased in weight, the average decrease amounting to 3 lbs. In schools at which the measurements are taken before and after the holidays, it is frequently found that boys increase in weight during the holidays, and decrease during the term, and the conclusion has been forced upon the authorities that, in many cases, the decrease is due not to underfeeding, but to overwork.

We have, then, three important facts:—a physical examination reveals capacity or incapacity for various games; observed defects may be remedied by suitable exercises; loss of weight is the most characteristic symptom of overwork; to which I will add, without comment, a fourth—that a rapidly growing boy or girl is apt to be dull.

Another aspect of this question is presented by a report which we have received from a large London school. The most important results for the year are tabulated, and compared with those of the average English “public-school” boy according to the table in Dr. Dukes’s book (“Health in School”). It appears from this that in height there is little difference, but in weight the boys in the London school fall considerably short of the “public-school” boys. Again, special averages were taken for twenty-five boys coming from elementary schools in height, weight, and chest girth, and were found to be considerably less than the average for the rest of the school. Secondly, in the matter of eyesight, the boys in the London school were examined by a physician, and it was found that 30 per cent. had defective sight. This must be compared with the statement that in London Board schools 60 per cent. of the pupils have defective sight, and the statement made by a physician in a recent letter to the *Times*, that only 20 per cent. of the boys entering a certain great public school had defective sight. By the way, he added that many were suffering from other unsuspected physical defects and infirmities, indicative of parental neglect and overpressure in the preparatory schools from which they had come. A full discussion of this question to-night is impossible; but I trust I have said enough to suggest the important bearing that these measurements have upon health and gymnastic exercises and intellectual progress, whilst the differences between boys of the upper and lower classes possess special interest for the student of sociology.

Some of you, admitting the utility, might be disposed to dispute the expediency of throwing this burden upon the schoolmaster; but I would urge, in reply, that it is the science of education which, more than any other, lacks a firm foundation of fact and law, and that it is only in the school, where children are assembled in large numbers that statistics can be collected on a scale adequate for purposes of comparison and inference.

GYMNASTICS AND DRILL.

Of the 66 schools which have reported to us, there are 12 which use no gymnasium, and all of them are day schools. Some of these give free instruction in drill, and there are only 11 schools out of 66 in which neither drill nor gymnastic exercises are compulsory, all being day schools. Moreover, in 4 of these 11 schools drill is compulsory for

the lower classes; in other 5 drill and gymnasium practice is voluntary, and in 2 it is significant that games and swimming are strongly and successfully encouraged. I think this alone is an indication that the place of physical culture is more widely recognized in day schools than was the case twenty years ago.

We find that a fee is charged in 19 schools out of 66 for the use of the gymnasium. In most of these gymnastic exercise is optional, and must be pursued in the pupils' free time.

In one-third of the schools which have a gymnasium, the instruction is given in school time; in one-fourth it is partly in school and partly in free time, and in the remainder it is given in free time. It must be remembered that, if an instructor is engaged for a large day school, the greater part of the instruction must be given in school time; but the pressure of studies in the upper classes will often render it necessary to send them to the gymnasium in the dinner hour or at the end of the afternoon.

In about two-thirds of the schools drill is compulsory for all classes, and in one-seventh it is compulsory only for the lower classes. In most cases the military system is adopted; but in three boys' schools, and in the four girls' schools from which we have received reports, the German or Swedish system of drill is practised. In one school Sandow exercises are practised for ten minutes every morning, and one school speaks of using McFadden's system. At three of the day schools Volunteer corps are established.

ATHLETIC SPORTS.

The athletic sports are, if I may be pardoned an extravagant metaphor, the champagne of physical culture, by which we celebrate the apotheosis of individualism. Sometimes, it is true, the prestige of a class is sought, or the competitor may strive that the credit of the school may be maintained in the eyes of the spectators, or may not suffer by a comparison of its records with those of other schools. But, for the most part in day schools, the motive forces are the public applause of individual excellence and the acquisition of glittering prizes. This motive is as defensible as the endeavour to carry off prizes for class-work, and the sports-day is often a day of consolation to those who do not shine in intellectual activity. Their popularity is shown by the fact that in only seven schools out of sixty-six does it appear that no athletic sports are held; two of these seven being preparatory boarding schools, and another holding an annual swimming competition.

To our question whether there is any organized training for the events only twelve schools—less than one-fifth of the whole—give an affirmative answer, and, with regard to them, we have, of course, no knowledge of the thoroughness of the training adopted. One correspondent, for example, says: "There is a good deal of training done"; another says: "Organized by custom"; and a third: "Traditional and watched by myself and masters." The absence of organized training is a serious drawback; without it many exercises which are essential to the perfect development of the body are almost entirely neglected, whilst the regular games of cricket and football may languish by being overdone. Secondly, the interest of the competitions is much reduced, because the race is often given away to those whose reputation augurs success, or to some discreet individual who, having entered for only one event, is pitted against his betters already exhausted by previous efforts. Lastly, without preliminary training for the events which entail violent exertion, great mischief is likely to occur especially to the heart and lungs, the danger of which is painfully apparent to all who have witnessed these annual competitions.

The sports are popular with parents. "They contribute gifts of money and prizes with extraordinary generosity," writes one of our correspondents, "and they even turn out to watch the competitions, or, rather, to see Archibald in his running costume; but real interest in physical culture is practically non-existent." Many others complain that this is often the limit to the interest which parents take in physical education. Even this degree of interest is not to be despised, and, besides this, the athletic sports constitute the most pleasant social function which a school can hold, bring together boys, masters, and parents, and, as a striking witness to the unity of a school, help not a little to foster *esprit de corps*.

SWIMMING.

From one-sixth of the schools the report is that all the boys either can swim or are learning. These are mostly boarding schools, and in only three are day boys in the majority. From three-fifths of the day schools we have received an answer as to the proportion of those who can swim, from which it appears that in only one-eighth can as many as 40 per cent. of the boys swim, and, including these latter, in only two-fifths of the schools are 20 per cent. or more of the boys able to swim.

Two of the day schools have a swimming bath of their own. The small number may be accounted for when one considers that a swimming bath is costly to construct and expensive to maintain, and that it is only for large schools far from a public bath that the expense is justifiable. The problem is simplified if the bath is converted into a gymnasium for the winter, as is done at one school in London. In most

cases it would appear that in day schools governors who wish to encourage swimming choose to supply boys with free tickets to a public bath rather than to build a bath of their own.

Swimming is a useful art and a healthy exercise if practised with discretion; but it does not as a rule contribute much to the development of the corporate spirit in schools. It may, however, serve this purpose in at least three ways. Classes or houses may easily compete with one another; each school may hold an annual swimming competition; and competitions may be arranged between the different schools in a town or district. In London this last is attempted by means of the Public Secondary Schools' Swimming Association, now in the fourth year of its existence, to which nineteen schools are already affiliated. A headmaster of one or other of the affiliated schools has acted each year as president, and the affairs of the Association are managed by a committee, consisting of one representative from each school. The third annual competition, at which sixteen schools were represented, took place last July, and was very successful. The work of the Association is being vigorously prosecuted by Mr. J. King, of the Latymer Upper School, Hammersmith.

CRICKET AND FOOTBALL CLUBS.

Let us consider for a moment why we value cricket and football clubs apart from the healthy exercise which the games afford. We value them, firstly, because they are games in which success is impossible without combination or co-operation on the part of the players, who must play not in splendid isolation for their own amusement, but according to the rules, in obedience to a captain, with a view to the success of the team. Secondly, we are not content that the players should learn to combine and obey, but that they should render obedience to a freely elected captain, chosen from among themselves, and that the organization and management of the club should be in the hands of popularly elected committees. We desire this, first, because training in self-government is a preparation for the duties of citizenship in after-life; and, secondly, because we believe that, unless boys take a full share in the management, the games themselves, as a means of healthy exercise, will lack one condition of complete success.

Believing, then, that self-government is an art to be acquired in process of time; that the boys in a new school, for example, must not be entrusted with the complete working of a new club; and that in an old school, in which new boys are ever succeeding to positions of influence and responsibility, some degree of regulation is required, we must consider carefully how far the freedom of action of the boys is to be restricted by the authorities. Their freedom may be restricted in two ways: the committee may be partly composed of masters, and the resolutions of the committee may be revised by the headmaster. In two girls' schools we find that the committee is composed entirely of girls, "fresh regulations, however, being submitted to the authorities for consideration." In a few boys' schools we are told that the committee consists of boys, with a master as treasurer or the headmaster as president, exercising a controlling influence and right of veto, especially in matters of finance. The number of masters on the committee varies, being one, two, or three in some schools, whilst in others all the masters are *ex officio* members of the committee.

I will now quote a few opinions received from those of our correspondents who consider that the *game* itself cannot be entirely entrusted to the boys:—

(a) "It is not well to leave the choice of cricket and football events to boys only, as their judgment of a boy's capabilities is so very frequently warped by their personal predilections."

(b) "Very few boys are able to govern in games. They are too fond of popularity to be successful."

(c) "Boys under sixteen quarrel and complain of unfairness."

No doubt with younger boys the difficulties are greater; but many of the schools which we are considering contain boys of seventeen, eighteen, or nineteen, whose influence should be beneficial.

Next, let me submit a few opinions regarding the financial and business management of the club:—

(a) "Boys cannot govern themselves without help; all departments are sure to get out of order."

(b) "I think masters aiding and watching essential. Boys have little judgment, and less perseverance, taken *en masse*. I retain a veto on everything."

(c) "Unless the boys are a good age they require stiffening with masters. The masters are only advisory; but, naturally, though not by any means always, get their suggestions adopted."

This last statement puts very well the nature of the influence which masters should exert. It should be their aim to stimulate as much, and to restrain as little, as possible. "It is my opinion," says one, "that the boys should regard themselves as responsible for the management, and that the masters' influence should be, as far as possible, unseen, and directly felt only by the senior boys."

Many seem oppressed with the difficulties of the task, and set them forth in the tone of men saying the final word. But the boy's incapacities are the master's opportunities. We find a boy deficient in judgment and incapable of accurate statement and correct reasoning, and we train him by means of mathematics and language. We find

boys, individually and collectively, deficient in powers of government, and we must make it our business to draw forth the latent capabilities by means of clubs, societies, and the monitorial system. And the thing is done. Three reports speak of masters and boys having equal voting power, and three state that the action of the committee is in no way restricted by the authorities; whilst, from a country school, 30 per cent. boarders, but with no other special aid to success, we learn that "the *ex-officio* members now find it almost practicable to leave the control of games entirely to the boy-members; this is after six years' training, during which a tradition has grown up. The financial control will be handed over to the boys next term."

All that I have said so far only confirms the belief, were confirmation needed, that the work done in secondary day schools is not confined to class instruction. Physical culture, the art of recreation, the duty and art of corporate action—in short, the art of complete living—is manifestly the goal in view. But the goal is far from being reached, and it remains, therefore, to consider to what causes we may trace the comparative neglect of these features of a complete education. Perhaps, however, it will be well to reconsider briefly what is our idea of success and failure, and in particular what we mean by corporate life and *esprit de corps*. If, then, a school is a success, each boy will be ready to act, not always in his own interest, but for the good of the community to which he belongs. Each will feel that his own conduct affects the welfare of the school, and will grieve or rejoice when the school does ill or well. His devotion will be proved not only by his private conduct, but by his readiness to play his part in the common life; he will become a paying and acting member of the various clubs and societies, and he will be rigidly faithful to all his public engagements. A school that is a failure will present features the reverse of these: it will be an unorganized collection of units, units indifferent to the well-being of the whole: clubs will languish, promises to take part in the common life will be reluctantly given and lightly broken if any sacrifice of personal convenience is thereby entailed.

Throughout the country there are many day schools which, from this point of view, must be classed as failures, and many in which the measure of success is painfully distant from the ideal.

"SMUGS."

At the Universities men who are unduly immersed in their studies, who neglect physical exercise and stand aloof from social life, are termed "smugs." We have endeavoured to discover the number of "smugs" in day schools by asking for the percentage of those who play cricket, football, or other club-games, and the percentage of those who take no share in out-of-school life apart from the unorganized play pursued in short intervals. These percentages are in many cases complementary. Leaving for future consideration the question of compulsory games, which affects twenty-five of our schools, I will give a few facts concerning the remaining forty-one, all of them day schools. In three large and important schools we are told that "most" hold aloof, it being definitely stated in regard to one that only one-third of the boys play cricket and one-sixth football. Altogether, in one-third of the day schools in which games are not compulsory, it is admitted that at least 60 per cent. of the boys take no part in the games and corporate life of the school, and, including the latter, in two-thirds of the schools the percentage holding aloof is at least 25. In estimating the reliability of these figures, it must be borne in mind that the tendency would be to underrate rather than exaggerate; and I think, therefore, that their significance cannot be ignored.

II.—CAUSES OF FAILURE.

We have endeavoured to elicit, especially from headmasters, an expression of opinion as to the causes of failure. These opinions will be set forth under the following heads:—(1) Overpressure; (2) lack of funds; (3) the lack of available fields and the dispersedness of pupils; (4) the bicycle; (5) the masters; (6) the boys; (7) the governors and parents.

OVERPRESSURE.

There are one-fourth of our informants who believe in the existence of overpressure. A high-school mistress, for example, speaks of "the undue prominence given to intellectual development," and adds: "The pressure is lessening as the golden mean is aimed at." The headmaster of a London school, where games are a success, points out that "a school which aims at giving a complete education will probably fail to gain for itself a conspicuous position in the matter of examination successes." Another headmaster says: "This excuse is absurd." Personally I am inclined to agree with the former. There are many parents who will send their children to the school which can chronicle the largest number of examination successes. Success of this kind is only purchased by some sacrifice of the claims of a liberal education, and by lavish outlay of time on the part of boys and masters; for boys entering for examinations must be taught by much practice to express themselves quickly on paper, and this entails the correction of a large amount of work out of school.

COST OF GAMES; LACK OF FUNDS.

In seven schools only—less than one-ninth of the whole—we are

told that pupils bear the entire cost of the games, including the rent of the ground, and in most of these the games appear to be a failure. In regard to one-seventh of the schools, it is expressly stated that governors make grants in aid, or that parents and friends subscribe. Some are helped by profits from entertainments and sale of confectionery. In the majority the members of the club, including the masters, bear the cost of the games, with the exception of the ground, which is provided by the school. Probably in many cases the subscriptions are inadequate for the purpose, especially if a ground is to be provided on which all can play at once; and nearly one-fourth of our correspondents assign lack of funds as the cause of failure. This may be partly due to the poverty of parents, especially in the case of exhibitioners from elementary schools, but it is more probably due for the most part to parental indifference. A case in point is that of a country grammar school, where the parents cannot afford to pay for the rent of a good field; but most of them contrive to supply their sons with good up-to-date bicycles, renewed as occasion or fashion requires.

LACK OF FIELDS; DISPERSEDNESS.

A distinguished headmaster writes to us: "The real cause of failure seems to me to be the difficulty of creating an *esprit de corps* among boys living in scattered homes. The house system (as at Clifton) is the only palliative." No less than one-half of our day-school correspondents are in agreement with him, emphasizing either the distance of the field from the school, or the dispersedness of pupils' homes, or the expenditure of time and money involved in reaching the field. Besides the house system, another palliative—that of boarding-houses both for boys and masters—has been suggested to us, with which I will deal later on. They can be but partial remedies. Steam, as a writer in the *Spectator* tells us, has brought us into large towns, and we must wait patiently for electricity to take us back to the country.

THE BICYCLE.

Many of our correspondents are of opinion that the bicycle exercises little or no influence on the school games, either for good or for evil—some consider it a help, some a hindrance. Those who consider it a help emphasize the fact that it diminishes the difficulty of distance, and boys "can no longer plead in excuse that their physique is unequal to the strain of a long walk followed by a game of cricket or football." The headmaster of a school in a large town writes: "In this district the use of the bicycle is one of the few ways in which you can feel sure that a boy gets any outdoor exercise. I think it will largely take the place of cricket, and may, by club-runs, prove useful." The headmaster of a small country school complains that bicycling is only another form of loafing, that his boys only take runs of two or three miles, and do not visit the interesting places in the neighbourhood. From a girls' school the report is: "Among girls, so far, each new athletic sport tends to stimulate others. Bicycling has had a very useful influence on girls' dress."

There are eleven schools, one-sixth of the whole, from which we have opinions adverse to bicycling, e.g.: "it affects games very seriously in summer"; "it is very bad for games, selfish and disorganizing"; "it is disintegrating"; "it is beginning to damage the games, especially among smaller boys." In a school magazine I read: "Forty-five cycles were counted one afternoon on the school premises. . . . As to the tennis-courts, they are quite unapproachable, a veritable nightmare of wheels twisting and twining about a small indiarubber ball. We are told that this is bicycle polo, and even cricket does not seem to detract from the ardour of its devotees." A London informant says: "We have 72 cyclists, of whom 47 play no cricket, 49 no football, and 40 neither." In seven schools cycling is either forbidden, or strictly regulated, or "it is vigorously discouraged, no event being provided for it in the athletic sports."

THE MASTERS.

Some assistant-masters lay much blame on the headmaster. I dare not quote for fear the headmaster, seeing the quotation, might find that the cap fitted uncomfortably well, and might vent his displeasure on the hatter. But they are supported in their opinion by some headmasters themselves, who consider that "it very largely depends on the kind of headmaster you have." On the other hand, some headmasters are profoundly impressed with the importance of assistant-masters doing their duty. Now, what are the services which the assistant-master can render? He can serve on committees and help in the management of the club; he can be present at the games, stimulating, coaching, and acting as referee; or he may himself take an actual part in the practices, and sometimes in the outside matches. He can perform similar services for the social clubs and for the school magazine, if there is one.

Now I ask you two questions. First, has he the time to do all this? We must remember that in some cases he, like the boy, is hindered by the distance of his home from the school, or the distance of the school from the playing-fields. He is hindered, as some correspondents tell us, by "the large amount of correction work which has to be done out of school, especially in the case of town schools closely competing with each other." He is hindered by the absolute necessity of doing extra work in order to eke out his often miserable salary.

This leads to my second question. Is he paid to do all this? Many assistant-masters consider, and rightly consider, that their salary is well earned, and much more than earned, when they have efficiently discharged their duties in the class-room. The future of secondary education appears to me to turn very largely upon the payment of assistant-masters. Their efficiency as teachers is more imperatively demanded than ever, if the secondary school is not to suffer in comparison with the higher-grade and technical schools; and, if we are to add the duties of taking an active part in all the multifarious activities of social and corporate life, it is clear that the post can be well filled only by a man of high character and intellectual ability, to whom an adequate salary must be paid. And what is an adequate salary? Perhaps the reply will come with more force from a headmaster. In his admirable pamphlet on "The Future of Day Schools," to which I am largely indebted, Mr. Hendy, speaking of junior masters, says: "£150 to £200 ought to be the minimum price paid to an educated gentleman." I know a few schools in London in which £150 is the minimum, but judging from not a little knowledge of salaries actually received, I believe that, if we make a gratifying exception of a few schools, we shall find that in the remainder the average salary—I do not say of junior masters, but of junior and senior masters taken together, not the minimum, but the average salary—is less than £150 per annum. I believe, moreover, that the tendency for some years has been in a downward direction, and the result will show itself in an inferior type of master. No doubt in this, as in other walks of life, much good work ought to be done, and is done, for which no remuneration is received; but good work is not done for many generations by martyrs; and it is a short-sighted policy which lavishes money on bricks and mortar and machinery, and denies to men the means of leading the life which their education and faculties require.

THE BOYS.

Some attribute the failure to the boys themselves. Many are the forms of accusation brought against them. We need not take them *au grand sérieux*, but rather heave a sigh of sympathy with the plaintiffs, "boy-rid, worn out with perpetual boy." The boy, then, is charged with inertia, want of pluck, love of loafing, inordinate love of change. Poor boy! School-rid, worn out with perpetual school, he seeks distraction in his hobbies at home, or amid scenes of rural bliss, or in the busy haunts of men. Then, of course, he has an undue love of freedom, lacks *esprit de corps*; and, when at last the climax is reached in a charge of downright inverted-comma-individualism, we suspect that the onslaught is made by some sincere socialist. Let me illustrate by classified quotations:—

(a) *Laziness and want of pluck.*—"Boys shirk the drudgery of early attempts. In the boarding school they must learn to catch and to stand a charge at 'footer.' When he has learnt the elements he loves games, but too many give up because they think they are bullied." Another writes: "Boys have a natural distaste to exert themselves except for some ulterior end, e.g., applause or a prize; the love of exercise for exercise comes later."

(b) *Vicariousness.*—"Boys like to take their exercise vicariously, by attending matches rather than by playing."

(c) *Short duration of school life.*—"Boys change so rapidly that they do not feel attached to the school." In some day schools the average duration of school life is only two years, and in many not more than three.

(d) *Local clubs.*—"In two-fifths of the boys' day schools boys are allowed to belong to local clubs, and in none of these is the condition of the games satisfactory. One headmaster of a school in a large town writes: "Very few belong to local clubs. I think it is regarded as a bit disloyal. It is well known that I look upon it as such." Mr. Findlay, of Cardiff, forbids it in his school. The magnitude of the evil is not measured by the mere number of the "disloyal." The toleration of such a practice must be fatal to *esprit de corps*, and it seems desirable that it should be either forbidden or strictly regulated.

PARENTS AND GOVERNORS.

Last, and greatest, parents. Fathers, mothers, children—these are the three causes of our success and of our failure. Governors, being often parents, are no doubt meant to be caught in the showers of blame which descend upon the latter, and many of our informants single them out for separate reproof. I have classified a few out of the numerous complaints made against them.

(a) *Narrow view of education.*—(1) "In this district they require educating in what education is. To pass examinations seems to them the chief reason for sending a boy to school." (2) "The parents are most to blame. If they knew the importance of these things, governors would have to supply the means." (3) "Parents do not sufficiently force their boys to play; they let them potter in the streets or do anything rather than join in school games. Our failure is due to parents' ignorance of healthy manly traditions, and to want of compulsory powers in headmasters, who cannot add to their burdens (at least, I cannot) by fighting a perpetual battle against foolish parents and lack of public spirit in boys, who would be all right if compelled."

(b) *Exaggeration of danger and domestic inconvenience.*—(1) "It is

no uncommon thing for a parent, who has subscribed generously to our athletic sports, to forbid his son competing, from fears—obviously groundless—lest he should overstrain himself. Similarly a parent, who was president of the leading local football club, and rarely missed attending a match, refused to let his two sons play football at my school because it was too dangerous. In order to succeed, the headmaster should be in a sufficiently strong position to override objections by saying: 'All right; take your boy elsewhere.' Where is such a happy man to be found?" (2) "Parents understand nothing at all in most cases about the advantages of corporate life, and give us no support. All boys cannot play at the same time without clashing with the family arrangements. In a place like Bedford the difficulty is surmounted because the town is one large school, and everything is subordinate to the children's needs."

(c) *Desire for his (or, rather, her) sons' company, or for their assistance in business.*—This sums up the opinions, which are, therefore, not fully quoted.

(d) *Individualism.*—"They value these things if organized for them. Day boys' mothers and maiden aunts vary, and failure is due to the corrupting influence of 'individualism' among day boys, and to the undermining influence of some parents who wish 'Tommy' to do as he likes."

(e) *Social status.*—(1) "Only those parents who are University men desire these things." (2) "In small towns I find much opposition from parents who do not wish their boys to mix with other boys in the district." (3) "Our great difficulty is the increasing proportion of exhibitioners of various kinds and of lower-class day boys. Their parents view games with suspicion for three reasons—supposed expense, fear of accidents, fear of hindrance to studies. 'Exercise!' exclaimed a parent who objected to his son being compelled to play football; 'he can get enough of that running about the street.' Another objected because his boy got his boots so dirty, and football made him late for meals."

(f) *A house divided against itself.*—(1) "Fathers take a good deal of interest; mothers none." (2) "A mother came to me the other day, and said: 'You must talk to my husband. He doesn't want the boys to play football.'"

(g) *A house united.*—"Parents give us every possible assistance, and teams of fathers and mothers play the boys at cricket."

Many of these remarks are the pathetic expression of much weariness and vexation, of baffled hopes and unsatisfied aspirations. To what conclusion do they point? In the first place, our demands must not be too great, nor too sudden. It is our aim to combine the advantages of home-life with the corporate life of a great school, in such a way that the claims of the one do not override those of the other. If the parents desire the company of their children, so much the better for both. If boys are addicted to hobbies, or like country rambles, that also is to the good. If we crush "individualism," we must not stamp out individuality, nor force the boy to surrender his whole being to the claims of public life. I once knew a boarding school in which the public-school system was by no means completely developed, but Dr. Jowett said to the headmaster: "Send me more of your boys; they are not all of one mould." But the pivot-idea of this essay is that the claims of corporate life in our day schools are not sufficiently recognized by the parents; and the cause of this is clearly indicated by Mr. Tarver in a recent publication. "Upon what," he asks, "does the tone of a good public school depend? Entirely upon this, that teachers and boys alike in the large majority belong to families which have for generations been in the habit of continuing the education of their children to a comparatively late period of life. They are not necessarily more learned than other families, but they are better trained. Their members have not been set to think solely of self-interest from the age of fourteen or fifteen; they have been given time to observe life before practically engaging in its struggles. In the matter of making money they would be knocked out of the field by the next American. But how about making a country; about maintaining a standard of private and public obligation, which holds society together?" Now, many of the boys in day schools do not come from the class which he here describes, but from a class in which commercialism and individualism are particularly strong forces, and not a few from the lower class, which is able to put forth few activities but such as keep body and soul together. That is their misfortune, it is part of our social system, and we must meet with not a little sympathy those parents who desire above all for their boys an education which will enable them to earn a living.

Moreover, to the picture we have had of parental indifference and incompetence there is another side. Some say: "It is rare for parents not to desire a complete liberal education," or: "As a rule, parents desire those things except when, as sometimes in the case of curative gymnastics, the girls persuade them to a contrary mind." It is true that some tell us that parents need educating as much as the boys; but others let in a ray of hope by affirming that parents prove amenable to education. One of the significant results of our inquiry is the conclusion forced upon us that parents are often ready to follow a strong lead, and in particular I shall point out shortly that compulsory games, when adopted in a school, are often accompanied by the active interest and support of parents. A teacher

once reported on a boy at the end of term, "Slow, but sure—would make a good parent." Let us take heart from this, and remember also that the parents of the future are now passing through our hands, and that whatever measure of success we achieve in this generation will be the stepping-stone to a higher degree of success in the next.

III.—REMEDIES.

In disclosing the causes of failure, the sources from which success must spring have, at the same time, been discovered. If the parents—that is, the public—can be converted, nearly all the difficulties in our path can be surmounted. But several practical remedies have been suggested, the consideration of which will bring this essay to a close.

BOARDERS.

There is a consensus of opinion among our correspondents that boarders are an invaluable nucleus for corporate life. The advantage is modified, however, as four correspondents point out, by the absurd antagonism between the two classes, or, as one puts it, "the eternal day-boy-versus-boarder attitude." But the "eternal attitude" will be ridiculous when the gulf between a boarding school and a day school yawns less widely. The value of a nucleus of boarders being once accepted, it is worth our while to consider the suggested possibility of establishing in connexion with day schools in large towns a boarding house in close proximity to the playing fields. The boys should be for the most part weekly boarders, so that they might still retain the advantages of home life, whilst the house-master would enjoy the much needed relief of a day's rest. He should have a fixed salary commensurate with the difficulty and responsibility of his task; but no attempt should be made to derive profits from the boarding house. Part of the cost, initial and permanent, might in some cases be met by a grant from the endowment, and residence in such a house might be a condition attached to a proportion of the free scholarships, if any exist.

MASTERS IN RESIDENCE NEAR THE FIELDS.

It has also been suggested that the masters might all live either in one house or in separate houses, in the district in which the playing fields are situated. Whilst the salary of assistant-masters remains what it is, I should be very sorry to suggest an arrangement which would entail inconvenience and sacrifice; nor do I wish to import into the day school the semi-monastic system of the boarding school; but it is quite possible that in certain cases such an arrangement would be economical and agreeable, and, if undertaken spontaneously, a much-needed spur would be given to the games in connexion with schools whose fields are four or five miles distant.

COMMON MEALS.

The mid-day dinner should be regarded not as an irksome responsibility, but as a valuable means of strengthening the social bond. In one school it is a practice for the different forms to invite each other to tea in some room on the school premises, with admirable results.

The setting apart of Friday evenings for lectures and other entertainments is very useful. Apart from the value of the entertainments, it is often necessary for the boys to remain at school, and have tea and spend a social hour together before the lecture commences.

COMPULSORY GAMES.

To some the very phrase is almost a contradiction in terms; but even they would probably admit that compulsory games are better than no games at all, whilst those of us who believe in an education which touches mental, physical and social life may, perhaps, protest that arguments against compulsion in any one province are also, if not equally, applicable in the others. Indeed, the mischief of compulsory studies is far more obvious and more nearly inevitable than that of compulsory games.

Leaving out of consideration the boarding and preparatory schools, I find that games are compulsory in nearly one-fourth of the day schools from which we have received reports. In this connexion two points must be noticed: first, that they often exist along with a kind of house system, to which the possibility and success of the experiment is, no doubt, partly due; secondly, that in many cases the experiment has the hearty approval and support of the parents. Fortune favours the brave. I select a few typical instances:—

1. The Grocers' Company's School at Clapton.—420 day boys; no boarders; 40 per cent. of the boys live at a distance from the school of more than a mile and a half. Ground at a distance of twenty-one minutes by rail. The Company makes an annual grant towards the cost of railway tickets, and the railway company is liberal in its terms. The ground is large enough for one match and twelve set-games being played simultaneously. The school is divided into four divisions, according to the district in which the boy is living when he enters the school, and the games are played partly according to these geographical divisions and partly according to sets arranged, as far as possible, by class-rooms. Cricket is compulsory every half-holiday, and the first two elevens are expected to go down to practice twice a week. Drill, Swedish and military, is compulsory, and the battalion is inspected on the sports day by some well known

officer. Gymnastics, in the boys' free time, is compulsory, except in summer, when the gymnasium is turned into a swimming bath. Three-fourths of the boys can swim, and all learn. The parents are interested to a large extent, as is partly shown by an attendance of five thousand on sports-day.

2. A large London school with no boarders; 33 per cent. of the boys live at a distance of more than a mile and a half from the school. Large L.C.C. ground close to the school. Organized football is compulsory once a week. Nearly every boy in the school is very keen on the game. Matches between forms are keenly contested. The boys are interested in the results of first and second eleven matches. Gymnastics and drill are compulsory. The parents are interested to a considerable and very gratifying extent.

3. A small country school: boarders 20 per cent.; 25 per cent. more than a mile and a half distant. Good field near school. Games compulsory if parents offer no objection. Nearly all play cricket, about two-thirds football. No gymnasium; occasional Swedish drill. As a rule, parents second the efforts of masters in this direction.

4. Country school: boarders 16 per cent.; 20 per cent. more than a mile and a half distant; adequate ground near school; games compulsory two or three times a week, but a parent may formally object at the beginning of season, and 12 per cent. do so. Gymnastics compulsory in school time. The idea is quite novel, and parents care very little.

5. The Cardiff Intermediate School for Boys.—The following is a quotation from the prospectus:—"The regular school games will be football in the autumn term, hockey and athletic sports in the spring term, cricket in the summer term. It is not intended to compel every boy to play these games during every season throughout his school career, but the house tutor, assisted by the prefects, will hold himself responsible for ensuring that every boy in his house spends proper time in the fresh air and in exercise, so necessary to growing boys in a large city; and that every boy gains opportunity for a share in the corporate, out-of-school life of the society. In exceptional cases, such as sometimes occur, where a boy does not benefit by the regular school games, he will not be compelled to join, but alternative pursuits will be permitted by the house tutor after consultation with the parents. Saturday is a half-holiday; Tuesday and Thursday afternoons will be devoted to games, and call-over will be on the playing fields." Mr. Findlay informs us that parents show surprising readiness to accept the whole scheme of houses and compulsory games.

THE HOUSE-MASTER, OR CONSULTING TUTOR, SYSTEM.

Is the key-stone of our great English boarding schools to be fitted into the structure of the day school? The house system serves three main purposes:—(1) The house-master stands *in loco parentis* to the members of his house; (2) stimulus is given to games by the competition which arises between the different houses; (3) streams of *esprit de corps* spring up in the several houses, and often merge in one larger stream of devotion to the whole school.

In day schools we have little reason to fear the idolatry of athletics or the tyranny of the body corporate, and are therefore prepared to welcome any well considered method of imparting more vigour either to games or corporate life; but a system of tutors *in loco parentum* is indisputably less imperative, because the pupils are in daily touch with their parents; and, if only the parents' ignorance, indifference, or hostility can be converted into wise interest and active support, the day school has a vantage-ground which the boarding school lacks. But, given even a wise and watchful guardian, the real life and character of a school are but dimly revealed to the outside spectator, however wise and watchful he may be; nay, the most experienced schoolmaster may fail to trace accurately the progress of his son in a strange school. Each pupil should therefore be entrusted to some one man during the whole of his school career. This task in a small school may be efficiently discharged by the headmaster; but, if the number of pupils exceeds, say, 150, the difficulty or impossibility of the task is removed by division of labour and delegation.

The impossibility may be denied; and I have heard of headmasters who do know four hundred boys, not only by sight or by name merely, but not a little of their character and career. Such headmasters, however, are few, and, perhaps, their energies might be more profitably expended in other ways. The class-master, *qua* class-master, cannot fill the gap; still less can the set-master. I say little of the difficulty arising from the aspect which he presents to his pupils of lecturer, instructor, or task-master, for a competent man will not let this be the dominant aspect. But the class-master, *qua* class-master, is unfitted for the task by reason of the frequent changes in classification due to the bad system of admitting pupils at any time of the year, and, in London especially, to the short average duration of a day-boy's school course. The same reason lessens the value of a class as a centre of *esprit de corps*. It is, perhaps, almost unnecessary to point out that where a threefold or fourfold classification prevails for different subjects, where the class and the class-master have disappeared, a consulting tutor system is even more necessary in order to secure the efficient oversight of each individual. Of this house system, or consulting tutor system, as established in day schools, I will give a few instances,

1. *Intermediate School for Boys, Cardiff.*—This school was opened in September, and the following extract from the school prospectus, kindly supplied to me by the Headmaster, Mr. Findlay, will show clearly what is meant by the house system in day schools:—"For the purpose of social and corporate life, every boy on entering the school becomes a member of a 'house,' which is governed by a house tutor and by prefects, and he remains a member of his house until he leaves the school. Each house will finally contain about forty boys, who reside, more or less, in the same neighbourhood. The houses will compete against each other in games and sports, squad drill, swimming, singing, and other pursuits which can be pursued by a number together. The houses will be distinguished by their colours, chosen from those of the Welsh flag. It is intended, by the development of this house system, to foster in the miniature life of the school those qualities of character which are so desirable in the future citizens of a great city and a great country—public-spirited devotion to the society, self-denial for the common good. Our great English boarding schools have contributed to education a unique tradition in this field of character-training, and there is no reason why an intermediate day school should not maintain the same bracing and invigorating corporate life without depriving a boy of that home-environment which is equally needed for the full development of the character. This combination of 'public school' discipline with home-shelter at night is recommended by the best schoolmasters and physicians of the present day, and it is hoped to give our Cardiff school the advantage of the experience thus gained."

2. *University College School.*—Here the consulting tutor system is established. The boys are allotted to the consulting masters by the headmaster or by choice of parents. The consulting master concerns himself mainly with diligence and progress in studies. Games are played to some extent according to "houses," there being an annual competition for a cricket challenge shield and a shield for the "house" that scores the highest number of points in the athletic sports.

3. *The Godolphin School, Hammersmith.*—In this school there are geographical divisions and division tutors, who concern themselves both with the conduct of their pupils and with games. The competition between the different divisions is very keen, and a boy is expected to represent his division at the athletic sports if required. It is worth noting how our great enemy, disperseness, is thus impressed into our service.

There are four other day schools in which we are told this system prevails, with the twofold object of stimulating games and corporate life. There are besides four day schools in which for the purpose of games only houses, or divisions, have been instituted. At Birmingham a somewhat different system is in vogue. We are told that, "in order to provide matches between the junior boys, each of the four boys' schools on the foundation (one high school and three grammar schools) is divided into three divisions. Matches are arranged between each division in every school and the corresponding division in the other schools. This appears to be a convenient alternative to the 'house' system of the public schools, and is capable of extension to a group of day schools geographically connected. The matches are arranged by a committee representing all the schools, and are considered to be obligatory on the schools."

The increase of work and responsibility thrown upon the man who acts as the "house-master" ought to be counterbalanced by a corresponding advance in salary and status; and there are reasons for welcoming the creation of a class of assistant-masters occupying this intermediate position between the headmaster and the rest of the staff. The feverish race for headmasterships would become less feverish, and the occasional unscrupulous bidding for the same would become still rarer. As a member of the Assistant-Masters' Association, I believe that it is rendering great service to the cause of education—by asserting the rights of its members and protecting their interests, by directing their attention to the study of educational questions, and enabling them to approach their task with a more intelligent view of the nature of their work. I submit to you, however, that we cannot accept the existence of two independent associations of headmasters and assistant-masters as the ideal, though for many years it may prove to be the only possible arrangement; and that there are many reasons for believing that an association of teachers in secondary schools, consisting of headmasters and house-masters, or consulting tutors, might be safely entrusted with the interests of the whole profession.

I said at the beginning of this paper that it was our object to consider how far the unique success in certain directions of the public boarding schools could be achieved in the public day schools. Success so complete we cannot hope to have, for it must be limited by the greater demands of the home. But, if we miss the highest results, we may haply escape the evils of excess—the abuse of athletics, the insularity of cliqueism, the loss of home life. So that I have written this paper with a desire, not unmingled with hope, that the English genius for converting theory into practice, working in successive generations, may make a further contribution to the science and art of teaching, and realize in the English day school of the next century the ideal house of education.

The CHAIRMAN was surprised to learn that only four girls' schools had answered the questions, for he considered that in the best class

of girls' schools the scientific physical training was in many respects superior to anything with which he was acquainted in the great public schools of England. The product of the public schools was, undoubtedly, a fine one, a noble one. But that was due only to a small extent to the scientific way in which the education of the boys was carried on. The English public-school master, speaking generally, was a very poor craftsman as compared with the secondary-schoolmaster of any other nation which was forward in the history of our own time. One point the lecturer had omitted to mention, which he considered as likely to encourage the corporate life of schools, and that was the encouragement of Old Boys' clubs. One serious drawback in London was the want of adequate playing fields in the near neighbourhood of the school. It was a fact that there was something quite inexplicable to the outsider in the playing of our great national games, which had a most extraordinary effect on the boys who played them thoroughly. He did not believe that it was in the smallest degree explicable to any one who had not himself at some time taken part in those games. He entirely disagreed with the extent to which professionalism was carried in athletics; but he believed that the noble and manly playing of cricket and football had an influence on character that was simply marvellous in its greatness and in its extent; and he also believed that there frequently sprung up in the minds and hearts of the boys who played those games together an *esprit de corps* and a love and affection for the scenes in which those games were played, without which no school could hope to arrive at a very high pitch of corporate life. He did not, of course, wish to criticize English secondary education in a general and wholesale manner; but he earnestly deprecated any attitude towards our own schools other than an attitude of sincere inquisitiveness as to whether we could not make them better. He had been associated with public-school masters for a large portion of his professional career, and he regarded them as beyond praise in their devotion to their schools and the interests of the boys under their charge—a devotion which certainly could not be surpassed by the schoolmasters of any nation; but he felt that he should not be doing his duty if he did not say that, with all their devotion to their schools and their boys, we English schoolmasters were not in his opinion equal to the schoolmasters of some of the leading nations in civilization in the rest of the world in regard to our scientific knowledge of our profession and our skill as craftsmen in it.

Mr. THORNTON remarked that he had spent a great many years in the active duties of the teaching profession, and yet it seemed to him, as he listened to the lecture, that the development of such schools as he had been connected with was only just beginning. The paper seemed to indicate the lines on which that development should proceed. It was interesting to see how the Continental schools looked with longing eyes on our English games. In Denmark there was actually a society for the better understanding and introduction of school games in that country.

Mr. DANIELL said that a very small proportion of boys learned to swim. He thought they ought to do what they could to promote the objects of the Swimming Association, and so help on a useful piece of work. With regard to the question of the publication of results of school matches in sporting papers and school magazines, he was not sure that it was good to call such great attention to athletes at school. One other point he would like to call attention to was the danger of too much centralization in school societies. Every society probably necessitated a secretary and three other officers. If that were so, three boys were being trained with the idea of working for the public good. He thought that Old Boys' clubs should be able to help. He knew of some institutions where the old boys made an annual subscription to the school sports, or contributed a prize, but he was afraid such action was confined to very few schools indeed.

Mr. BROWN remarked that he had had no experience of compulsory games. In his school it had always been open to the boys to do as they liked. The most popular branch was swimming, between 30 and 40 per cent. of his boys being able to swim, and more interest was taken in the annual swimming entertainment than in any other sport. This was, perhaps, due to the fact that the athletic sports occurred in the busiest part of the school year, when the boys had been in for a public examination and were rather fagged, while the swimming came in the commencement of the following term, when school work did not interfere. Football was not nearly so popular as cricket; but this might be due to the condition of the ground in the North of London. More than half the boys entered for cricket, and not more than one-sixth for football. With regard to swimming, although the Germans were supposed to be far behind in the matter of sports, they were very far ahead in this branch; 50 or 60 per cent. of the boys, even in the inland towns, were able to swim, and swim well. In London there were now excellent baths, and, although they could not do much in the way of outdoor sports on account of the character of the ground, yet a great deal might be done for swimming if the idea of a coalition of schools could be carried out. In his own school they held an invitation race, in which other schools were invited to compete; and, although other schools generally won the race, his own boys nevertheless took great interest in it.

Mr. LIPSCOMB had been very much struck by the statistics the

lecturer had given with regard to the growth of boys and so on, but thought it a little dangerous to entrust the drawing up of such return to any but experts. He did not desire to say a word against games, but, at the same time, he deprecated the undue importance that was in many cases attached, in the appointment of masters, to proficiency in this particular. It was equally necessary to cultivate taste in recreation. Musical societies, debating societies, reading, chess, and scientific societies were valuable for this purpose; and public spirit could be cultivated in this way as well as by the more popular games' clubs. As to the question of the bicycle interfering with the games, it ought to be remembered, on the other hand, that the bicycle helped boys to get to the ground who would not otherwise go. London schools were placed in a different position from that of country schools. It was a common thing for boys to come twenty miles to school, and they could not then be expected to devote Wednesday or Saturday afternoons to games. He would suggest three half-holidays instead of half Wednesday and whole Saturday, and a call over on the field, as at Cardiff. There was one very great danger in games which did not attend other societies, viz., excessive competition, which led to the games being played more for the sake of the intrinsic reward, or for the notoriety outside the school walls, which was given by the result. This was a danger to be guarded against. The practice of giving challenge cups by way of stimulus should not be carried too far.

Mr. JEMMETT remarked that he was the secretary of an Old Boys' club in connexion with a school which had suffered from a great lack of corporate life. Boys took too little interest in the school. It was simply a place where they wanted to get their money's worth, and, having got it, they took no further interest in it. It was noticeable that those who took the most active part in the Old Boys' club were those who had played in the football team at school. He thought sports were very useful in fostering a spirit of comradeship, and those who played football together were likely to hang together and respect the school in after life.

Mr. HAMPSON was engaged on the staff of a school in the East of London in which there were two hundred boys ranging from fourteen to fifteen years of age. For boys of this age there was some difficulty in instituting chess clubs, debating societies, and the like. They were unfortunately situated as regards playing grounds, the nearest being Victoria Park and Wanstead Flats. The parents of the boys were poor and objected to the expense of getting to these grounds, and therefore the games languished, except in the case of swimming. They had adopted a custom which he would like to see tried in other schools, viz., that of "form teas." The boys themselves did the organizing, and paid for the teas. During the evening a programme was drawn up. It was, of course, of a modest description, and the items would include a few songs and recitations, and probably a gymnastic display and a few round games. Considering the age of the boys and the difficulties under which they laboured, they found this plan of considerable assistance in getting the boys to know each other well, which was useful for the election of monitors and captains, &c.

Mr. SHIPHAM having briefly replied, a vote of thanks to the lecturer concluded the proceedings.

REVIEWS.

A CHAPTER OF HISTORY.

The Renaissance of Girls' Education. By Alice Zimmern.
(A. D. Innes & Co.)

In this summary of the last half century of progress in girls' education we have, in addition to the narration of events, both comments and forecasts, and these latter, though short, are exceedingly practical and helpful to those who are striving to form a clear idea of what a girl's education should be, as distinct from that of a boy. The impression left by the book is that hitherto our girls have been thankful enough to get something of what their brothers enjoy—very slightly modified—and that no serious attempt has been made to mark out a career specially adapted to their needs. The chapter dealing with the state of affairs before 1848 is so interesting and important for a just appreciation of what follows that it might well have been expanded. It is exceedingly difficult for a modern girl to have any conception of the darkness that reigned in her grandmother's young days, and she ought to know something of it, for there are still battles to be fought and the work is only well begun. As Miss Zimmern points out in her closing chapter, the chief victories for the future pioneers lie in reactionary work—in the direction of *home*—in pointing girls to the immense field of work that lies within their own doors, calculated to inspire as much enthusiasm as the most independent life now led. Her suggestion that a parent should

pay his daughter for work at home is startling, but that he should provide her a separate room "to live her own life" and receive her own friends, in return for domestic labours, is in no way extreme, and would keep many a daughter from helping to overcrowd the teaching or other professions, and keep her, too, where she is sorely needed. In all this, however, there is a danger of overlooking the fact that the unit of human society is the family, and not the individual, and that the give and take of family life is one of the finest elements in a good education. As for money transactions between relations, they are proverbially difficult, creating endless friction, and, while a mother's care can never be repaid, who would undertake to measure the amount of a daughter's duty?

Between these opening and closing chapters Miss Zimmern relates the events which have brought girls' education to its present state, dealing separately with the high schools, private schools, technical schools, colleges, and so on. She evidently has spared no pains to gain first-hand acquaintance with all our great schools and colleges, and describes their respective origins and developments, praising, blaming, and suggesting in an exceptionally fair-minded way. Although the "general reader" is chiefly addressed and an average ignorance of the whole subject assumed, the work is solid, and, as far as it goes, thorough, and will form a useful book of reference to all who care for education. Indeed, we think that such books as this should be put within easy access of all that increasing number of persons who serve on educational boards and committees throughout the country. For the general reader the pages are here and there somewhat overloaded with statistics—evidently the notes taken at the various institutions have proved a little unmanageable, and we think it would have been better to describe one or two typical schools, in the style of Matthew Arnold's "French Eton," with a mere enumeration of similar ones.

In dealing with the high schools, Miss Zimmern raises the question, which promises soon to be a serious one, as to how far the modern day school is really becoming a boarding school in all but name. "Where," she asks, "does the home influence come in? The girls might as well be weekly boarders for all the share they have in the real life of home. Saturday may see a cricket practice, or a work party, or a school committee, or a sketching expedition, or a match with some distant school. The numerous clubs, charities, old girls' meetings, &c., fill up all the time the girls can spare from their lessons. Girls who do not live quite near frequently become day boarders, though the word is not used, and take dinner, and sometimes even tea, at school. In some few cases the school even undertakes to supply medical supervision and the general direction of the pupil's health, thus relieving parents of one more responsibility."

The description of the colleges is the ablest portion of the book—the authoress has got to the bottom of her subject and "come up again"; whereas in the parts relating to technical instruction and State aid for girls she seems to be still at the bottom.

The chapter on the Intermediate Schools of Wales is especially interesting to all readers, because here we have the problem of education in a simpler form than in England, not complicated with traditions and endowments. The thorny question of the co-education of the sexes is touched on briefly, but well, while the treatment of the alternative between frequent small day schools and a fair sprinkling of larger boarding schools shows an appreciation of the peculiarities of Wales and a true insight into the needs of the people; but we think the force of class distinctions has been underestimated, and the religious difficulty is ignored. Miss Zimmern's enthusiasm for Wales has not led her to the correct spelling of Eisteddfod.

There is a strange omission of any adequate reference to the training of teachers in this volume. Is it because in this case we have had a *naissance* rather than a *renaissance*? Considering the frequent mention of the difficulty the early pioneers found in obtaining good teachers, we think the authoress should have spared some space, if not a complete chapter, for a description of the efforts to improve them, especially as this movement (so far, at least, as secondary education is concerned) has been practically confined to women teachers.

Considering the number of facts in this volume, it is singularly free from mistakes: the only slip we have noted is that both Queen's and Girton are spoken of as "the first women's college in England." There is no mention of the Church of England High Schools Company, which is doing excellent work, though on a small scale, and is to be distinguished from the Church Schools Company.

SCRIPTURE LESSONS.

The Teaching of Christ on Life and Conduct. By Sophie Bryant, D.Sc. (Swan Sonnenschein.)

There is probably no school subject that varies so much in its method as the Divinity lesson. Relegated by one teacher to the back-ends and by-ways of time, by another it is pushed into the best hours of the week. It is often reserved as his special province by "the Head" himself. Its substance varies as the school. Here it may approximate to a Catechism lesson and be largely doctrinal; elsewhere, in schools where it is essential that non-controversial matters alone should be treated, where the Conscience Clause doth make cowards of us all, the lesson is apt to run on historical and geographical lines, and, as a Cambridge poet sang, to confine itself to such questions as

... the names of Jewish Kings,
And whether shawms had strings.

To the teacher who has more than the fear of examinations before his eyes, the Divinity lesson presents many opportunities and many difficulties. He anxiously desires to influence the children under his care, to instil some right principles to action, some feeling for the things that are good, which may act as motive forces; yet how is he to proceed? He must not preach—at least, not often. He must not teach—at least, not much; for such things are not to be taught dogmatically. He can but suggest and indicate. "I will bring you first to Jesus Christ," said Dr. Butler in his sermon to the boys of King's School, Canterbury. "But that," says one perplexed teacher, "is to state the difficulty, not to solve it. How are we to do this? If we may not touch upon any theological or metaphysical problem, if we are to avoid dogma as though it were an unclean thing, how are we to give our lessons a religious content, and make them spiritually useful?"

One answer would seem to be to take the practical aspect of Christ's teaching and try to build up the ethical scheme of the Gospels; to find the principles on which this scheme is based, and to test them and interpret them by applying them to some of the social problems of to-day.

A very suggestive and probably useful little book on this subject has been published by Mrs. Bryant, founded on actual lessons given in the North London Collegiate School. The object is to present the practical teaching of Christ as a whole, as an ethical system; to ascertain the principles on which it is based; to interpret it by examining its relation to the local conditions under which it originated, and the universal conditions under which it has now to act. First are collected all the passages in the Gospels that bear directly on each characteristic element of Christ's ethical system, such as the nature of the Kingdom, the Fatherhood of God, the Brotherhood of Men, Forgiveness and Self-Surrender. From these, the principles they illustrate and enforce are deduced and briefly expounded, and the mutual relation of these principles in the system is explained. Their living force is happily illustrated by application to social problems of to-day. Thus, speaking of the Tradition of the Pharisees, and of their attempt to develop righteousness by regulating all the minutiae of life, and, again, of the Messianic expectation of the Jews, Mrs. Bryant says:

Just as the extreme legalism of the Scribes and Pharisees represents that tendency to excessive reliance on righteousness by forms and ceremony, or by Act of Parliament, which is always with us, so does the Hebrew Messianic expectation stand for all forms of State-regulated Utopias, from the ideal of medieval Catholicism to the schemes of State-socialism of to-day. Against all these is directed in the same sense the Messianic disclaimer: "The Kingdom of God cometh not with observation: neither shall men say: Lo here! or Lo there! for, behold, the Kingdom of God is within you."

And again, when speaking of the power of Meekness, the author points out that there may be occasions when the use of violence to stop wrong-doing would be allowable—

There is a justification, obvious enough, for criminal law and punishment wisely conceived. But there is no justification for a social system which deals with its criminals only by those means. All punishment should aim at reform.

A course of ethical studies based on this method and carried on in this spirit could hardly fail to be of great value in training, and would, undoubtedly, impart to the Divinity lesson a reality and living interest which it is sometimes apt to lack. We have only one further comment: Mrs. Bryant modestly says in her Preface that "the sole merit" of her book "is in the fewness of the commentator's words." We regard the methods of the book as of a most distinguished "merit"; with

regard to the statement itself, we feel that the words may well be few, seeing that they are weighty.

A LOVER OF CHILDREN.

The Life and Letters of Lewis Carroll (Rev. C. L. Dodgson).
By S. D. Collingwood. (Fisher Unwin.)

Probably no one but a relative could have written a life of Lewis Carroll. Mr. Dodgson was a curious combination of the Oxford don and the playmate of children, of the mathematical tutor and the genial teller of fairy tales; and Mr. Collingwood has done as much as was possible to make the world of readers familiar with a personality which it barely knew in his lifetime. He was one of the most ingenious, methodical, dignified, approachable, serious, and entertaining men; and the contradictions of his moods afford a not unnatural parallel to his paradoxical humour. He will live for ever in English literature by his "Alice in Wonderland" and his "Alice through the Looking Glass"; and no man need wish for a better sort of memorial.

Mr. Collingwood gives us many interesting details of his uncle's life at Oxford and in the country, of his friendship for young people, and of the production of his books. After the first "Alice" had proved to be so wonderful a success, the author conceived the idea of writing a sequel, in which the heroine was to continue her adventures on the other side of the looking-glass.

The first difficulty, however, was to get her through, and this question exercised his ingenuity for some time before it was satisfactorily solved. The next thing was to secure Tenniel's services again. At first it seemed that Mr. Dodgson was to be disappointed in this matter. Tenniel was so fully occupied with other work that there seemed little hope of his being able to undertake any more. He then applied to Sir Noel Paton, with whose fairy pictures he had fallen deeply in love; but the artist was ill, and wrote in reply: "Tenniel is the man." In the end, Tenniel consented to undertake the work, and, once more, author and artist settled down to work together. Mr. Dodgson was no easy man to work with; no detail was too small for his exact criticism. "Don't give Alice so much crinoline," he would write, or "The White Knight must not have whiskers; he must not be made to look old"—such were the directions he was constantly giving.

In his subsequent books, he was assisted by Mr. Henry Furniss, Mr. A. B. Frost, and other artists, with all of whom he claimed the same privilege of deciding what his characters were to look like.

Both the "Alices" were translated into various foreign tongues, and the task cannot have been an easy one. This is how Henri Bué managed the pun on "tortoise" and "taught us" in "Alice in Wonderland":—

"La maîtresse était une vieille tortue; nous l'appelions chélonée." "Et pourquoi l'appeliez-vous chélonée, si ce n'était pas son nom?" "Parce-qu'on ne pouvait s'empêcher de s'écrier en la voyant: 'Quel long nez!'" dit la Fausse-Tortue d'un ton fâché; "vous êtes vraiment bien bornée." At two points, however, both M. Bué and Miss Antoine Zimmermann, who translated the tale into German, were fairly beaten. The reason for the whiting being so called, from its doing the boots and shoes, and for no wise fish going anywhere without a porpoise, were given up as untranslatable.

Many of Lewis Carroll's readers have preferred the "Looking-glass" Alice to Alice in "Wonderland." We will not venture on a comparison; but the "White Knight" and the "Jabberwock" are very hard to beat. Some time ago we printed a few lines from Mr. Vansittart's very happy rendering of "Jabberwocky," sent to us by a correspondent who had retained a copy of the original leaflet. Mr. Collingwood supplies the entire version, with the translator's notes. Here they are:

Coesper¹ erat: tunc lubriciles² ultravia circum
Urgebant gyros gimbeulosque tophi;
Moestenni visae borogovides ire meatu;
Et profugi gemitus exgrabrere rathae.

O fuge Iabrochium, sanguis mens³ Ille recurvis
Unguibus, estque avidis dentibus ille minax.

Ububae fuge cantus avis vim, gnate! Neque unquam
Faedarpax contra te frumiosus eat!

Vorpali gladio juvenis succingitur: hostis
Manxumus ad medium quaeritur usque diem:
Jamque via fesso, sed plurima mente prementis,
Tuntumiae frondis susserat umbra moram.

Consilia interdum stetit egnia⁴ mente revolvens:
At gravis in densa fronde susuffrus⁵ erat,
Spiculaque⁶ ex oculis jacientis flammea, tulscaam
Per silvam venit burbur⁷ Iabrochii!

Vorpali, semel atque iterum collectus in ictum,
Persnicuit gladio persnacuitque puor :
Deinde galumphatus, spernens informe cadaver,
Horrendum monstri rettulit ipse caput.

Victor Iabrochii, spoliis insignis opimis,
Rursus in amplexus, o radiose, meos !
O frabiosæ dies ! CALLO clamateque CALLA !
Vix potuit læctus horticulturalæ pater.

Coesper erat : tunc lubriciles ultravia circum
Urgebant gyros gimbiolosque tophi ;
Moestenui visæ borogovides ire meatu ;
Et profugi gemlts exgrabuere rathæe."

A. A. V.

¹ *Coesper*, from *coena* and *vesper*. ² *Lubriciles*, from *lubricus* and *graciles*. See the commentary in Humpty Dumpty's square, which will also explain *ultravia*, and, if it requires explanation, *moestenui*. ³ *Sanguis meus*: cf. Vergil, "*Aeneid*," VI. 836, "*Projice tela manu, sanguis meus!*" ⁴ *Egnia*: "*muffish*" = *segnis*; therefore "*uffish*" = *egnis*. This is a conjectural analogy, but I can suggest no better solution. ⁵ *Susuffrus*, "*whiffing*"; *susurrus*, "*whistling*." ⁶ *Spicula*: see the picture. ⁷ *burbur*: apparently a labial variation of *murmur*, stronger but more dissonant.

We trust that our quotations will send many of our readers to the volume from which they are taken. It is full of entertainment, and Mr. Collingwood is to be congratulated on his performance of a pious duty.

MODERN LANGUAGE TEACHING.

The Teaching of Modern Foreign Languages in our Secondary Schools. By Karl Breul, Litt.D., Ph.D. (Cambridge University Press.)

The teaching—not as it is, but as it should be. Dr. Breul has reprinted these papers opportunely. A few months ago we reviewed Miss Brelner's valuable report on "*Methods of Modern Language Teaching in Germany*"; and yet more recently the publication of several books based on the well known Hölzel pictures, and embodying the principles of the "*new method*," has aroused considerable interest. Dr. Breul appears to be in essential agreement on all important points with the spokesmen of the reform movement; indeed, his suggestions are like variations on the theme of Miss Brelner's book. He has had an exceptionally wide experience as examiner, and is thus able to speak with authority on the disastrous effects of the methods in vogue, and also to show in what respects the examiners themselves are to blame and what changes are desirable in the style of the examinations. We agree with all Dr. Breul says on this point, particularly when he insists on the importance of oral tests.

We shall enumerate some of the leading features. Teachers must receive a better training (pages 4, 7). The modern languages should not be treated like Latin or Greek (pages 4, 8). Pronunciation must be most carefully taught from the beginning (page 8). The vocabulary should be as large and as useful as possible (page 9). We should prefer to omit the first "*as*." Reading, and not translating, should be placed in the foreground (page 11). Very little ordinary composition—i.e., translation from English into the foreign language—should be done, and only with the most advanced pupils (page 11). Dr. Breul rightly stigmatizes this as "*the greatest mistake made in our schools*," and yet an exceptional number of books for French and German composition have appeared during the last year. During a modern language lesson no English appellation should, as far as possible, stand between the objects and their foreign names (page 12). It will be seen that Dr. Breul adopts the results of the Continental reform movement, and it is to be hoped that these will soon receive the earnest attention of all our English teachers.

As we consider it important that this cheap little book should be read, we shall not go into further detail. The hints on teaching German are valuable. It is a pity that so little is said about French, a language far more generally studied in our schools. A few statements, however, we cannot allow to pass unchallenged. The difference in the vowel sound in *fee* and *vieh* is not merely one of length (page 14). Prof. Vietor has now adopted the transcription of the Association Phonétique Internationale (page 14). Why should a teacher not confine himself to one method when he considers it the best available? (page 23). On page 22 the use of pictures is advocated; on page 23 a simplified "*Gouin*" method, and on page 25 a specimen of the "*national peculiarities*" method, which is suitable enough for adults, but quite out of place with children. It would never do

to introduce into the very first lesson the attributive forms of the adjective and the use of *in* with the accusative. The German alphabet should certainly be taught (page 44); but why from the beginning? It is quite enough to have to teach the pronunciation and the conventional spelling. When that has been mastered, and a fair vocabulary acquired, the pupils have little difficulty in learning the German script, and there is far less danger of their confusing the letters and getting wrong word-pictures into their mind. The beginning of the second year is quite early enough. Pages 48 to 50 are the least satisfactory part of the book; but we have not sufficient space here to criticize at length. The bibliographical appendix is very valuable and tolerably complete. We miss Veyssier's interesting volume and Passy's "*Abrégé*." An article on "*The Reference Library of a School-Teacher of German*" is reprinted from the *Modern Quarterly*. Happy the school-teacher who can call such a library his own!

THE FATHER OF THE ESSAYISTS.

(1) *Michel de Montaigne, a Biographical Study.* By M. E. Lowndes. (Cambridge University Press.) (2) "*Foreign Classics for English Readers.*"—*Montaigne.* By the Rev. W. Lucas Collins. (Blackwood.)

Montaigne has of late taken a new lease of public favour; and one does not wonder at the successive revivals of his popularity. He is one of the masters of literature, for in him there is always something new. The world has found him an inexhaustible spring of wisdom and of wit. His trenchant aphorisms still greet us from time to time, generally in poorer guise. His intellect plays over an infinite variety of subjects. He has inspired not his own compatriots alone, but ours too. Bacon owes him no mean debt; Ben Jonson, Butler, Pope, Sterne, and Swift have all come under his influence. And Montaigne the essayist is Montaigne the man. "*All the world*," he tells us, "*knows me in my book, and my book in me.*" We turn with pleasure to the reprint of Mr. Collins's work, and still more to the newer volume in which Miss Lowndes has given us the pith of what has been written on Montaigne in recent years, by Bonnefin, Payen, Walter Pater, and other competent critics. Montaigne, indeed, is, practically, his own biographer. From his *Essays* we glean each detail of his life. In guileless self-revelation, in delightful garrulity, he emulates Pepys of the "*Diary*" and Cicero of the "*Letters*." But, as Mr. Collins points out, it is the public that he makes his confidant. Transparently simple, he conceals nothing. Detractors have much to say as to his affectation, his egotism, his love of appreciation (and no literary man is devoid of this last foible). But they cannot deny his charm. Egotist he was to the core, but of vanity in one sense he had no trace. His faults he exposes without mercy, if he does find them easy to condone. And he disarms our criticism because he is the first to deride himself. Often we seem to see him smiling as he writes.

We have interesting accounts of his early training under the direction of a devoted father, for whom he held always an affection and an esteem that were Horatian. Steeped in Latin from his cradle, he never really mastered Greek. He has been taken to task for his faulty scholarship; but few professed scholars have done so much to familiarize to unlearned readers the great thoughts of the ancients. We read of his life at the Guienne College and at Court, of his marriage, his close friendship with La Boétie and Mlle. de Gournay, whom he terms his "*filie d'alliance*." We have, too, an amusing description of the travel taken for his health, in Italy, Switzerland, and Germany. His account is as naïve as the Roman poet's famous "*Journey to Brundisium*." He tells us of his tenure of the mayoralty of Bordeaux, which was brief, and scarcely a success. To a man of his nature the chains of office were irksome to a degree.

As to the *Essays* themselves, Mr. Collins judiciously says: "*He is rather the companion for an hour's delightful gossip, to which we return with fresh appetite from time to time, than the author to whose work we devote ourselves, from the first page to the last, with a continuous interest and attention.*" They are the conversation of a cultured man, the "*table-talk*" of later days. The essay, as a definite form in literature, originates with Montaigne. And, as it is with all innovators, his public was slow to appreciate him. But posterity has amply paid the debt. He was undoubtedly in advance of his age. His ideas were not akin to the sixteenth-century spirit, but many of them have since penetrated into modern legislation and action. To every question he brought the search-light of a keen and original mind, crystallizing his thoughts into gems

in a language of which he had perfect command. Politically, as socially, he was something of the conservative, essentially an upholder of the established order of things.

Characteristically a lover of ease, by his own confession he was extremely selfish: "My principle is to centre and wholly confine myself within myself. . . . I would as soon lend any man my blood as my pains." But we have evidence to prove that when he chose he could be warm-hearted and sympathetic. We find in him a hatred of cruelty, a true feeling for the poor and oppressed, a considerable tolerance. To irresolution, also, he confesses. We can trace it throughout his philosophy. In an age of fierce political and religious struggle he shows a noticeable moderation and detachment from party. It is true that the discursiveness of his style involves him not seldom in inconsistencies. As he tells us, he never met with "such a monster or such a miracle (in the sense of a compound of contradictions)" as himself.

His religious views have been a point of debate. Was he a Christian, if an undogmatic one; was he a sceptic out and out, or an enemy of the faith? Mr. Collins inclines to think that his was a mind in which Christianity had no part. If he does not absolutely reject it, yet practically he ignores its power. As in his philosophy, his creed is one of doubt. His motto, "Que sais-je?" is typical of the man. True, Sainte-Beuve, divesting him of his mask of calmly philosophical inquirer, would stamp him as a subtle foe to Christianity. But Sainte-Beuve was not an unprejudiced critic. In any case, we fancy that most of his readers will endorse the dictum of Mme. de Sevigné on the Sieur de Montaigne: "What a charming man! what good company he is!"

THE RECORD OF THE ROCKS.

"The Progressive Science Series." Edited by F. E. Beddard, M.A., F.R.S.—*Earth Sculpture*. By Prof. James Geikie, LL.D., F.R.S. (Murray.)

Under the title of "Earth Sculpture," Prof. Geikie, in a book of some three hundred pages, describes the genesis of the earth's surface-features for the benefit of the non-specialist, who is, we presume, the general reader in his intellectual mood. Hitherto the subject has not, in English geological literature, been treated as a distinct branch of the science requiring separate treatment. In any case, the line has not been drawn so clearly as Prof. Geikie has drawn it. Stated shortly, the subject is embraced in the question: What are the forces which have moulded the earth's surface into its present form, and how do they operate? It is thus seen that it bears the same relation to general geology that the anatomy and physiology taught in art schools bear to those of the dissecting room.

The number of agents at work producing a resultant effect on any given area are so numerous, and the rock and soil formation so diversified, that an adequate treatment of the subject is, perhaps, only possible in such a large work as that of Prof. A. Penck. Again, there are books dealing with the geological history of particular areas—the memoirs of our own Geological Survey being notable examples—to which students must turn for the complete solution of problems relating to particular areas.

Prof. Geikie's work seems a satisfactory introduction to either of these. He deals very fully and thoroughly in the earlier chapters with the effects of denudation and erosion; and separate chapters are devoted to volcanic, glacial, and wind action, while the various forms due to rock character and stratification are exhaustively treated. Illustrations are plentiful. English readers, perhaps, would have preferred that more of these were drawn from places nearer home, and that the plates of the Geological Survey had been used rather than some of the imaginary diagrams.

The treatment of rock erosion would, perhaps, gain in clearness from a fuller discussion of the folding of strata and its effect upon the formation of joints and cleavage. Indeed, there is no explanation of the important phenomenon of slaty cleavage given, and the difficult question of the formation of coral islands and barrier reefs is also untouched. The necessity of keeping the book within a moderate compass doubtless accounts for these and some other omissions. They do not, however, sensibly detract from its value, which lies chiefly in the clear enunciation of principles, with full and apt illustrations of the chief phenomena bearing upon them. A useful glossary is appended, and the diagrams are plentiful and good. The lettering, however, of the illustrations on page 204 seems to have no reference to anything in the text. The work is in no sense a school text-book; but it can be heartily recommended to a teacher who knows his subject for the planning out of a syllabus and for adding to the interest and fullness of his lessons.

WESTMINSTER SCHOOL.

Annals of Westminster School. By John Sargeant. (Methuen.)

Mr. Sargeant shows such pride and delight in Queen Elizabeth's foundation at Westminster as an old boy and present master might be expected to feel. This is one of the best school histories which we have seen: genial throughout, imbued with the very spirit and genius of the place, recording all its vicissitudes, and dwelling with just warmth on its past glories and services to the nation. No English school is more characteristic of the English nation than Westminster; for, avoiding any idle or invidious comparison, we may point out that the shelter and associations of the Abbey, the constant absorption of the atmosphere and vital circulation of London, and the tradition of generations of masters and boys who came to the school partly because it was in London under the Abbey walls, have conferred on Westminster a heritage distinct in its kind from that of Eton and Winchester. St. Paul's, and even Charterhouse, has had somewhat similar advantages; but Colet could not do for his school what Elizabeth (carrying out the intention of her father) did for hers; the Cathedral was not the Abbey, nor was the City influential in the same way as the Court and Parliament; and St. Paul's was not a boarding school before all things. Westminster, again, was peculiarly happy in its earlier literary life and models, and in its relations to Christ Church and Trinity. Udall and Camden were amongst its headmasters in the sixteenth century; Ben Jonson, Cowley, Cartwright, and Dryden left their stamp upon it; many generations of Westminsters have sucked in their intellectual milk from Latin comedy, epigrams, and traditional wit. The author dwells lovingly on the literary fame of the school, and on the great men whom it has contributed to the Church, the law, the Army, and the State. More statesmen in the third quarter of the eighteenth century seem to have come from Westminster than from any other public school. Mr. Sargeant does not omit to commemorate the services of Westminster to school sports and athletics.

To no family did early cricket owe so much as to the Sackvilles, and from the brilliant wit of King Charles's Court to the last of the line the Sackvilles were Westminsters. Lord Middlesex left school about 1728, and seven years later was captain of an eleven of Kent against All England. The match was for £1,000 a side, and the All England eleven, captained by the Prince of Wales, lost it. Lord Middlesex's younger brother, Lord John Sackville, also learned his cricket in Tuttle Fields, and played in 1746 in the first match, whose score is preserved. The "Cricketalia," instituted by him in Twitnam Meadows, disturbed the unsympathetic pen of Horace Walpole.

For many years Westminsters combined with Eton "wet bobs" to maintain the glory of Third Trinity at Cambridge; but London has overgrown Westminster and left it far behind. "Water," which had already been driven from Roberts's to Putney, came practically to an end with the reign of Dr. Scott.

GENERAL NOTICES.

SCIENCE.

Chemistry for Schools. By C. Haughton Gill and D. Hamilton Jackson, B.Sc., Ph.D. (Stanford.)

As now revised, this book covers the requirements of the London Matriculation Chemistry, with considerable extra matter placed in separate chapters, which can be omitted without injury to the general plan. That plan is one of a kind which we have continually protested against, since the book starts with dogmatic statements about elements and compounds, and the following note appears on page 2:—"The names and symbols [of thirty elements] should at once be committed to memory." After this preliminary twist of the scholar's mind in the wrong direction, however, the book becomes scientific in its treatment, and for that we must be thankful. Numerous laboratory experiments are described and practical advice given, though we noticed one (the preparation of red phosphorus) which must have been "rote sarkastic," since the teacher is expected to "maintain it at that temperature for thirty or forty hours, taking especial care that it never rises as far as 250° C." The scientific staff of an ordinary school is not usually so numerous as to provide a double shift. There are some useful appendices—that on the purchase of apparatus and chemicals should be particularly useful to many isolated young teachers; but that on crystallography is worse even than the usual maltreatment of that subject in works on chemistry, since one gathers from it that all crystalline substances have a cleavage, and that crystallographic axes are always axes of symmetry. What the chemical student wants is not abstract geometrical treatment of ideal crystals, but figured examples of *actual* crystals and brief explanations

of the law of constancy of angle, and that of the simple ratios of parameters.

"Organized Science Series."—*First Stage Inorganic Chemistry (Practical)*. By F. Beddow, D.Sc., Ph.D. (Clive.)

This is an excellent guide for the beginner in practical laboratory work. The instructions that we have sampled are very clear and lay stress on just the most necessary points. The work includes the preparation of some common substances, simple systematic analysis, and simple quantitative experiments. The illustrations are mostly clear, and it is unfortunate that such an important one as that of the chemical balance should be so very foggy.

First Lessons in Modern Geology. By the late A. H. Green, M.A., F.R.S. Edited by J. F. Blake, M.A. (Clarendon Press.)

This pleasantly written little book should succeed in giving its readers true notions of geology as an essentially out-door science, if they have any eyes for nature and do not live in the fens. The plan of the work is very similar to that of another one reviewed at length by us some months ago, but it is even simpler in its method, covers less ground, and has comparatively few illustrations. The reader is made to examine sandstone and slate for himself and find what they are made of, and from the questions raised in this manner he is led on step by step even to such abstruse questions as glaciation, thrust-faulting, and the origin of igneous rocks. The editor is to be congratulated on his success in completing a work left unfinished and unarranged, without producing any effect of patchwork.

FRENCH.

Scenes of Familiar Life in Colloquial French, and Scenes of Child-Life in Colloquial French. By Mrs. J. G. Frazer. (Macmillan.)

As these books are by this time well known, it will suffice to say that the new edition is issued in a pretty cover, and that the older volume ("Familiar Life") is rendered yet more attractive by a number of excellent pictures by Mr. H. M. Brock, whose illustrations to "Child-Life" we commended on their appearance. Mrs. Frazer has done a real service to children, and teachers will be duly grateful for these bright scenes, which make it easy for them to combine amusement with instruction.

Jean de la Brète, Mon Oncle et Mon Curé. Edited by E. G. Goldberg, M.A. (Macmillan.)

An amusing tale in which, according to the editor, "both old and young people of both sexes will find interest and delight." It may, however, reasonably be doubted whether the adaptation will have the same effect on this large audience as the complete novel had on Camille Doucet (*attendri jusqu'aux larmes*); Reine figures a good deal as *le petit démon*, very little as *un ange*. She relates the story herself, and lets us into her confidence in a very charming manner. It is evident on every page that "Jean de la Brète" is a lady. The notes are distinctly good. The appendices call for no special remark; they are similar to those in the other volumes of Mr. Siepmann's series. In No. III. the English is occasionally in need of revision.

First Exercises in French Prose. By H. C. Benbow, B.A. (Livingtons.)

The object of the book is "to give boys in preparatory schools and the lower forms of public schools a fair vocabulary and a knowledge of common French constructions." There is not much beyond the excellent printing to commend this book. The lessons are arranged in the old way: rules, vocabulary, detached sentences for translation from and into French. In the statement that "the verb has been taken as the groundwork of the earlier portions of the book," we seem to hear an echo of Gouin; but, when we look into the matter, we find that there are no "series." Perhaps, however, Gouin may be held responsible for the numerous vocabularies scattered throughout the book. The learning of word lists is a painful process, and the results are unsatisfactory; constant repetition of a more limited number of words is of real value. We cannot recommend the book; it is too long, and very dull. The children are to be pitied who have to make their way through this mass of detached sentences, unrelieved by a single connected story.

French Conversations. By Mlle. Dehors de St. Mandé.

Books I. and II. (Sonnenschein.)

For girls only. This will be evident when it is pointed out that in Book II. two-thirds of the lessons deal with the process of going to bed and of getting up and dressing, *je* being a young lady. The author rightly refuses to the verb the place of supreme honour claimed for it by Gouin; but in her "series" prints the verbs in black type, so that she seems to agree with him after all. There is very little matter (sixty-three pages) in these two books. The publisher has therefore printed the text on one side only, and on very thick paper.

GERMAN.

H. Wachenhusen, Vom ersten bis zum letzten Schuss. Edited by T. H. Bayley, M.A. (Macmillan.)

The modern language teacher who regards it as a duty to be a messenger of peace and good will is not likely to welcome this book as tending to make his work easier. It is a brief account of the Franco-Prussian War, written very obviously from the German point of view. The allusions to the French are just what we expect from a journalist; they do not read so well after a quarter of a century, when their crudity is manifest. The style is poor. The book is, therefore, suited

only for cursory reading with the boys of an Army class, who will probably derive some advantage by learning a large number of military terms, and who will be interested in the plans of battlefields. Some popular songs (with music) are added; and appendices by Mr. Siepmann, containing words and sentences for *visa voce* drill, and passages for translating into German, based on the text.

Zschokke, Das Goldmacherdorf. Edited by S. Hein. (Hachette.)

A slightly old-fashioned tale of village life, wholesome and pleasantly written. It will make an excellent German reading-book for junior classes; the number of such books is so small that teachers will be glad to know of it. The notes are brief and satisfactory; the vocabulary seems to be almost complete. In some cases the text might have been "cooked" with advantage; e.g., *sich einander* (page 28, line 15, and page 54, line 17), *als wolle* (page 51, line 16, better *wollte*), *was* (page 5, line 7, better *das*), *niemandem* (page 43, line 24) and *niemanden* (page 38, line 23, better *niemand*), *entfernt wären* (page 37, line 26, better *sein*), &c. There are slips in the following places (we give the correct form): *einer* (page 1, line 3), *Mutwillen* (page 14, line 12), *tiefer* (page 25, line 28), *herzlieber* (page 25, line 20), *meisten* (page 28, line 18), *Schönes* (page 36, line 20), *gibt* (page 46, line 15).

MISCELLANEOUS.

"Monographs on Artists."—*Raphael*. By Prof. H. Knackfuss; translated by Campbell Dodgson, M.A. (H. Grevel & Co.)

This is the first of a new series of monographs on the great artists, which, when complete, will constitute a history of the great periods of art, carefully written (if we may judge by the volume before us), copiously illustrated, and very reasonable in price. The "Raphael" has 132 pages and 128 illustrations, admirably reproduced; it is bound with much taste in limp covers, and protected by a case. The succeeding volumes will deal with Holbein, Rubens, Rembrandt, and Michael Angelo. This should become a most popular library of the works of the supreme artists. We certainly know of none so thoroughly good which is at the same time so moderate in cost. The translation is a very good one.

Travels and Politics in the Near East. By William Miller. (Fisher Unwin.)

Mr. Miller gives us the impressions derived from four visits to the Balkan Peninsula within the last five years, and, whether his impressions agree with our own or not, we have no difficulty in giving him full credit for the candour with which he records the outcome of his personal observations and inquiries. He is certainly impartial, having no apparent preference for one Balkan people over another; and he is quite entitled, if he chooses, to put aside what might seem a natural preference for a Christian race over a Mohammedan, or for the modern representatives of the pioneers of civilization over races which have not hitherto made any great contribution to civilization. Mr. Miller is not an advocate, but an intelligent traveller recounting what he saw, and expressing his personal opinions. We have found the book thoroughly entertaining. It is well illustrated from photographs, and has a large pocket map of the Balkan countries. It may be recommended as very good reading to all who are fond of travel records.

"The Badminton Library." Edited by the Duke of Beaufort and A. E. T. Watson.—*Athletics*. By Montague Shearman. New edition. (Longmans.)

There is no sign of diminished interest in or cultivation of athletics, and the value of physical training has certainly never been more frequently or seriously discussed than it is to-day. It was, therefore, quite worth while to print this new edition of Mr. Shearman's interesting and wholesome volume of the "Badminton Library." The records are brought down to 1898.

The Poetical Works of John Greenleaf Whittier. Edited by W. Garrett Horder. (Henry Frowde.)

This is a complete "Oxford" edition of Whittier's poems, uniform with the same publisher's editions of Shakespeare, Burns, Byron, and others. Waiving the question as to Whittier's title to rank with poets of undoubted originality, we welcome this first collected edition of his poems published on this side of the Atlantic. In the matter of typography the "Oxford" edition is all that could be desired.

Herbart's Letters and Lectures on Education. Translated by H. M. and E. Felkin. (Swan Sonnenschein.)

The bibliography of Herbartian books in Germany and Switzerland alone mounts up to 2,234 works by 141 authors—an average of nearly sixteen ventures per man. Prodigious fecundity! How the matter stands in America and England we cannot say. Mr. Oscar Browning, who writes a preface for this volume, tells us that Herbart already "dominates the training college," and that he is "the only educational writer in modern times who has promulgated a complete system of education, and who has vindicated that place for the science of education in the nineteenth century which Comenius desired for it in the seventeenth." That is high praise. We observe that Mr. Browning goes on to say that "there is much in the letters which is not especially remarkable, and which might have been written by any tutor in a similar position." Also that the translation "is not always easily intelligible to the ordinary English reader."

Colour in Nature: a Study in Biology. By Mariou I. Newbigin, D.Sc. (John Murray.)

Dr. Newbigin was happily inspired when she took it in hand to deal with the physiology of colour. Every one with an inquiring mind must have wanted to know more about the causes of colour, and too little of a definite character has been said about them by those who might have been supposed to know. It is a fascinating subject; and, though this volume is essentially scientific, and intended for the serious student, it contains much that will interest the artist and the general reader. Dr. Newbigin treats of natural and artificial pigments, structural colours, the effects of the reflection and refraction of light, and then examines systematically the varying elements of colour in animal and vegetable life. In a final chapter she reviews the main theories as to the origin of colour; such as those of Poulton, Wallace, Eimer, Cunningham, and Simroth. The author may be congratulated on this admirable elucidation of a selected compartment of science.

WE HAVE ALSO RECEIVED the following publications and new editions:—

The Calendar of the University of Wales, 1898-9 (Mullock, Newport); of University College, London (Taylor & Francis); of the University College of North Wales (Bangor); of the University Correspondence College ("London University Guide"); and *The Baptist Handbook* or 1899 (James Clarke & Co.).

Graded Lessons on the Gospel according to St. Matthew, by William Taylor, and *Christ and the Catechism*, a series of lessons, with instructions and questions (Church of England Sunday School Institute).

In His Steps: What would Jesus do? by Charles M. Sheldon (Ward, Lock, & Co.).

Richard II., and *Supplement to Richard II.*, by Stanley Wood, M.A. (John Heywood, "Dinglewood Shakespeare Manuals").

The Growth and Greatness of our World-wide Empire, by the Rev. C. S. Dawe, B.A. (Educational Supply Association)—a spirited historical Reader; *The Patriotic Historical Reader*, Books I. and II. (Collins & Sons)—thoroughly good for its declared purpose; *Alternative Geography Readers*, Standard VII. (Chambers's)—dealing with the British Possessions.

The Dictionary of Dainty Breakfasts, by Phyllis Browne (Cassell)—a serviceable shilling handbook for housekeepers.

Studies and Questions in Book-keeping, and Advanced Accounts, by Alfred Nixon (Longmans)—with notes and answers: a simple and helpful half-crown volume.

On the Sprung and Adjusting of Watches, by F. J. Butten (Spon)—a technical, three-shilling manual, plainly set forth, with many illustrations.

Big-Type Arithmetic, Books III. (3d.) and IV. (4d.) (Collins & Sons)—a very good idea, which must save the eyes and help the feebleness of children.

Races of Mankind, by F. Ratzel, Part XXX. completing a very attractive and important work (Macmillan).

GIFT-BOOKS AND PRIZES.

III.

Dr. Gordon Stables contributes a story of promiscuous adventure: *Frank Hardinge: from Torrid Zones to Regions of Perpetual Snow* (Hodder & Stoughton). The word promiscuous tells everything—it would really be difficult to mention any kind of adventure possible to be met with by a boy, or conceivable by the reader of a Christmas story, which does not fall to the lot of Frank Hardinge and his companions.—In *Hubert Ellis: a Story of King Richard's Days the Second* (Ward, Lock, & Co.), Mr. Francis Davenant gives us an account of Wyclif and some of his contemporaries, of the last days of Edward III., and of the Peasants' Revolt. It is told in plain English, without affectations, and is a very good story in its way.—*The Son of a Hundred Fathers* (Blackie) is a story of "daring deeds in dangerous days," by Robert Overton; full of spirit, and with many illustrations. We commend it as distinctly engrossing.

One of the most delightful stories of the season, especially for girls, though we cannot imagine the reader who would not be charmed by it, is Mrs. Edwin Hohler's *For Peggy's Sake* (Macmillan). It is a romance in which both Peggy and her father play a leading part; and the pleasantness of the telling, combined with the happy unravelling of the plot, leaves us quite uncritical as to the probability of one or two of the incidents.

The Dormitory Flag (Nelson & Sons) is a schoolboy story, as its name implies. Mr. Harold Avery is on sure ground with a tale of school, and his new volume is thoroughly interesting. It deals largely with football and cricket, with the mischief of small boys and the authority of prefects; and we do not doubt that it will be found attractive by a great majority of its readers.

Fights for the Flag (Smith, Elder, & Co.) is by Mr. W. H. Fitchett, author of "Deeds that Won the Empire." It tells of Blake, Marlborough, Anson, George II. at Dettingen (!), Rodney, Howe, Moore, Wellington, Codrington, and men of the last half-century. There are portraits and plans, but no battle pictures. The book is very well

written, and for some readers will be vastly interesting.—*Britain's Roll of Glory* (Cassell & Co.) is an account by Mr. D. H. Parry of the heroes of the Victoria Cross. This is a new and revised edition of a popular book, and it includes a complete list of all who have won the cross, brought down to the year 1898.—From Messrs. Collins & Sons we have four volumes of *Graphic Stories*, "From Great Authors," "Of Kings," "Of Soldiers," and "Of Sailors." They are illustrated, and make very good reading.

A good book of military biography, dealing with Piedmont in the revolutionary period of 1847-9 and with the long story of the unification of Italy, is *The Autobiography of a Veteran* (1807-93), by General Count della Rocca, translated by Janet Ross (Fisher Unwin). It is full of reminiscences of a stirring and important period, and, though it might not have much attraction for the majority of boys and girls, it contains a good deal which should interest an adult.

A pleasant picture-book of somewhat mixed intentions, to which a writer of rhymes, a maker of music, and a dainty designer and figure drawer have contributed, is *Lessons in Line for Little Learners*, by A. H. S. (Elliot Stock). In the hands of a mother or nurse the book will amuse the little ones, at any rate by its pictures.—*The Boys' and Girls' Companion*, a little annual budget of simple tales, verses, and pictures, will be a welcome present for a youngster.

From Messrs. Hachette we have a parcel of very attractive New Year's gifts, mostly well bound in red cloth and lavishly gilt. First among them is Pierre Mael's *Seulette*, with fifty-eight capital illustrations by E. Zier, a touching story of a little girl who is rescued from a wreck, and sternly brought up until she runs away from school, and falls into the hands of a kind-hearted lion tamer.—*Le Démon des Sables*, by Gustave Toudouze, illustrated by A. Paris, is a story of '98, full of life and incident, with scenes on the Nile, in which Bonaparte figures.—*Beau-Frères* is another good story, domestic and romantic, by B.-A. Jeanroy, illustrated by A. Robaudi.—The annual volume of *Mon Journal* is full of entertainment for boys and girls, including stories, anecdotes, and numberless illustrations.—Two pretty stories in the "Bibliothèque Rose" are *Mademoiselle Cœur d'Ange*, by Albert Cim, and *L'Enfant des Pyrénées*, by Paul Junka.—*Les Retours du Cœur*, by J. H. Rosny, in the "Petite Bibliothèque de la Famille," is a grown-up romance of love and misconception.—The *Almanach Hachette* for 1899 is more crowded than ever with useful information of every kind, with a record and pictures of the year, and a budget of tickets for all the Paris theatres thrown in.—From the same publishers we have two pretty children's picture-books, *Le Petit Chaperon Rouge et Cendrillon* and *Nos Bons Animaux*, artistic and well coloured.

MATHEMATICS.

13955. (Professor NEUBERG.)—On construit sur les côtés d'un triangle ABC trois triangles isocèles semblables A'BC, B'CA, C'AB. Les droites BA', BC' coupent AC en B₁, B₂; les droites CB', CA' coupent BA en C₁, C₂; enfin, les droites AC', AB' coupent CB en A₁, A₂. Cela posé, les droites B₁C₂, C₁A₂, A₁B₂ enveloppent trois hyperboles, qui touchent deux des côtés du triangle ABC et ont pour asymptote le troisième côté; ces courbes ont pour tangente commune la droite de LEMOINE de ABC.

Solution by Professor A. DROZ-FARNY.

Soit A₀ le point milieu de BC; le lieu géométrique du sommet A' est la médiatrice correspondant au côté BC; elle rencontre AC et AB respectivement en β et γ.

Les rayons BA' et CA' décrivent deux faisceaux perspectifs, donc les ponctuelles B₁ et C₂ sont homographiques; la droite B₁C₂ enveloppe une conique tangente aux côtés AC et AB.

En faisant coïncider A' avec β ou γ, on constate qu'au point β de la série B₁ ou qu'à γ de la série C₂ correspond chaque fois dans l'autre série le point A; il

en résulte que βγ est la polaire de A. Si A' coïncide avec A₀, B₁ tombe en C et C₂ en B; la conique est donc tangente aux trois côtés du triangle, et, d'après un théorème connu, le conjugué harmonique de A₀ par rapport aux points B et C, c'est-à-dire le point infini de BC, sera le point de contact sur cette droite. La conique est donc une hyperbole dont BC est une des asymptotes. Comme il est facile de le voir, la seconde asymptote correspond au point infini de la médiatrice, et les trois centres des hyperboles sont en ligne droite.

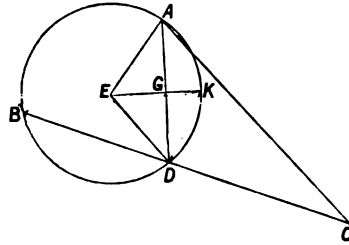
En faisant coïncider A' avec le pôle de BC par rapport au cercle circonscrit ABC, la tangente B₁C₂ devient évidemment la droite de LEMOINE du triangle.

[The rest in Volume.]

13935. (J. TIMMER.)—Construct a triangle ABC, having given the side BC, the angle B, and the length of the bisector of A.

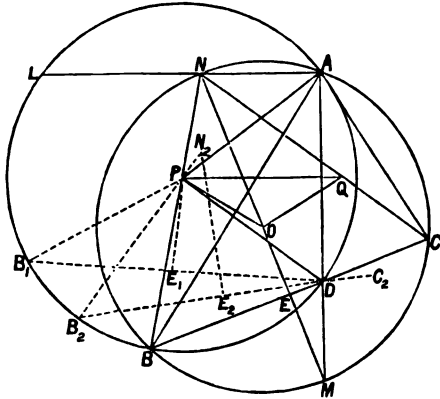
Solution by I. ARNOLD.

Let AD be the given bisector, and describe the circle ABD containing the angle B = given angle and E the centre. Take a point B on circumference and join BD, BA. Produce BD, and make angle DAC = DAB. If BC = given base, the thing is done. Take other points B' and B'', and do the same as in case of B, which will give the points C' and C''—this can evidently be done till we get a line B'C' or B''C'' equal to the given base. Consequently the points C, C', C'' are on some curve, and the question is solved by inflecting through D a line of given length and terminated at one extremity by the curve, and the other extremity on the circumference of the circumcircle ABD.



The question appears to be one of those which can only be solved conditionally.

[Supposing the above curve to be drawn, the difficulty is scarcely lessened, because the line, of length equal to given base, has yet to be drawn through D, meeting the said curve at one extremity and the circle at the other. The problem seems to resist the ordinary methods of geometry and algebra. But there are some interesting facts to be noticed in connexion with it. Thus, having AD and triangle B given, we can find the relation to AD of P, the circumcentre of ABD; and we know that BP (produced) intersects the perpendicular bisector of BC on AL, which is at right angles with AD; also that N, the point of intersection, is on the circumcircle of ABC, and that CN contains Q, the circumcentre of ADC. Moreover, P and Q are equidistant from O, the circumcentre of ABC, and NE and AD intersect at M on the circumcircle of ABC.



Knowing that BC passes through D, we can allow C₁ to coincide with D (if BC be less than a diameter of ABD) and the other extremity to be at B₁; N₁ will then coincide with P. For B₂, the intersection will be at N₂, and so on, the origin of the curve formed by N₁, N₂, &c., being at P on the line B₁P produced, and the polar equation being $\rho = \frac{1}{2}BC/\sin(\lambda - \frac{1}{2}\theta) - k$, where k = circum-radius of ABD and $\lambda = \angle B_1PE_1$. The intersection of this curve with AL determines N, and the line NPB determines B.]

13889. (G. H. HARDY.)—Sum $1 - \frac{1}{2^2} + \frac{1}{3^2} - \frac{1}{4^2} + \dots$ ad inf.

Solution by ANNIE CHARTRES; Rev. T. ROACH, M.A.; H. W. CURJEL, M.A.; PROFESSOR SANJANA, M.A.; and others.

$$1 - \frac{1}{2^2} + \frac{1}{3^2} - \frac{1}{4^2} + \dots = \int_0^1 \frac{dx}{(1+x^2)^2} = \frac{1}{2} + \frac{1}{2} \int_0^1 \frac{1}{1+x^2} dx = \frac{1}{2} + \frac{1}{2} \sqrt{2} \{ \log(\sqrt{2}+1) + \frac{1}{2}\pi \}.$$

See TODHUNTER'S *Integral Calculus*, p. 36.

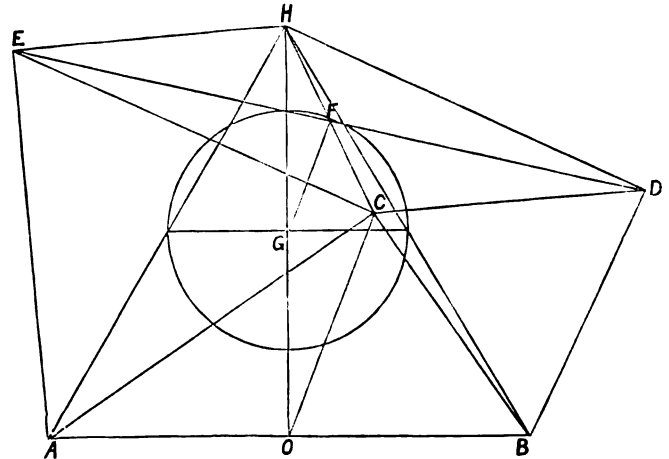
[It is uncertain which sign precedes the term at infinity. The respective results, however, differ by $\frac{1}{4}$. The value given in the above solution is the mean.]

13886. (JOHN F. WILKINSON, B.A.)—If equilateral triangles be described on the sides of a right-angled triangle whose hypotenuse is given in magnitude, the locus of the middle point of the line joining their vertices is a circle. (By First Book Euclid, CASEY'S *Sequel to Euclid*.)

Solution by R. TUCKER, M.A.; and C. JOSS, M.A.

Describe the equilateral triangle ABH on the hypotenuse, and bisect the altitude HO in G, and complete the figure as in diagram. Since the

triangles EAH, ABC, BDH are congruent, therefore
EH = CB = CD and HD = AC = CE;

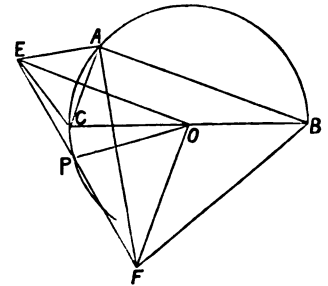


hence ECDH is a parallelogram; therefore, if CH be drawn, it passes through F and is bisected at F. Hence

$$FG = \frac{1}{2}CO = \frac{1}{2}OB = \text{constant,}$$

therefore, &c.

[Mr. CURJEL further observes that the theorem holds good when the equilateral triangles are described on the sides diversely: Let the triangles be described one on the same side and the other on the opposite side to the right-angled triangle.



Then $\triangle FAE = \triangle BAC$ in all respects. Also $\angle FOE$ is a right angle, since FO and OE are perpendicular to AB, AC. Hence it may easily be shown by Euclid, Book I., that a circle, centre P, passes through FOAE; therefore

$$OP = \frac{1}{2}FE = \frac{1}{2}BC = OC;$$

therefore locus of P is circle ABC.]

14037. (I. ARNOLD.)—From a given point within a triangle, to draw three right lines trisecting the triangle.

Solution by G. W. PRESTON, B.A.

Let ABC be the triangle, and P the given point within it.

Draw PS any line cutting AC in S. Join PA.

Draw SF parallel to PA, and meeting BA produced in F.

Then, clearly,

$$\triangle PFA = \triangle PSA.$$

Cut off FH = $\frac{1}{2}$ AB.

Through C draw CG parallel to AB, meeting FP produced in G.

Join PH, and draw GQ parallel to PH and meeting AB in Q. Join PQ. Then QPSA is one-third of the triangle. For join GH. Then, clearly,

$$\triangle PHQ = \triangle PHG. \text{ (Euc. I. 37)}$$

To each add PAH; therefore

$$\text{figure PAQ} = \text{figure PAHG} \text{ and } \triangle PSA = \triangle PFA.$$

Therefore figure PSAQ = $\triangle GHF = \frac{1}{3}\triangle ABC$,

since its base is $\frac{1}{2}$ AB and its altitude is the same.

Similarly, by joining PB and going through a like process, we can find R on BC, such that figure PQRB = $\frac{1}{3}$ of triangle.

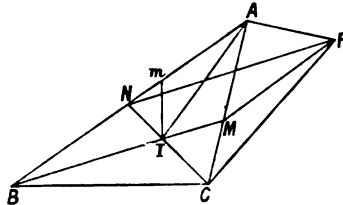
The same method would divide the triangle into any number of equal parts by lines drawn from P.

[The rest in Volume.]

14030. (H. MACCOLL, B.A.)—Show that in any triangle the bisector of the less of two unequal angles is greater than the bisector of the greater.

Solution by R. F. DAVIS, M.A.; C. JOSS, M.A.; and many others.

Let ABC be a triangle; BM, CN the bisectors of the angles at the base. Then, if C > B, it is required to show that BM > CN.



Upon AB take Am = AM. Then

$$\angle AMI = AMI = C + \frac{1}{2}B > B + \frac{1}{2}C > ANI.$$

Therefore AN > AM, and perp. from N on AC (or BC) > perp. from M on AB (or BC). Hence $\triangle BNC > BMC$, or $\triangle BNI > CMI$, or $BN > CM$.

Complete the parallelogram MBNP. Then $\angle MCP > MPO$ and $\angle NCM > NPM$. Hence $NCP > NPC$ and $NP(BM) > CN$.

The above proof only involves the first book of Euclid. [The Rest in Vol.]

14033. (R. KNOWLES, B.A.)—Prove that the $(r+1)$ th term in the expansion of $\frac{1}{(1-x)^n}$ is $\frac{(r+1)(r+2)\dots(r+n-1)}{n-1!} x^r$.

Solution by F. H. PEACHELL, B.A.; and Rev. T. MITCHELSON, B.A.

The $(r+1)$ th term of $(1-x)^{-n}$

$$= \frac{n(n+1)\dots(n+r-1)}{r!} x^r = \frac{n+r-1!}{r! n-1!} x^r = \frac{(r+1)(r+2)\dots(n+r-1)}{n-1!} x^r.$$

[The PROPOSER adds:—

$$(1-x)^{-n} = 1 + \frac{n}{1}x + \frac{n(n+1)}{1.2}x^2 + \&c.,$$

and each term of this is evidently obtained by putting $r=1, 2, \&c.$, in the formula in the question.]

14009 & 14024. (G. HALE PUCKLE, M.A.)—(14009.) The angle between the positive sides of a pair of intersecting straight lines, represented by $\phi(xy) = 0$, is greater, equal to, or less than a right angle, as $a+b$ is greater, equal to, or less than 0.

(14024.) If $\phi(xy) = 0$ represents a pair of real intersecting straight lines, then (with the conditions of Quest. 13535, No. 437) the equations

$$a(ax+by+g) + b(hx+by+f) = 0 \dots\dots\dots (1),$$

$$b(ax+by+g) - a(hx+by+f) = 0 \dots\dots\dots (2),$$

represent the bisectors of the angles between them; and (1) or (2) is the bisector of the acute angles, as $a+b >$ or < 0 .

Solutions by the PROPOSER.

(14009.) All hyperbolas of which the lines are asymptotes, and which lie in this and the opposite angles, are represented by $\phi(xy) = p$, where p is a positive quantity; and the discriminant of all these is positive. Hence the eccentricity of all, corresponding to real foci, is determined by $e^2 = 2R/(R-a-b)$. [See Quest. 13535, *Educational Times*, No. 437.] The lines are one of these hyperbolas, and their eccentricity is evidently $= \sec \theta$, where 2θ is the angle between the positive sides, since the intersection of the lines is the focus, and the conjugate axis of the hyperbolas the directrix. Hence

$$\cos^2 \theta = (R-a-b)/2R, \quad \cos 2\theta = -(a+b)/R, \quad \&c.$$

(14024.) For (2) is the transverse axis of all hyperbolas drawn in the angle between the positive sides of the lines $\phi(xy) = 0$, as asymptotes, &c. [See Quest. 14009.]

QUESTIONS FOR SOLUTION.

14071. (Professor G. B. MATHews, M.A.)—Prove that the envelope of the line $\lambda\xi(\mu\eta^2 - \nu\zeta^2)x + \mu\eta(\nu\zeta^2 - \lambda\xi^2)y + \nu\zeta(\lambda\xi^2 - \mu\eta^2)z = 0$, subject to the condition $\eta\zeta + \xi\zeta + \xi\eta = 0$,

is, in general, a curve of the third class and fourth order; and investigate the relations connecting λ, μ, ν in any exceptional cases.

Show how this analytical problem is connected with the following:—The sides BC, CA, AB of a triangle inscribed in a conic meet a fixed line u in the points α, β, γ ; P is any point on the conic, and Pa, Pb, Pc meet the conic again in A', B', C'. It may be proved that AA', BB', CC' meet in a point Q on u ; it is required to find the envelope of the line PQ as P moves round the conic. [A special case is the envelope of the axis of a parabola which touches three given lines.]

14072. (Professor NEUBERG.)—Résoudre le système
 $\sin(y+z+u) = a \sin x, \quad \sin(x+u+z) = b \sin y,$
 $\sin(u+x+y) = c \sin z, \quad \sin(x+y+z) = d \sin u.$

14073. (Prof. S. SIRCOM, M.A.)—If n is a positive integer, prove that

$$\int \frac{\sin^n \theta}{\theta^n} d\theta = \frac{1}{(n-1)! 2^n} \left\{ n^{n-1} - n(n-2)^{n-1} + \frac{n(n-1)}{1.2} (n-4)^{n-1} - \frac{n(n-1)(n-2)}{1.2.3} (n-6)^{n-1} + \dots \right\} \pi.$$

[I have only seen this question worked for low values of n .]

14074. (Prof. E. J. NANSON.)—Calling the expression

$$a^m \left(\frac{m}{m+n} \right)^{m+n}$$

the parameter of the parabolic curve $y^{m+n} = a^m x^m$ where the axes are rectangular, show that the product of all the finite normals which can be drawn from any point to an algebraic curve is equal to the product of the finite tangents of the finite perpendiculars on asymptotes and of the parameters of the parabolic approximations to the parabolic branches of the curve.

14075. (Professor A. DROZ-FARNY.)—Le cercle inscrit du triangle ABC touche les côtés en D, E, F. Soit S le point de contact de ce cercle avec le cercle d'EULER. Démontrez que la droite de SIMSON de S par rapport au triangle DEF est parallèle à la droite d'EULER de ce triangle. Théorème analogue pour les cercles ex-inscrits?

14076. (Professor THOMAS SAVAGE.)—Show that, n being greater than 2, and s (an integer) a perfect n th power,

$${}^n C_1 x^{n-1} + {}^n C_2 s x^{n-2} + {}^n C_3 s^2 x^{n-3} + \dots + {}^n C_{n-1} s^{n-2} x + s^{n-1}$$

cannot be a perfect n th power, when x is any positive number (whole or fractional). Also ascertain if the theorem be true for negative values (integral or fractional) of x .

14077. (Professor SANJANA.)—If the arcs joining the mid-points of the sides of a spherical triangle be each 90° , the sum of the squares of the cosines of the half-sides of the triangle shall be unity. (Suggested by Quest. 13661.)

14078. (Professor UMES CHANDRA GHOSH.)—Show that

$$\Gamma\left(\frac{1}{2}(2m+1)\right) = (2m-1)(2m-3)(2m-5)\dots 5.3.1 \cdot (\sqrt{\pi})/2^m,$$

where m is any integer. Hence show that

$$\Gamma\left(\frac{1}{2}\right) + \frac{\Gamma\left(\frac{1}{2}\right)}{\Gamma(2)} + \frac{\Gamma\left(\frac{1}{2}\right)}{\Gamma(3)} + \frac{\Gamma\left(\frac{1}{2}\right)}{\Gamma(4)} + \&c. \text{ to } \infty = 0.$$

14079. (Professor H. LANGHORNE ORCHARD, M.A., B.Sc.)—Exhibit the product of the two series

$$1 - 8 + 27 - 64 + 125 - 216 + \dots \text{ and } 1 - 16 + 81 - 256 + 625 - 1296 + \dots,$$

each to n terms, as a function of the roots of a quadratic equation.

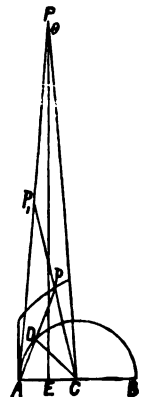
14080. (D. BIDDLE.)—Prove that N is factorizable ($N = 6n \pm 1$) when $(N-1)^2 - 576\lambda = \square$ and $(N+1)^2 - 576\lambda = \square \dots\dots (\alpha, \beta)$,

provided $\lambda > 0$ and integral, of the same value in each equation. [(α) represents the square of the difference of the factors, (β) represents the square of their sum. When N is prime, both equations hold good only when $\lambda = 0$.]

14081. (Rev. Dr. FREETH.)—AB is the diameter, and AC, the half of AB, the radius, of the generating circle ADB. Assume any chord AD. Join CD, and produce AD to p so that Dp is equal to DC. Thus p is a point in a trisectrix. Join Cp, producing it to p_1 , so that Ap is equal to pp_1 . Join Ap_1 . Hence p_1 is a point in a supertrisectrix. Produce Ap_1 to P so that Pp_1 is equal to Cp_1 . Thus P is a point in a bisupertrisectrix. Bisect AC in E, and join PE. Let the angle APC = θ , AC = r , CP = R , AP = R' . Then

$$R = r \frac{\sin 10\theta}{\sin \theta}, \quad R' = r \frac{\sin 11\theta}{\sin \theta}.$$

Show that (1), in the isosceles position, APC is an isosceles triangle having each base angle the decuple of the vertical angle APC; (2) regarding the angle PAC, the curve is a decasectrix; (3) adopting the angle PCB, the curve is an undecasectrix; (4) on AC (in the isosceles position) by means of the isosceles triangle APC, a regular icosahenagon is describable; (5) trace the curve; (6) find its area, and enunciate its rectangular coordinates.



14082. (R. TUCKER, M.A.)—With the notation and convention of Quest. 14021, prove

- (1) $\Sigma a \cdot PP' = k^2$ ($k \equiv a^2 + b^2 + c^2$);
- (2) $\Pi (PP') + abc = 8R^2 \sin^2 2\omega$;
- (3) $\Sigma c^2/a (PP') = 0$;
- (4) $\Sigma (\Delta APP') = \Delta ABC (e^2 + 4)$.

If AP, AP' cut BC in l, l' , &c., then the conic through U, mm', nn' is $a^2 b^2 c^2 \Sigma a^2 = \Sigma (a^4 + b^4 c^2) bc \beta \gamma$.

Show also that a new (P) form for the "T.R." circle is

$$k^2 \Sigma a\beta\gamma = \Sigma aa \cdot \Sigma bca (b^2 + c^2). \quad (\text{August, 1897.})$$

14083. (C. E. HILLYER, M.A.)—Show that the collinearity of the mid-points of the diagonals of a complete quadrilateral is an immediate deduction from MENELAUS' theorem, viz., that the ratio compounded of the ratios of the segments into which a straight line divides the sides of a triangle is -1 , and its converse.

14084. (G. HALB PUCKLE, M.A.)—With origin transferred to a real focus, and with parallel axes, the equation $\phi(xy) = 0$ becomes (Quest. 13535, No. 437)

$$p^4 (ax^2 + 2hxy + by^2) - 2p^2 \Delta^{\frac{1}{2}} (ax + \beta y) + \Delta = 0,$$

and the equation to the directrix becomes

$$p^2 (ax + \beta y) - \Delta^{\frac{1}{2}} = 0.$$

14085. (Rev. W. ALLEN WHITWORTH, M.A.)—Prove the following rules:—To find $\square = \Delta$.—(1) Form the convergents to $\sqrt{2}$, thus:

$$\frac{1}{1}, \frac{3}{2}, \frac{7}{5}, \frac{17}{12}, \frac{41}{29}, \frac{99}{70}, \text{ \&c.}$$

Then write down the product of numerator and denominator of each fraction thus: 1, 6, 35, 204, 1189, 6930, &c.

These are the bases (*i.e.*, the square roots) of all square numbers which are also Δ .

(2) Write down the numerator of the first convergent the denominator of the second, the numerator of the third, and so on, alternately, thus:

$$1, 2, 7, 12, 41, 70, \text{ \&c.}$$

Square the *odd* terms, and take twice the square of each *even* term of this series, thus 1, 8, 49, 288, 1681, 9800, &c.

These are the bases of the triangular numbers which are identical with the square numbers found by Rule 1.

To find $\Delta = 2\Delta'$.—(3) Take the product of every two successive terms in the first series of Rule 2, thus:

$$2, 14, 84, 492, 2870, 16730, \text{ \&c.}$$

These are the bases of triangular numbers whose doubles are also triangular.

(4) Write down the numerator of the second, fourth, sixth, &c., convergents, thus: 3, 17, 99, 577, &c.

Take the sum of this series to one term, two terms, three terms, &c., thus 3, 20, 119, 676, &c.

These are the bases of the triangular numbers which are the doubles of the triangular numbers found by Rule 3.

14086. (B. N. CAMA, M.A.)—Show that the asymptotes of the curve whose r - p equation (the so-called "pedal" equation) is

$$(a - 3p^2)r^4 + 4r^3p^2 - 6r^2p^2 + 4rp = 1$$

all touch a circle of radius $(\frac{2}{3}a)^{\frac{1}{2}}$.

14087. (R. F. DAVIS, M.A.)—Extract from the *Life and Letters of Lewis Carroll*, by S. D. COLLINGWOOD. (Fisher Unwin, 1898).—"Dec. 19th, 1897 (Sunday). Sat up last night till 4 a.m. over a tempting problem sent me from New York—to find three equal rational-sided right-angled triangles. I found *two* whose sides are 20, 21, 29; 12, 35, 37; but could not find *three*."—Prove that the missing triangle was $7\frac{1}{2}$, 56, and $57\frac{1}{2}$, and find general formulæ for such triangles.

14088. (Rev. T. ROACH, M.A.)—OP and OQ are tangents to a parabola; prove $OP^2 : OQ^2 = SP : SQ$.

14089. (D. EDWARDS, B.A.)—Prove that

$$\int_0^{\pi} \sin x \log \sin x \log \cos x \, dx = 2 - \log 2 - \frac{1}{2}\pi^2.$$

14090. (G. H. HARDY.)—Evaluate

$$\int_0^{\infty} \tan^{-1}(p \operatorname{sech} u) \, du \quad \text{and} \quad \int_0^{\infty} \tan^{-1} \left\{ \frac{1}{2} \left(\alpha - \frac{1}{\alpha} \right) \operatorname{sech}^2 u \right\} \, du.$$

14091. (H. MACCOLL, B.A.)—Let α and β be the premisses of a syllogism, and γ the denial of the conclusion. Prove the two following canons of validity:—

(1) The syllogism is valid when two of the statements α , β , γ are implications (or universals) and the third a non-implication (or particular), provided that each term be distributed in one of the statements α , β , γ , undistributed in another, and absent in the third.

(2) If α , β , γ be three implications, if one term be twice distributed, while each of the two others is (as before) once distributed and once undistributed, the syllogism is valid provided we join to our premisses the assumption that the term twice distributed is a possibility.

[NOTE.—The second of these canons implies the syllogisms *Darapti*, *Felapton*, *Bramantip*, *Fesapo*; the first implies the other fifteen.

14092. (Rev. J. CULLEN, B.A.)—Prove that (1) the system of circles

$$(3 \tan \theta - \tan \phi) \Sigma a\beta\gamma - (\tan \theta - \tan \phi) \Sigma aa \Sigma a \cos A = 0,$$

where θ is variable and $\tan \phi = -\tan A \tan B \tan C$, includes the circum-N.P.-polar and orthocentroidal circles and also the circle through the associated "S" points; (2) the centre is $a \sin 2A / \sin(A + \theta) = \dots = \dots$, *i.e.*, the inverse of the point in Quest. 13921; (3) the join of the centre

and a sec $(A - \theta) = \dots = \dots$, *i.e.*, a "T" centre, touches a conic inscribed to the triangle formed by EULER'S line, the S-point axis, and the circum-B-axis; (4) the polar of G, with respect to this conic, is the join of the inverses of the N.P. centre and the point of intersection of the circum-B-axes of ABC and DEF the orthocentric triangle; (5) if a circle of the system cuts BC, &c., in D, D', &c., then

$$AF \cdot AF' : BD \cdot BD' : CE \cdot CE' = \cot A : \cot B : \cot C.$$

14093. (Rev. T. MITCHESON, B.A.)—PQ, a tangent to an ellipse at P, is equal to a diameter parallel to itself: find the locus of Q.

14094. (ROBERT W. D. CHRISTIE.)—In my factorization table (*vide* Vol. LXIX., p. 99) prove the law $a = 10t + u$, $b = Mu + t$, where t signifies the tens digit, u the units, and M the multiplier.

Ex. gr.—Under prime 79 we have

$15 = 10 \times 1 + 5$ and $41 = 8 \times 5 + 1$, $12 = 8 \times 1 + 4$, $17 = 8 \times 2 + 1$, &c., where $1501 = 41001 = 120001 = 1700001 = 79(M)$, &c., *ad lib.*

14095. (R. KNOWLES, B.A.)—

$$ax^2 + bxy + cy^2 + ey = 0, \quad a'x^2 + b'xy + c'y^2 + e'y = 0$$

are the equations to two parabolas, touching at P, referred to a tangent and normal at P as axes; if F, F' are the foci, prove that, if $b : c = b' : c'$, F, F', P are collinear.

14096. (G. W. PRESTON, B.A.)—If a chord of an ellipse make a constant angle with the major axis, show geometrically that the sum of the excentric angles of its extremities is a constant.

14097. (J. J. BARNIVILLE, B.A.)—Having $u_{n-1} + u_{n-2} = 3u_n$, prove that

$$\frac{1}{10+11} + \frac{1}{13+11} + \frac{1}{29+11} + \frac{1}{74+11} + \dots = \frac{1}{7} \frac{\sqrt{5}}{7+\sqrt{5}}$$

$$\frac{1}{2^2+1} + \frac{1}{3^2+1} + \frac{1}{7^2+1} + \frac{1}{18^2+1} + \dots = \frac{\sqrt{5}+1}{10}$$

$$\frac{1}{1^2+9} - \frac{1}{4^2+9} + \frac{1}{11^2+9} - \frac{1}{29^2+9} + \dots = \frac{1}{15}$$

$$\frac{1}{7+3} + \frac{1}{18-3} + \frac{1}{47+3} + \frac{1}{123-3} + \dots = \frac{1}{2}$$

14098. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Show that the sum of any number (> 2) of cubes can always be resolved into *three* (algebraic) factors.

Ex.—Resolve the sum of the 8 million cubes from 1,000,001 to 9,000,000 into its prime factors.

14099. (H. W. CURJEL, M.A.)—In a given quadrilateral inscribe a quadrilateral similar to a given quadrilateral.

14100. (Professor ELLIOTT, F.R.S.)—ABC, A'B'C' are two triangles incised in a conic, and PQR is the PASCAL line of the hexagon AB'CA'BC, P being the intersection of B'C and BC, Q of C'A and CA', and R of A'B and AB'. Prove that, if XYZ be an inscribed triangle which is copolar both with ABC and A'B'C', with vertices homologous in the order named, then XP, YQ, ZR intersect on the conic, and the two poles lie on the line PQR. Prove also that all inscribed triangles XYZ which are copolar both with ABC and A'B'C' can be constructed by joining P, Q, R to any the same point of the conic, and taking for vertices the second intersections of the conic with the joining lines.

14101. (Professor COCHERZ.)—Lieu des points d'où l'on peut mener à une ellipse deux tangentes telles que la bissectrice de leur angle passe par un point fixe.

14102. (R. F. MUIRHEAD.)—Show (1) how a study of the parabola

$$(y-x-1)^2 = 4(x-3) \quad \text{or} \quad y^2 + x^2 - 2xy - 2x - 2y + 13 = 0,$$

which is symmetrical with reference to its axis $x = y$, throws light on the peculiarities under change of sign of the function

$$\phi(x) = x + 1 - 2\sqrt{x-3};$$

and (2) how an indefinite number of functions having properties similar to that of $\phi(x)$ may be obtained from the equations of other conic sections having $y = x$ as axis.

14103. (Prof. CROFTON, F.R.S.)—If $u = x^2 + ax + b$, a solution of the equation $u(d^2y/dx^2) = n(n+1)y$ is $y = D^{n-1}u^n$; and another solution is $y = D^{-n-2}u^{n-1}$. Also, if $u^2(d^2y/dx^2) = n(n+1)(n+2)(n+3)y$, one solution is $y = D^{-n-1}u^{n+1}$.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to

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NOTICE.—Vol. LXIX. of the "Mathematical Reprint" is now ready, and may be had of the Publisher, FRANCIS HODGSON, 89 Farringdon Street, E.C. Price, to Subscribers, 5s.; to Non-Subscribers, 6s. 6d.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, December 8th, 1898.—Lt.-Col. Cunningham, R.E., Vice-President, in the Chair. Fifteen members present.

The following gentlemen were elected members of the Society:—R. J. Aley, A.B., A.M., Ph.D., Professor of Mathematics, Indiana University, Bloomington, Indiana; E. W. Barnes, B.A., Fellow of Trinity College, Cambridge; J. H. Grace, B.A., Fellow of St. Peter's College, Cambridge; F. Morley, Sc.D. Camb., Professor of Mathematics, Haverford College, Pennsylvania; C. A. Rumsey, B.A., formerly Scholar of Trinity College, Cambridge; J. T. Walley, M.A., Assistant Professor of Mathematics, Aberystwyth.

Major MacMahon, R.A., F.R.S., communicated a discovery he had recently made in the Theory of Compound Partitions.

Mr. J. E. Campbell, M.A., read a paper "On Simultaneous Partial Differential Equations." Messrs. J. Hammond, M.A., and A. Berry, M.A., made remarks on these communications.

The following papers were briefly abstracted:—

"On Hyperplane Coordinates," Mr. W. H. Young, M.A.

"Two Problems of Wave Propagation at the Surface of an Elastic Solid," Mr. T. J. Bromwich, B.A.; and "The Influence of Gravity on Waves in an Elastic Solid, with especial reference to the Earth," by the same author.

"On a Theorem in Determinants allied to Laplace's," Prof. W. H. Metzler, Ph.D.

Lt.-Col. Cunningham (Mr. Tucker *pro tem.* in the Chair) drew attention to the three following exceptionally high numbers:—

$$N_1, N_2 = [2^{213} (2^{209} \pm 1)^3 \mp (2^{211} \pm 1)^3] = (2^{210} \pm 1)(2^{210} \mp 1)^3,$$

$$N_3 = [\{ (2^{105} + 1)^4 - 2^{108} (3 \cdot 2^{104} + 1) \}^2 + \{ (2^{105} + 1)^4 - 2^{212} (2^{106} + 3) \}^2] \\ = 2 (2^{210} + 1)^4.$$

The complete factorization of the numbers $(2^{210} \pm 1)$ being known (see Lucas, *Sur la Série récurrente de Fermat*, Rome, 1879), the three large numbers (N) are also completely factorizable into their prime factors. The two N_1, N_2 are of order 2^{240} , and therefore contain 253 figures; whilst N_3 is of order 2^{841} , and therefore contains 254 figures. The largest number hitherto completely factorized into its prime factors (so far as known) is $(2^{210} + 1)$, which contains 64 figures.

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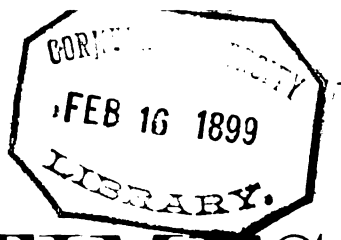
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The Educational Times.

The Local Authorities.

WHILST the Duke of Devonshire bids us wait patiently for our Local Authorities, and accept the Board of Education Bill as a reasonable and cautious first step, Sir John Gorst, ever frank, trusts that we shall not pay too much attention to those who "invite us to sit down and wait, and see what Parliament will do for us." Clearly he would have us make shift with Clause 7. We have always suspected that this innocent administrative act was intended by the Government as a virtual creation of Local Authorities. We suggested it when the clause was added to the "Directory," and everything which has happened in the meanwhile tends to confirm the suspicion. The Duke of Devonshire said at Derby that Parliament would undoubtedly have to create the Authorities; but many an Act of Parliament has simply given permanence to existing institutions, and that may be so again with the Joint Education Boards called into being by the Borough and County Councils. Ought we, or ought we not, to be satisfied with this mode of generating Authorities which, in process of time, will become as strong and influential as any in the country? The *Schoolmaster*, not unnaturally, sniffs at the notion. Sir John Gorst, our contemporary says,

obviously desires that the thing should muddle itself out locally. And he now tells the Bradford people that he does not think the School Boards have anything to fear from such a plan of operation. Possibly Sir John Gorst is unaware of what has taken place in several parts of the country, notably at Burnley and at Brighton, in connexion with this altogether agreeable proposal that Parliamentary aid should not be invoked in the settlement of this critical question.

Sir John did not say exactly that; he advised us not merely to wait for the action of Parliament, but to act for ourselves with the materials ready to our hands. The School Boards do not like the Joint Boards, with their indirect representation, and they honestly believe that they would themselves make excellent secondary administrative bodies. At the least they hold that they ought to have just as effective a voice in the control of secondary education as the Councils have. But this, strictly considered, would be no representation at all, for the School Boards are elected exclusively for the control of elementary education, whereas County Councils are elected for miscellaneous purposes, one of which is the control of technical education, and, under Clause 7, of a large part of secondary education.

Sir John Gorst is of opinion that there should eventually be one Authority for elementary and secondary education.

People who conduct secondary education have an enormous interest in primary education, because it must be such as to fit the children for the secondary education; and conductors of primary schools have a great interest in secondary schools, because they have to train the children for their further progress. It would be quite impossible for a system to be reasonably carried on unless the primary and the secondary authorities were so closely allied as practically to form one body. Now, is that body to be the School Board, or the Council, or some new body drawn from both, or elected in some entirely different way?

We are not quite sure that Sir John has fully considered this essential difference between elementary and secondary education: that the former is compulsory, strictly codified, and gratuitous by Act of Parliament, whilst the latter can never as a whole assume this form. Technical and commercial instruction may be codified; education graded on to the elementary standards may be gratuitous by means of promotion scholarships—a very different thing from statutory abolition of fees; but compulsion after the elementary stage is in no way probable. And, as for the secondary education which is given in the "preparatory schools," the great public schools, most of the endowed schools, and nearly all private schools, it is simply impossible to make this compulsory, codified, or gratuitous. The argument quoted above applies to secondary education which is naturally continuous with the education of the Board school. It does not apply to the secondary education which we have just mentioned. It is not sufficiently borne in mind that there have been two distinct streams in our recent discussions relating to secondary organization. Some of us have kept our attention fixed on the literary and professional first and second grade schools, whilst others have been writing and speaking as though the whole question of organization were one of adding consecutive standards to the national elementary code. The distinction stands in the nature of things, and cannot, in practice, be obliterated or obscured. But confusion has arisen in our controversy, and, if we are not careful, mischief may arise in legislation. It seems to us essential that, in one form or another, we should have both an Elementary and a Secondary Authority, and still more essential that the Secondary Authority should have a duplex mind, if not a duplex organization, for dealing with the two main divisions of secondary education.

The principal duty of the Local Authorities will be to get as many elementary scholars as possible to continue their work in secondary schools. It is to be hoped that they will do this with all their might; that they will get as much control as they can over endowments which are not being efficiently managed, and that they will concern themselves with the efficient public and private schools almost exclusively on the invitation

of the governors or masters of these schools. In that case the Authorities will be a blessing undisguised; and, in that case, we should come nearer to the point of agreement with Sir John Gorst when he says that one Authority would suffice for elementary and secondary schools—always assuming the duplex mind of the Authority. What, then, is the ultimate Authority to be—School Board, or County Council, or a body specially selected to control the entire course of school education? Some of the larger School Boards would do very well; most of the smaller ones would not do at all. The County Council, as Sir John Gorst reminded us, and as the Science and Art Department has shown us by its “*solvitur ambulando*” clause, is already fairly equipped and organized for the work.

It had statutory power which it had exercised for ten years, and money which it had possessed for eight years; it was able to supplement local taxation money by the ratepayers' money; and it possessed the great advantage that the Acts which established its authority, being passed in great haste and without that Parliamentary consideration which people considered so important, had happily abstained from implying any particular organization. The educational organization for town and county purposes had grown up of itself.

Shall we live to see the Council absorb the whole duty of educational control, including the duty of the School Board? That is a prospect which will overwhelm with horror a great number of very estimable people. But the horror is really superfluous. We should still have the School Boards, though under another name. The work would continue, and the men would remain where they are, and the N.U.T. would flourish more abundantly. The M.L.S.B. would reappear after election as an L.C.C., and the whole body of members, headmasters, teachers, pupil-teachers, and clerks could unite in crying: “Here we are again!” We are not arguing for this transformation; but we are, in a sense, vaticinating. And the beauty of it would be that both Council and Board would be, or ought to be, satisfied; for, so far as education is concerned, each might claim that it had absorbed the other.

NOTES.

DURING January letters have appeared in the medical journals which show conclusively that the first section of the report of the Education Committee of the General Medical Council, relating to cases of “deficiency in general education,” is entirely inaccurate in its statistics, and contains a serious error in the drafting. The error in drafting has been admitted by the Registrar of the Medical Council in a letter to the medical journals, and has, in fact, been corrected in a revised edition of the report. It appears, therefore, that there is power to amend a report after it has been adopted by the Council and issued to the public. But the statistical table, which the Registrar was “instructed” to publish, still contains serious errors, which have been pointed out in a further letter written by the Dean of the College to the medical journals, and no contradiction to this letter has appeared. It is, therefore, difficult to understand why these incorrect statistics are allowed to stand, or why the conclusions drawn from them have been in no respect modified.

JANUARY has once more been a month of hard work for teachers of all kinds. There have been conferences of all sorts. Headmasters and headmistresses, assistant-masters and assistant-mistresses, elementary teachers and secondary, College and Guild,

—all of these have been busy discussing, conferring, and proposing, till one wonders how much real rest and holiday the Christmas holidays can have brought with them. Some amusement appears to have been excited by this surprising energy, and some one has been found asking, in a London paper, whether the work of teachers is to teach or to talk. “Do they,” it is asked, “contrive to find any time at all for a bit of plain, quiet work in their class-rooms?” The fact is, of course, that teachers do not talk instead of working, but in the intervals of work. They talk that they may get the conditions of their work improved and the abuses of the teaching profession remedied. And, indeed, if the teachers did not care about these things, there would be little hope for education in this country, where the majority of people are still so indifferent to its claims. But the teachers care, at any rate, and that is why they talk in January, instead of making holiday, as they might.

THE second of the Winter Meetings for Teachers, which was held at the College of Preceptors during the first fortnight in January, and on which we make some comments in our “Educational Gossip,” was as marked a success as the first, which was held at the corresponding period of last year. The number of persons who took tickets for the entire course, or for one or other of the two weeks into which it was divided, was 160, the majority of them being members of one or other of the associations of teachers to which the privilege had been accorded of purchasing tickets at half fees. In addition to these, about as many members of the College had applied for free tickets of admission, and about as many more availed themselves of the opportunity of attending single lectures on payment of the fee of one shilling. Thus the attendance throughout the Meeting generally considerably exceeded a hundred, and was on several occasions nearly double that number.

THE plan on which the programme was arranged so far differed from that of last year's Meeting that there was no attempt at a continuous series of lectures covering the whole of the field either of theory or of practice of education. Instead, there were a number of short courses of two or three lectures each, as well as single lectures dealing chiefly with two main divisions—the first, physical education, including school hygiene; defects of the organs of sight, hearing, and voice, the use and abuse of athletics, school games and the corporate life of school, and, in connexion with this subject, the leisure-hour pursuits of school-children. The second division had mainly to do with the practice of education, including discipline and conduct, the practical applications of the study of psychology, and methods of teaching history and geography. Technical education was represented by a lesson in shorthand, and literature by a lecture on “The Greek Ideals of Education.” “The Teaching of Science” was on this occasion the subject of a Conference arranged by the Technical Education Board of the London County Council, and held at the Chelsea Polytechnic, which members of the Winter Meeting were invited to attend. The whole was appropriately introduced by an inaugural address by Sir Joshua Fitch.

THE appeal of Miss Vines, in the case of Vines against the North London Collegiate School for Girls, has resulted in a judgment for the defendants. The plaintiff, it will be remembered,

as a sanitary inspector for the parish of St. Pancras, applied for admission to the school premises, not on account of knowledge or suspicion of a nuisance, but in order to see whether a nuisance existed. Her request was refused; she applied to a magistrate for an order to enter; the magistrate decided against her, and now Justices Lawrance and Channell have confirmed the decision of the magistrate. Mr. Justice Lawrance said:

It seems to me that there is absolutely no ground whatever, whether reasonable or not, stated by the plaintiff, upon which she could ask the magistrate for leave to enter. No ground is stated by her. She says again: "I wanted to enter, and I then and there applied" (this is to Mrs. Sophia Bryant, the Headmistress of the school) "for permission to enter the school premises for the purpose of examining as to the existence of any nuisance therein." Now that throws us back to the question, is that a reasonable ground? The reasonable ground must be a ground with some reason for it. "Why do you want to go in?" the magistrate has a right to ask, and the answer to that is, as far as it is given on this information: "I have no more right than that which was given to me by the statute, and it is enough for me to swear that I wish to go in, because the statute gives me power to go in." That, in my judgment, is not a reasonable ground.

The school authorities are to be congratulated on having secured a judgment which will be useful in many similar cases.

THE new Lord Rector of St. Andrews University, in place of the Marquis of Bute, who had a long and eventful tenure of the office, is Mr. James Stuart, M.P., formerly Professor of Mechanism and Applied Mechanics in the University of Cambridge. He came up to Cambridge, where he was Third Wrangler in 1866, from St. Andrews, so that it is his first University which does him honour. Mr. Stuart was installed on January 22, and, in accordance with custom, he had the privilege of nominating eight Doctors of Laws for the approval of the Senate. His list is particularly interesting. The honorary degree was conferred on Mr. Buckle, editor of the *Times*, and Mr. McKinnon Wood, Chairman of the London County Council, representing respectively the interests of the Press and of local government. Literature received recognition in Mr. George W. E. Russell, historical research in Mr. Osmund Airy, theological learning in the Chief Rabbi Adler, and medicine in Sir William Broadbent. The University being open to women as to men, Mrs. Fawcett received a new gown, and an honorary degree was also conferred on Mr. George Baxter, Chairman of the Council of University College, Dundee. The advocates of incorporation will not, we imagine, regard the last honour as a victory, but rather as a sign that the hatchet is buried, and that Mr. Stuart's will be a reign of peace and quietness.

THE Government of Bavaria recently sent a commissioner, Dr. Karl Fischer, to inquire into and report upon English methods of secondary education. Though Dr. Fischer has not yet completed his report, he is understood to have come to the conclusion that English schools take the lead of German schools in sundry important respects—amongst others, in the provision of well equipped laboratories for practical science, which have not yet been added to German secondary schools. On the other hand, he considers that German schools have the following advantages:—(1) More careful classification of boys, (2) more definite selection of a course of education, (3) a longer timetable, (4) more careful instruction in modern languages, (5) more support from the central Government. Dr. Fischer is taking specimens of school books, time-tables of schools, and elaborate data of all kinds useful for comparison. Thus, as we

have previously noted, competent German observers are sometimes willing to pay us a return compliment for our appreciation of their own enlightened methods.

THE work done by free libraries is not of a kind which lends itself readily to tabulated returns and statistical reports. But, for all that, it is a very real and important work, and one which grows yearly more efficient and far-reaching as the science of library keeping becomes better understood and more seriously studied. The Free Libraries Committee of the Corporation of Manchester have recently arranged for a course of lectures on "English History in Modern Fiction," to be delivered in the public hall of a branch library on six successive Friday evenings. The lectures, which are to be given by Mr. Ernest Phythian, will be illustrated by lantern slides taken from contemporary architecture and pictures, and by quotations from works of historical fiction. Amongst the titles of the lectures are "The Meeting of the Saxon and the Norman," "Tudor England," "Cavalier and Roundhead," "England under the House of Hanover." With such an interesting syllabus and a free admission, Mr. Phythian ought to get enthusiastic audiences, and it is to be hoped that the result will encourage the civic governors of Manchester to make further advances along this educational by-path.

THE interesting book of M. Edmond Demolins ("A quoi tient la supériorité des Anglo-Saxons"), in which he contrasted English and French education, is about to bear fruit in the establishment of a school, somewhat on the lines of Bedales College and Abbotsholme. This new venture will shortly be opened at Verneuil, in Normandy, on an estate of some fifty acres. Hundreds of communications have been received by M. Demolins, he tells us, saying that French boys are disarmed for the battle of life by excessive devotion to a purely literary education, especially Latin and Greek. The Ecole des Roches will have for its device: "Bien armés pour la vie," on a shield. As might be expected, at least by the readers of "Anglo-Saxon Superiority," espionage will be discouraged, and an attempt made to bridge the gulf between teachers and pupils, and prominence will be given to manual labour and games. Apart from the reason assigned by M. Demolins, another consideration seems to point to the necessity for reform in the French school system, and for the healthy outlet of natural energy. There is an unhappy prevalence of suicide among young people in France. Nearly five hundred of the persons who committed suicide in the course of a twelvemonth in France were under the age of twenty-one. In all probability the highly competitive system of examinations for admission to the public services is responsible for this melancholy state of affairs. The Ecole des Roches at Verneuil is intended to be a practical protest against overpressure, as well as an attempt to liberalize education.

THE report on public education in Bengal for the year 1897-8 contains a somewhat startling statement. It seems that the total number of institutions at which pupils are instructed decreased by 3,334, or nearly 5 per cent., and the falling-off in attendance was about 50,000, or nearly 3 per cent. The demand for high education was as great as ever; it was in the lower primary schools that the decrease was most marked,

the loss in pupils being about 44,800, while in private institutions the attendance was less by some 6,260. The Lieutenant-Governor naturally expressed regret at this sudden decline of education among the mass of the people, and he asked for an explanation of the Director of Public Instruction. Dr. Martin put it down to the last famine, and we can only hope that there is no more serious or insidious cause. The Baboo is not always an admirable product of Anglo-Indian education; but the simple instruction given to the children of the poorer Bengalese is unmistakably useful to them, and it would be lamentable if the native population were found to be setting their faces against it.

SUMMARY.

THE MONTH.

At Derby, on January 19, the Duke of Devonshire, after opening the new buildings of the Municipal Technical College, indicated the present attitude of the Government towards the question of secondary education. He began by pointing out the necessity of a sound secondary basis for technical, scientific, and artistic training. "You cannot graft scientific or artistic education upon the stunted stem of deficient elementary education."

He had seen, with great satisfaction, that a good deal of attention had been paid during the last few weeks to a measure which he had before Parliament last year, for the purpose of obtaining discussion and criticism, and which he hoped, either in its former or in an altered shape, to introduce again very shortly into Parliament, with a view to its passing. The object of that measure was to commence—it did not profess to do more. The reform and reorganization of our secondary education were the things of which, at present, we stood in need. The materials for that education were not deficient. We had already our public schools, our grammar schools, our endowed schools, and our private schools: in addition to that, we had technical colleges and institutions; we had polytechnics; and we had various science and art classes in connexion with the Science and Art Department. Again, in connexion with our elementary educational system, we had higher-grade schools. Therefore, the supply which we had for secondary education was certainly abundant. Whether it was sufficient and adequate could only be ascertained hereafter, when full inquiry had been made. But all these agencies were under separate and independent management; none of them knew exactly what the other was doing, and none of them knew precisely what space in the educational field was vacant and what was already filled. The result of this was want of co-operation, and, to a certain extent, waste of power. At the best, this state of things must be defective in producing unity and co-operation; at the worst, it might result in friction, in unnecessary competition, and in absolute waste of power.

HAVING thus slain the slain, the Lord President of the Council repeated his former admission that legislation was indispensable, and went on to show pretty clearly that, in the first instance, the Government relied on authorities under "Clause 7" to administer the decrees of the Board of Education.

The powers of any such authority must necessarily at present be of a limited character, but it would be possible for them to exercise some supervision over the various educational agencies within their area, and to suggest how educational effort might best be applied to prevent overlapping and friction, and to establish something like co-ordination and order. This invitation had already been accepted in a very large number of places, and he believed, in general, with very admirable results. The Government were perfectly aware that the creation of strong bodies for the control of secondary education must be the work of Parliament, and the powers of Parliament could not be anticipated by any such voluntary action as he had referred to; they knew that there were many difficult and intricate questions—questions of rating, of organization, of educational policy—which Parliament would have to consider, and to decide; and, when the time came, the Government had no thought of shrinking from making their own proposals as to the creation of a statutory secondary authority. If the provisions of the Bill which he introduced last year—and which he should probably introduce again shortly—were of a limited character, and were confined to the creation of a Central Authority, it was because the Government was of opinion that it was best and wisest to proceed by degrees and with caution. . . . The Government believed that, if they succeeded—and they hoped to succeed—in uniting the authorities at the centre into one harmonious and powerful organization, then, without attempting to impose upon the country any cast-iron system, while leaving to localities perfect freedom to adapt their own educational methods to their

own ends, they would be able to afford the inspectors that assistance and that guidance which would enable them to carry out efficiently their important duties.

A CONGRESS of the Teachers' Guild was held on January 9 and 10, the Headmaster of Haileybury in the chair, when the following resolutions on the Government Bills were passed, after much discussion:—

That a Central Education Authority should be established, either simultaneously with, or prior to, Local Authorities; but Local Authorities, if not simultaneously set up, should follow in the immediate future. That, under the Board of Education, secondary education should form a separate branch, with an inspectorate familiar with the problems of secondary education. That, with regard to the Charity Commission, this Congress hopes that legislation on the lines of the recommendation of the Royal Commission on Secondary Education may follow as soon as possible, and deprecates any interference with the Welsh Education Board, which has been so recently established. That the Consultative Committee should be permanent, and also identical with the Registration Council. That the formation of a register of schools is essential. That the inspection of schools by the Board of Education should be compulsory, either directly or through the recognized authorities. That in matters of inspection there should be no difference between private and other schools. That the Guild use its utmost endeavours to secure the establishment, for English schools of a leaving certificate. That after a period of, say, seven years, no unregistered person should be appointed as teacher except as probationer.

THE annual meeting of the Geographical Association was held on January 11, at the College of Preceptors, by permission of the Council, Mr. Douglas W. Freshfield, President of the Association, in the chair. The annual report, read by the Hon. Sec., Mr. B. B. Dickinson (Rugby), gave evidence that the Association was growing steadily in numbers and influence. The memorial to Boards of Public Examiners had been favourably received by the Central Welsh Board for Intermediate Education, and the answers from various examining bodies in Scotland expressed sympathy with the aims of the Association. In England the memorial was circulated two years ago, and has already led in several cases to a marked improvement in the character of the questions set. The question of a syllabus had been before the Committee for some years, and in December, 1897, two schemes of geographical work were drawn up and carefully considered by the Committee, who finally decided not to lend their authority to any syllabus, preferring to encourage individual teachers to explain in detail their own ideas of method, derived from practical experience. Several papers on the subject have since been published in the *American Journal of School Geography*, a monthly magazine which the Committee have done their best, during the past year, to make known to British teachers. Dr. A. J. Herbertson (Edinburgh) has been acting as associate editor for Great Britain, and various articles and notes by members of the Association have already appeared in its pages. In moving the adoption of the report, Mr. A. D. Carlisle (Haileybury) spoke of the value to teachers of the Association's collection of lantern slides, to which large additions are now being made, as well as of the *Journal of School Geography*. The motion was seconded by Mr. H. J. Mackinder (Oxford and Reading), who expressed his satisfaction at the refusal of the Committee to issue an authoritative syllabus, which, however useful at the moment, could not fail to do harm later on. It was of the utmost importance that the Association should be kept as active and efficient as possible, and its numbers increased, for after the present period of educational organization there would come a time when the public would take an interest in educational ideals and methods as distinguished from machinery, and then would come the opportunity of this Association. The motion was carried, as was also the election of officers and Committee for the present year, proposed by Mr. E. P. Ash (Haileybury), and seconded by the Rev. Dr. Field (Radley).

THE President, Mr. Douglas W. Freshfield, then delivered a short address. He referred to the efforts made by the Council of the Royal Geographical Society from 1884 to improve the teaching of geography. But the R.G.S. was mainly concerned with travel and exploration; hence the need for such an Association as this. With regard to the *Journal of School Geography*, he remarked that co-operation with the United States was both pleasant and fashionable; yet we ought to have a journal of our own. The Committee had done wisely in deciding not to adopt a syllabus, for uniformity was alien to the English

mind, and all our great schools had their own traditions. It must be the work of the Association to convert the headmasters, the high priests of the old system, and he was glad to see at least one headmaster present who needed no conversion. Physical geography had been long neglected; he hoped it would not now be made too prominent, for many diagrams covered with little arrows were discouraging to small boys. Nor must they turn their maps into Joseph's coats, the colour smothering the physical features. In the case of the continents and the great European countries it was a good plan to place the physical map in an atlas opposite the political, so that they could be readily compared. They would not slavishly copy foreign methods, but the field excursions, so much in vogue on the Continent, followed by mapping and modelling, might in some form be introduced; or, if that were not practicable, the boys might be taken on ideal journeys by means of maps and lantern slides, the physical geography being used to throw light upon the facts of history, the position of famous cities, and the movements of population. He regretted that the establishment of a geographical school in connexion with one of the great educational centres in London seemed to be for the moment postponed; but they must lose no chance of pressing it. Meantime, although no final scheme had, he understood, been definitely adopted, there was good hope that at their next meeting they might be able to congratulate themselves on geography having been put in its proper place in the University of Oxford. In moving a vote of thanks to the chairman, Dr. H. R. Mill remarked that Mr. Freshfield had been for years at the head of the movement for improving geographical education in this country. The vote was seconded by the Rev. J. Ll. Dove, and unanimously carried. An exhibition of slides specially selected to illustrate the use of the lantern in geographical teaching was given by Mr. A. W. Andrews, who indicated the special points that each slide was designed to illustrate. Some photographs of Caucasian peaks and glaciers, lent by the President, and some typical scenes in the tropics, were particularly admired.

On January 13-14, the Association of Headmasters held its ninth Annual General Meeting in the Council Chamber, Guildhall, under the presidency of Mr. Vardy. A full report of the proceedings will be found in *Education* (January 21 and 28). The following, amongst other resolutions, were adopted:—

"That this Association cordially welcomes the Board of Education Bill as a first step towards the organization of secondary education in England, and is of opinion that the Consultative Committee proposed therein ought to be permanent, and to contain representatives of the Universities and of bodies of teachers. That this Association records with satisfaction the statement made by the Lord President in introducing the Board of Education Bill, viz., that the proposed Education Office would probably be so organized as to consist of three Departments, dealing with primary, secondary, and technical education respectively. At the same time the Association re-affirms its unanimous resolution of June, 1895, in favour of the statutory constitution of Local Authorities for Secondary Education; and is further of opinion that no organization of secondary education can be either effective or complete until Local Authorities shall have been constituted, and empowered to aid and supply secondary education within their respective areas."

At the luncheon given to the Headmasters on January 14 by the Goldsmiths' Company, Prof. Jebb, M.P., proposed the toast of the Association. In the course of his speech Prof. Jebb said:

He had perfect confidence in a strong Central Authority which, without interfering with local freedom, would give guidance and assistance when required, would accelerate a good understanding between the local agencies which justly claimed representation, and influence the Local Authorities of the future. It would seem as if the very prospect of such an Authority had contributed to the removal of the friction which in 1896 constituted a grave Parliamentary obstacle to the creation of new Local Authorities. During the last few months great progress had been made between municipal and other bodies, and he thought it would not be too sanguine for him to say that, at no long interval after the date when the Bill came into operation, there would be a reasonable hope that they would obtain Local Authorities somewhat on the lines of the Report of the Royal Commission, without any serious danger of obstruction from municipal or any other rivalries. But, whatever might be the precise form which the Local Authority of the future might assume, one thing was essential—this was that the Local Authority must be capable of watching over the interests, not only of commercial and technical training, but also of a literary and liberal education.

THE Annual General Meeting of the Assistant-Masters' Association was held on January 14 at the City of London School, Thames Embankment. The chair was taken by the Rev. W. E. Massey (Bedford Grammar School), who was supported by representatives of the staffs of most of the principal grammar schools in the United Kingdom. The chairman proposed the following resolution:—"That this Association heartily welcomes the Board of Education and Teachers' Registration Bills, recognizing that they are an important step towards the organization of secondary education." Mr. P. E. Swinstead seconded the proposition, which was unanimously carried.

THE Annual General Meeting of the Private Schools' Association was held on January 12 at the College of Preceptors, the retiring President, Mr. J. Bayley, of Wellington College, Salop, occupying the chair. The Rev. J. B. Blomfield was elected President for the year 1900, and Miss Elizabeth Dawes and Mr. E. J. Morgan were elected Hon. Secretary and Hon. Treasurer. The formal business of the meeting was completed by the election of the Council and other officers, and by a cordial vote of thanks to the retiring President and to Mr. Brown, Chairman of Council. Mr. J. Vine Milne, the President for 1899, delivered his inaugural address, which was devoted to the subject of education in relation to commercial expansion. He said that the Association, when founded in 1883, was not a militant body; but it had been compelled to assume that character by the persistent attacks which had been made on private schools.

The success of our commercial rivals had diffused an uneasy feeling that our system of education must be changed, and that its deficiencies were wholly to blame for all that was unsatisfactory in our foreign trade returns. The private schoolmaster was made the scapegoat for our declining trade simply because he was the safest and readiest person to blame. If bad education were the fault, how came about that earlier expansion of our trade which Mr. Gladstone could only describe as "advancing by leaps and bounds"? The faulty methods of our merchants and traders were more to blame than our schoolmasters; and the adoption in this country of the educational system of Germany would only lead to disappointment. In any organization of our secondary education which might be attempted, the first steps should be tentative, so that those which experience condemned might be retraced. The Education Department might do a great deal by giving information and advice to private schools; and even, on security, lending money for the development of such schools instead of stamping out private enterprise. The reason why private preparatory schools were so admittedly good was that they were free from the fear of State interference and competition.

THE Association of Assistant-Mistresses in Public Secondary Schools held its sixteenth Annual Meeting on Saturday, January 14, at the Women's Institute. The morning was occupied with elections, reports, and other routine business, followed by the President's address on "Education in France." A discussion on the Board of Education and Registration Bills was opened by Mrs. Withiel, of Notting Hill High School. The following resolutions were passed:—I. "That this Association will be glad to see the Board of Education Bill of 1898 passed, but trusts—(a) that its scope will be extended to include proposals for the creation of Local Authorities for Secondary Education on the lines suggested by the Royal Commission; (b) that the Consultative Committee indicated in the Bill will be a permanent Committee, and will include both men and women representing teachers in secondary schools; (c) that schools affected by the action of the Local Authorities will have a right of appeal to the Central Authority; (d) that under the Board of Education secondary education will form a separate branch, with its own inspectorate." II. "That this Association would desire a clause added to the Registration Bill, to the effect that—(a) after the lapse of a specified time, say seven years after the establishment of the register, no unregistered person shall be appointed as teacher in any endowed school, or school in receipt of public money, exception to be made in the case of probationers; (b) some authority should be appointed to undertake legal proceedings against persons guilty of offences under Clause 16." In the afternoon papers were read on the teaching of modern languages, and on "A Sixteenth-Century Arithmetician," which were thoroughly appreciated by the members present.

THE sixth Annual Meeting of the Association of Technical Institutions was held on January 12 in the Haberdashers' Hall. Earl Spencer was elected President for 1899, and spoke at some length on the condition and prospects of technical instruction in

this country. "We are still," said Lord Spencer, behind several countries in this respect.

We were forced to the conclusion that we had great need of exertion, organization, and development of our educational institutions in order that we might get on something like a footing of equality with our clever brethren of the United States. At present we were far behind them. Then there was Germany. For three generations that country had been elaborating its system of education, and paying the most careful attention to the wants of manufacturers, and, every one would admit, with great success. We had, therefore, in America and in Germany, not to speak of other nations, competitors who had left nothing undone to improve their manufactures by producing the best designs, giving attention to foreign languages, and otherwise enabling their people to trade successfully with other nations. We could not sit still and watch this commercial progress with indifference. We could not close our eyes and ears and remain satisfied with the old methods of education in regard to commerce.

The eighth Annual Meeting of the Association of Directors and Organizing Secretaries for Technical Education was held on January 13 in the Grocers' Hall. Mr. H. Macan resigned the office of hon. secretary. The following resolutions were passed:—"That, considering—as assumed by the Royal Commission Recommendation 36—that the large majority of the members of the existing County Councils and of their Committees for Technical Education either are or have been managers of voluntary schools, or members of School Boards, it is unnecessary and undesirable that direct representation should be given to the primary school interests." "That the Association are of opinion that the present powers possessed by county boroughs are sufficient to secure the representation of all educational interests in the areas of administrative counties." "That, in accordance with the view of the Royal Commission (Recommendation 35), no direct appointment of teachers by teachers should be made upon the Local Authorities, and it is essential that no teachers of any added school in the area should have a seat on these Authorities." "That in county boroughs the Association agrees with the compromise between the municipal associations and School Board associations with the reservation that in all cases the Municipal Council have at least one-half plus one of the members of the Local Authority." The meeting also adopted a resolution stating that it was undesirable to draw a line of separation between secondary and technical education in any legislation concerning a Central or Local Authority.

A CONFERENCE of the Froebel Society was held (by permission) at the College of Preceptors on January 25, with Sir George Kekewich in the chair. There were morning and afternoon sessions, and papers were read by Mrs. Cashmore, of East Dulwich; Miss Dunlop, of the Saffron Walden Training College; and Miss Manley, of the Stockwell Training College. The object of the Conference was to decide what special course of Froebelian training is desirable for infants' mistresses in elementary schools, in addition to their general professional training, and to frame a syllabus indicating the lines of this special preparation.

At a meeting of Convocation of the University of London, held on January 16, Mr. R. W. Hinton, B.A., moved: "That, in the opinion of this House, the new regulations for the Matriculation Examination tend to discourage the study of modern languages in schools, by making them entirely optional and alternative to science." This was agreed to *non. con.* Mr. G. Armitage-Smith moved, and Mrs. Bryant seconded, the following resolution:—"That the value of the B.A. degree has been distinctly lowered by the recent changes in the final examination, which enable a candidate to obtain the degree without taking any of those subjects (*e.g.*, mathematics and mental and moral science) which involve a discipline in the more abstract kind of thought." This was carried and was referred to the Standing Committee with the following expression of opinion:—"In the opinion of this meeting it is desirable that the subjects should be regrouped in such a way as to maintain the former standard of comprehensiveness of the degree."

The annual meeting of the Governors of Mason College, Birmingham, was held on January 12, the President (Mr. Chamberlain) in the chair. The balance-sheet showed a total income of £17,503, and a deficiency of £2,411. Alderman Clayton said that the loss was practically the same as last year. Sir Josiah Mason left the College £15,000 working capital. That had gone, and

another £15,000 as well. The number of students of all kinds was 967, and that, too, was practically the same as in 1897. Mr. Chamberlain said they had gone almost as far as they could expect to go, so long as they had to deal only with a University college instead of with a University. That, he believed, had been the experience of similar colleges in Manchester and Leeds. It was not till they formed part of a full University that they had been able to make satisfactory progress, and he thought that one moral to be drawn from the report was that they should lose no time in securing for Birmingham the advantages of a University. The endowment fund for that purpose was already considerable, and he hoped that in the course of the next few months it would be largely augmented. The committee had not finally concluded their negotiations with the great limited liability firms which added so much to the prosperity of the city, but he was glad to say that the leading managers and directors of those companies were inclined to take a proper view of their responsibilities and obligations in regard to this matter.

MISS EMILY DAVIES, the Hon. Sec. of Girton College, writes with reference to last year's proposals for increasing the accommodation at the College. Nearly £10,000 has been promised for additional building, while the fund accruing from legacies and accumulated profits reaches over £8,000. Owing to the continued pressure for room, it has been decided to begin building on a somewhat reduced scale, a range of buildings to contain students' rooms, which can be added later, being postponed, and reducing the estimated cost from £50,000 to £40,000:—

The new buildings as planned will contain a dining-hall, calculated to hold nearly 300 persons, with a kitchen department on the same scale. This last is an inconspicuous, but most necessary and costly, part of the scheme. There will also be a chapel, new lecture-rooms, and additional rooms for about twenty-five students; while the present dining-hall will be annexed to the library, for which more space is much needed. Owing to the conditions of the site, &c., we are to a considerable extent building for posterity as well as for present needs, and those who come after us will be able to provide for a large increase of students at a comparatively small cost. In taking the bold step of entering upon an undertaking which will cost at least £40,000, with less than £20,000 in hand, we are encouraged by the hope of considerable accessions to our funds during the progress of the building. The College itself, being more than self-supporting, is able to contribute from time to time to the extension fund from current income, and we venture to hope that some of our friends who were prevented from subscribing last year may now be able to do so, while those who have already given may be disposed to come forward again, now that the realization of the scheme is in immediate prospect.

OUR Welsh correspondent writes: "During the first three or four months of the year in Wales there is a considerable amount of educational administrative activity. The Executive Committee of the Court of the University of Wales then meets for the preparation of business for the Annual Extra-Collegiate Meeting of the University Court, generally held in April of each year. This year the Executive Committee of the University Court has already met in London on January 13, and another meeting will be held there on February 10. The University Court will this year hold its Annual Extra-Collegiate Meeting at Swansea on April 21. It is not improbable that at no distant date a request will be made on behalf of some of the theological colleges of Wales asking the University Court to give effect to the clauses in the Charter whereby theology may be made a subject for the B.A. degree. A meeting of members of the teaching staffs of some of the Welsh theological colleges was recently held, at which the clauses in question were carefully discussed. It is probable, however, that no petition will be presented to the University Court until the Governing Bodies of the various theological colleges have discussed the matter and have formulated some definite scheme of study. Theology is a subject for the study of which the Welsh mind has a considerable aptitude; and it is not unnatural, therefore, that many persons in Wales should wish to see theology occupying a prominent place among the activities of the University. At the same time, it seems in accordance with present day tendencies in Wales to require a thorough training in Arts as a preparation for theological study.—The Executive Committee of the Central Welsh Board for Intermediate Education will probably meet in February to prepare business in view of the forthcoming Annual Spring Meeting of the Central Welsh Board at Welshpool on April 28. The movement in favour of the systematic teaching of English in Welsh schools, in districts where English is practically a foreign language, seems to be

gaining ground. At present there is a tendency in some districts where Welsh is habitually spoken by the children to assume a knowledge of English, when the English which the children know is, for the most part, only the minimum of English required for the purposes of school life.—The Guild of Graduates of the University of Wales will meet at Bangor about Easter. The Literary and Dialect Sections of the Guild are making progress. The works of Morgan Lloyd, edited by the Warden of the Guild, Mr. T. E. Ellis, M.P., chief Opposition Whip, are now in the press, and a considerable list of Welsh Dialect words has been collected by the Secretary of the Dialects Section. The boundaries of Welsh dialects, too, are being more clearly ascertained, and the phonetic and other differences between dialects more thoroughly classified. It is gratifying to find that the University of Wales aims at becoming a repository of knowledge, especially on subjects relating to Wales, as well as a teaching and examining body for degrees.

UNIVERSITIES.

Oxford. The letter put out in the Summer term by three Professors advocating changes in the Classical course has been followed by a pamphlet written by Mr. Lewis Farnell, one of the Exeter classical tutors. He supports the three years' course and the abolition of Honour Moderations, holding that it is impossible to reform the latter examination, and undesirable to place it earlier in the University course. He contends that insufficient attention is paid to the subject-matter of the books offered, and that the standard and character of the work is not above that found in a sixth form; that the examination is unnecessary, conducive to cram, and discouraging to independent work, life, and freedom in study. He would also wish to see the Literæ Humaniores school relieved of specialism, and anticipates that, if the degree examination were taken at the end of the third year, much encouragement might be given to the abler men to work for the research degree on higher and more independent lines than is possible while the test of knowledge and originality is the three hours' "Greats" paper.

Prof. Gardner has been putting in a claim for the better recognition of archæology in the Literæ Humaniores school. He has pointed out that, although a fairly large number of men take the history of Greek sculpture as a subject in Honour Moderations, few continue the study afterwards owing to the pressure of the ordinary work for the school. The result is that few Oxford men obtain any scientific training in the subject, and are at a great disadvantage as compared with the students of Continental and American Universities, and that, though great stress is laid at Oxford on classical studies, they are narrow and behind the times. He wishes to see some of the branches of classical archæology introduced as alternative subjects in the final schools. Evidently there is dissatisfaction in the ranks of the classical scholars, though it has not expressed itself so strongly as the discontent with the Classical Tripos has at Cambridge.

Strangely enough, while Moderations and the four years' course are attacked at Oxford, an attempt is being made at Cambridge to introduce something of the same kind as a substitute for the three years' course and single Honour Examination. It is not, however, likely that the system of having a large number of set books would find favour at Cambridge, and it is probable that Moderations would be a good deal improved if the course were somewhat widened and less minute knowledge required. The getting up of elaborately annotated editions of texts is discouraging both to teacher and pupil, and limits the time that can be given to reading the authors themselves. It tends to a continuance of school ideas of work, for it must be acknowledged that there is little in the Moderations course to stimulate the interest of a boy who has already had a good classical training, and that it encourages cram on the one side, and indifference to genuine study on the other. No doubt it is undesirable to make constant changes in examinations, but, if they are to keep pace with the literature of their subject, modifications are needed from time to time, and such alterations stimulate the teaching. Some years ago Euripides was scarcely lectured on, now there are in nearly every term lectures on two or three plays; and, while Sophocles has, for obvious reasons, almost disappeared from the list as far, at least, as the younger men are concerned, Æschylus still holds his ground. On the other hand, Comparative Philology is scarcely taken up at all, though some years ago it was not difficult to get teaching in it, and Aristotle's Rhetoric, which was put on a short time ago, seems to make no way.

The death of the Master of Pembroke, Dr. Price, has removed one of the oldest resident members of the University, and one who will be greatly missed, as he had to the last taken an active part in University business, and had only recently resigned his Professorship and vacated his seat on the Hebdomadal Council. He was a special authority on questions of finance, and his judgment was highly valued. The great service he had done to the development of the Clarendon Press had been continued in different ways up to the last year of his life, and he was personally very popular in public and private relations. The election of his successor in the Mastership will be held early in February. The Professorship will be filled up in the course of the term.

A scheme to bring working men to Oxford, to share in the benefits of University teaching without their being members of the University or going through the regular course, has been started by two Americans. A fine old house in the poorer part of Oxford has been taken, and will be named Ruskin Hall, and some of the residents will, in consideration of their help in the work of the house, obtain their education free.

GERMAN AND ENGLISH IDEALS. *

One hundred and seventy pages of the third volume of "Special Reports on Educational Subjects" are devoted to Mr. Sadler's elaborate, able, and helpful study of the organized secondary education of Prussia, undertaken with the special object of drawing a moral, whenever possible, for educational reformers at home. In some respects the task of the writer was defined and limited by the work of Matthew Arnold three-and-thirty years ago. In his report on German schools to the Schools Inquiry Commissioners in 1866, Arnold wrote that, "in its completeness and carefulness, the school system of Germany is such as to excite the foreigner's admiration." If that was true when it was written, it is still more true to-day, after an intermediate period of sustained zeal and deep-reaching change. Englishmen sometimes grumble, as Mr. Sadler says, at the number and intricacy of the constant suggestions for reform in secondary education, but "the criticisms in this country are casual and intermittent as compared with those which perpetually engage the attention of the educated classes in Germany." We have passed through a wholesome stage of conviction and contrition in respect of the lead which has been taken by Germans in the matter of secondary education; and of late there has been a manifest tendency to weary of a comparison which, in some particulars, tells so little in our favour, and to rehabilitate ourselves by dwelling on the more special and valuable characteristics of English public and private schools. The salient feature of Mr. Sadler's exhaustive review is that it places the candid reader at a standpoint from which he can more accurately appreciate and compare the English and Prussian systems. The result is—as, of course, it ought to be—that some of the qualities of each system are seen to be incommensurable, and that the German and the English schoolmaster have a good deal to learn from each other.

Altogether the positive and admitted benefits of State organization and in the undercurrents of contemporary criticism, secondary education for boys in Prussia stands in almost an opposite position to that which it occupies in England. There is little doubt that, so far as wide range of all-round intellectual attainment goes, a higher average is reached in the average German secondary school than is the case with us. I make this statement with misgiving; not because I doubt its truth, but because it is incapable of absolute proof so long as the great mass of English secondary schools are under no official inspection. I am very far indeed from saying that, even if all-round intellectual attainment alone be taken as the criterion of judgment, all Prussian schools will be found superior to all the corresponding English schools. That is almost certainly not the case. But the average is, so far as I have had opportunity of making exact comparison, higher there than here, if, that is, intellectual attainments alone be taken into account. Their secondary schools of high quality are more uniformly spread over the whole country than is the case in England. They are cheaper and more accessible to poorer families of the middle class. On the other hand, our schools are more free to develop as they like; they represent a greater variety of standpoints; some of their characteristics are more strongly defined. Just as in Germany a minority calls

* *Problems in Prussian Secondary Education for Boys, with special reference to Similar Questions in England.* By M. E. Sadler, Director of Special Inquiries and Reports. (Her Majesty's Stationery Office: "Special Reports on Educational Subjects," Vol. III.)

for more freedom of organization, so with us a minority calls for much stricter control. But inquiry would doubtless show that the prevailing opinion among German parents and teachers is strongly in favour of their present type of regulations, while in England there is an equally strong predisposition against anything tending to uniformity or highly centralized control. That principles so diverse should be maintained with such earnestness of conviction in each of the two countries points to the fact that there is positive and proved advantage to be derived from each system. Hence it is probable that each country has something to learn from the other, and it is expedient to attempt to measure the value of the different results of the two systems and to consider how far, without revolutionary change, each could secure some of the benefits which are the characteristic outcome of the other. From this point of view it is significant that some of the most interesting of recent experimental changes in the organization of certain Prussian secondary schools show a tendency to approximate to compromises which are also being tried in England.

The main lines of distinction are clearly traced by Mr. Sadler, amongst them being the different principles of promotion from class to class, the more careful separation of different types of schools in Germany, each with its defined curriculum and normal duration of study, and the general preponderance of secondary day schools in Germany and of boarding schools in England. With regard to the first point, the Germans have advanced much further towards a kind of secondary codification than Englishmen, as a rule, have attempted or are willing to advance. In Germany,

the unit is the year's work assigned to each class in the school. The usual practice is to keep a boy for a whole year in each class. The task assigned by the Code of Regulations to each class in the school has been carefully adjusted, in the light of experience, to the school-time available in the course of one school year. Each boy has to go through it, and the knowledge thus acquired by him at each stage is treated as the necessary foundation for the instruction which he will receive in the class above. Moreover, the whole class works in common at all the different subjects assigned to it in the curriculum. There is no separate classification for mathematics, science, or modern languages. The year's work is conceived as a whole, and it is held that boys should advance together in all the subjects of curriculum, from point to point in a unified school course. This is a difference of far-reaching importance, and will be found to affect, in a greater degree than any other single cause, the quality of the intellectual effects of the secondary schools of the two countries. On the intellectual side the tendency of the German system is to produce a much larger number of boys with a high average level of attainment in a wide range of subjects, very well grounded, highly disciplined, and quick to learn, especially when under instruction; on the other hand (and still referring only to the intellectual side of school training), the tendency of the English system, *at its best*, is to give much more scope to individual talent, and, on the whole (though, of course, there are many exceptions to this), to produce a comparatively small number of first-rate scholars, keenly interested in their favourite subjects, vigorous in mind, accustomed to rely a great deal on themselves, and keen to pursue their studies to a higher point; *at its worst*, the English system turns out a much poorer article (from the point of view of intellectual attainment) than the German; when it deals with inferior material, it makes very little of it, so far as attainment goes.

On the important and complex question as to the proper aim of secondary education, and the possibility of establishing a definite standard of attainment for boys at particular periods of their school life, Mr. Sadler has much to say, and he reminds us that "German (and especially Prussian) statesmen and educational authorities have been constantly at pains to define their ideas of what should be the common measure of general culture among the educated classes." In the answers given to this question, it seems to us, more than in anything else, we arrive at a true mode of discrimination between the German and English ideals. English codifiers in secondary education, in the sense of creating a common mould for all intellects, and defining a range of knowledge which should be possessed by every boy of fifteen, or seventeen, or nineteen, have never yet gained the ear of the nation; and we do not believe that they will ever bring us much nearer to the codification and stereotyping of instruction (except, perhaps, in technical and commercial education) than we have already been brought by the formalizing of our "certificate" and "leaving" examinations. There are manifest reasons for a more or less definite standard of technical and commercial knowledge; but, with the majority of Englishmen, nothing could compensate for the loss of the ethical ideals in secondary education, of character-building so far as it is independent of intellectual faculty, and of variety in the types of schools to correspond with the variety of individual gifts.

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The following maps have been added to, and, where necessary, corrected:—

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| 3, 4. Western and Eastern Hemispheres. Northern and Southern Hemispheres. | 63. Italy (North.) | 92. Canada (Western). |
| 7, 8. The British Empire, showing the Commercial Routes of the World and Ocean Currents. | 65. Southern Scandinavia. | 93, 94. United States. (General Map.) |
| 9. Religions of the World. | 66. Norway and Sweden. | 95. United States (Western). |
| 11, 12. North Polar Regions. | 67, 68. European Russia | 97. Central America and West Indies. |
| 13, 14. Europe. (General Map.) | 69, 70. The Balkan Peninsula. | 101, 102. Africa. (General Map.) |
| 21, 22. Scotland. | 73, 74. Asia—The Eurasian Continent. (General Map.) | 104. South Africa. |
| 24. Ethnographic Map of Europe. | 77, 78. Central Asia and India. | 105, 106. Africa (North-East). |
| 47, 48. Austria-Hungary. (General Map.) | 79, 80. India (North). | 107, 108. Africa (North-West). |
| 49, 50. The Austrian Alps. | 82. Burma, and the Malay Peninsula. | 109, 110. Africa (South of the Equator). |
| 53, 54. Switzerland. | 83. Afghanistan and Baluchistan. | 111. West Africa. (Colonial Map.) |
| 55. General Map of the Alps. | 84. Siam, and the Malay Archipelago. | 113. Polynesian Groups. — South Polar Regions. |
| 56. Sicily and Sardinia. | 85. China and Japan. | 114. New Guinea and the Papuan Archipelago. |
| 61, 62. Italy. (General Map.) | 87, 88. North America. | 115, 116. Australia and New Zealand. Index, pp. 1-112. |
| | 89, 90. British North America. | |
| | 91. Canada (Eastern). | |

Various minor additions have been made in the remaining maps.

III.—SPECIAL ALTERATIONS AND ADDITIONS.

In the map of the North Polar Regions will be found the highest point reached by Nansen.

Large additions in matters of detail have been made in the map of the Austrian Alps, pp. 49-50, and also in Switzerland, pp. 53-54.

The map of Asia, pp. 73-74, has been carefully revised according to the latest information.

All maps of the Malay Peninsula now show the readjusted boundaries of SIAM, and the districts affected by the Treaty between England and France.

The NEW TREATY PORTS and the recent Japanese annexations are shown on the map of China.

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For Siam and Indo-China, see THE TIMES ATLAS MAPS, p. 85.

For the Nile Campaign, see THE TIMES ATLAS MAPS, pp. 103, 105, 106.

For the progress of exploration in the Upper Congo, see THE TIMES ATLAS MAPS, pp. 109, 110.

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FORECASTS AND COMMENTS.

February 1, 1899.

THE twenty-seventh annual series of lectures for Fixtures. teachers on the Science, Art, and History of Education will begin at the College of Preceptors on Thursday, February 16, at 7 p.m. Dr. James Sully, Grote Professor of the Philosophy of Mind and Logic at University College, London, will then deliver the first lecture of a course on "Moral Education." Members of the College have free admission to these lectures; the fee to others being half-a-guinea for the course of twelve.

* * *

THE Right Hon. James Bryce, M.P., will deliver an address on the subject of commercial education on February 2, at the opening of the Liverpool School of Commerce.

* * *

ON February 3 the Right Hon. A. J. Balfour, M.P., will distribute prizes at the Battersea Polytechnic, and will open the new hall of that institution.

* * *

LORD RAYLEIGH is to deliver a course of seven lectures at the Royal Institution on "The Mechanical Properties of Bodies," beginning on the afternoon of February 11.

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THE annual meeting of the National Education Association will be held on February 14.

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ON February 18 the Lord Mayor will distribute the prizes of the National Association of French Masters in England.

* * *

Education Gossip.

THE Winter Meeting at the College of Preceptors, held between January 3 and January 14, was, if possible, a greater success than that of last year. The attendance was well sustained throughout, and there was every indication of interest in the lectures, discussions, and visits to sundry educational centres. We print elsewhere the larger part of Sir Joshua Fitch's opening address, and regret that we have not space for a fuller report of the meeting as a whole. The daily Press, we are glad to note, has done substantial justice to the lecturers and other speakers.

* * *

MR. ARTHUR SIDGWICK's paper on "Greek Ideals of Education" was remarkably happy, and his colloquial rhyming versions of Aristophanes won him rounds of merited applause. We may mention for what it is worth the fact that this subject was considerably more attractive (judging by attendance) than that of last year's corresponding lecture, on "The Minor Poems of Milton."

* * *

MR. BARNETT is always full of suggestion, and his three lectures on "The Practice of Education" abounded in salient points. "Systems and methods of education," he said, "were the standards and tests of what society regarded as most important for its own prosperous existence, but communities were not infallible judges of their own good, and results often belied expectations." Again, he commended deference to tradition, which represented the wisdom of experience, and urged that

theology kept alive the study of realities. "The conception of man as a mere citizen arose out of military organization and led to dangerous errors in practice, and, in later and more advanced days, it caused the 'practical' man and the 'scientist' to measure the value of education by its relation to material results."

* * *

In his lecture on discipline, Mr. Barnett said that in school-life rewards and punishments were both necessary, but prize-giving was undesirable in the early stages. "Punishment was much more indispensable as a part of discipline than reward. Corporal punishment in the early stages of the acquisition of knowledge was harmless and necessary. It should be real, and inflicted in warm blood." Whereat the audience laughed without committing themselves.

* * *

MR. FINDLAY had an enthusiastic reception on revisiting the scene of his former labours, and his two lectures on "The Corporate Life of School" were listened to with marked attention. In the interval of a few months since he left London for Cardiff, Mr. Findlay has organized a new school, where he is already able to carry out his ideas with something like six score pupils.

* * *

Of special interest and curiosity, though in different senses were Mr. Lee's mechanical torso of the human body, with its strange and rather uncanny revelations for such as know nothing of anatomy and physiology, and Mr. Ginder's mechanical speller, which is said to enjoy the patronage of the German Kaiser. Mr. Lee's model is so arranged as to show each part of the trunk separately, or the torso as a whole. The mechanism is simple, and not likely to get out of order.

* * *

THE appearance of Professor Rein, of Jena, was looked forward to with peculiar interest. The old Thuringian university town has come to be regarded by teachers in England and America as the Mecca of a new educational creed, and the pilgrim who had made his "Hajj" and worshipped at the shrine was exalted in the eyes of his fellow-teachers as one who had been admitted to the higher mysteries, and had received some portion of the divine *afflatus*. Expectation was on tip-toe as to what manner of man it was who had so powerfully influenced the minds and hearts of his disciples. Imagination may have pictured him with heavy brows and solemn mien, haggard with severe study of the profoundest problems of human nature, and their bearing on the evolution of the "father to the man." The reality may possibly have shocked the romantic sentiment of some. A genial, fresh-coloured gentleman, with fair hair and full beard, and bright eyes beaming benevolently through gold-rimmed spectacles, whose lively conversation showed him to be no dreamer, but a very practical and matter-of-fact citizen of the world.

* * *

THE part that Professor Rein had to play in the programme of the Winter Meeting was not a light one. He was to deliver a lecture, in English, on the "Training of Teachers," and another lecture, in German, on the "Reform of German School Education." He was also announced to take part in a conference on the "Training of Modern Language Teachers." A lecture on so large a subject as the training of teachers, conceived in German, translated into English, and delivered with a painstaking anxiety to be thoroughly understood of the vulgar, was hardly calculated to exhibit Dr. Rein to the best advantage, however profound the views enunciated, however careful and methodical their elaboration; and the cordial reception accorded to the lecturer might not perhaps convey the most accurate reflex of the impression made by the lecture. Still less directly could the Professor's admirable exposition, in his native tongue, of the present position of educational movements

in Germany be expected to appeal to the intelligence of the majority of a large audience, to whom the substance of the lecturer's discourse had to be imparted in an English summary by the Chairman. At the subsequent Conference of specialists in modern languages held on the same day, Dr. Rein's thoroughly practical speech was, as might naturally be expected, better appreciated.

* * *

In his lecture on educational reform in Germany, the Professor, though he held that we need more centralization in England, pointed out that in his own country they were decentralizing, and one result had been a very large elimination of the clerical element from the schools. The training of teachers, even for private schools, was insisted on in Germany, and this had led to the abolition of incompetent schools, which, under the present law, might exist here and there in England. The local authorities in Germany co-operated more readily than in England with regard to educational movements. In Jena they had spent £20,000 on their elementary school, and so imposing was the building that visitors often asked: "What University is this?"

* * *

BUT it was reserved for the meeting convened by the Pestalozzi Society, which assembled in the College Lecture Hall in the evening of the second day for the purpose of commemorating the centenary of the beginning of Pestalozzi's educational work at Stanz, to obtain a full and true impression of the personality of the distinguished educationist who had honoured the College of Preceptors by his presence and co-operation. Here was indeed a theme intimately concerned with the teacher's work and methods, and a more striking picture than that which the Professor gave of the character of the man and the secret of his influence could not be conveyed. But there was more than this. The human interest of the pathetic story of Pestalozzi's life, his intense earnestness, his love for the children, his exaltation of spirit, his misery and times of deepest dejection and well-nigh despair—all this was brought out with a fullness, a clearness, a vividness of presentment, and an oratorical power, which was not only most impressive, but gave at the same time the most captivating sense of the intense sympathy and earnestness that glowed in the language of the speaker. It may truly be said that those who were not fortunate enough to be present at the Pestalozzi commemoration have not had an opportunity of forming a true conception of Professor Rein and the sources of his influence.

* * *

MR. MACKINDER opened the second week of the Meeting with the first of an interesting and thoughtful trio of lectures on "The Teaching of Geography." He contended that the teacher of to-day was encumbered with too many subjects. Might they not be reduced by greater correlation? In a curriculum of five or six subjects might not geography include and combine much manual training, drawing, mathematics, natural science, history, and economics, as necessary parentheses in the more strictly geographical arguments? The essence of geography was reasoned topography. In the elementary stage the dangers of metaphor were chiefly to be feared. They should avoid all complicated machinery—maps, models, instruments—and go straight to nature." Even the form and movements of the earth might be conveyed without appliances—*vide* Rousseau's "Emile." The next stage required models—made from nature by the pupils, or at least in the pupils' presence—and the globe. The first maps should be drawn by the pupils from models and from the globe. Only then could they safely introduce modern physical maps, showing relief as emphatically as outline. Last of all should come political maps.

* * *

MR. MACKINDER's second lecture was devoted mainly to physical geography, into which the lecturer insisted that measurement and precision should be introduced. As far as

possible, names should be avoided which were not essential; above all, perspective and connexion should be aimed at; and he strongly condemned the turning of boys and girls into mere indexes. In the third lecture, Mr. Mackinder dwelt on the teaching of geography on its economic and strategic sides, the latter relating not merely to the operations of war, but being connected largely with questions of "supply," which did not permit of the same precision as did the physical side of the subject, and thus afforded opportunity for the practice of judgment, in the selection of material from among immaterial facts. The lecturer insisted on the necessity of the teacher of geography possessing an easy grasp of his subject, and giving an adequate amount of thought to its presentation.

* * *

THERE was much that was helpful in Prof. Lloyd Morgan's lecture on "Psychology." There may have been great teachers who were never formally trained to study the mind, but training will produce more competent teachers in the future. Pedantry must be avoided, and the discussions, which should take the place of mere lecturing, "a relic of the middle ages," should be kept in close touch with concrete examples. Dry facts, on the one hand, paragraphed in packets of insipid pemmican, and tenuous generalizations, on the other hand, evaporated from the warm and moving stream of life into mere intellectual vapour, would avail little. Above all, the subject should be quickened with enthusiasm, the ultimate aim being to place before the teacher high ideals of the worth of his work and calling, and to afford him aid in realizing them.

* * *

THE Teaching of History was the subject of three lectures delivered by Mr. H. L. Withers, Principal of the Borough Road Training College, Isleworth. The method of treatment should, the lecturer suggested, be adapted to the stage of instruction—primary, secondary, or tertiary—at which the pupils had arrived. In the preparatory stage, history should be taught in forms similar to those in which it first appeared among primitive peoples, in tales of heroism and personal adventure. For young children, history should be mainly biography, with as strong a romantic interest as possible. In the second stage, the order and sequence of historical events should engage the attention of the teacher, and the class should be led to map out in idea the course of time, with its gradual historical development or the sudden and revolutionary changes which from time to time have diverted the course of the stream of history. In the third stage, the nature of the evidence on which the historian relied, Mr. Withers said that the history of important periods was to be studied in detail, and always accompanied by the study of some, at least, of the sources which the historian had used. Ancient history was the most serviceable for the purpose, because the mass of material was not so overwhelming as in modern history. In the sixth form, also, the study of history was to be directly connected with the theory of government and politics, through the elements of constitutional history.

* * *

THE "demonstrations" which followed on each of Principal Withers' lectures were of special interest as illustrating the method of the lecturer and his tripartite division of the subject. For the preparatory stage the class to which the lesson was given consisted of third standard boys from a public elementary school. In illustration of the second stage a class of boys from a secondary school was utilized; while for the final stage the audience itself became for the nonce the class to which the lecturer gave his lesson. The story of King Arthur in its various phases was the main subject of each lesson, but treated in a way corresponding to the supposed stage of mental development attained by each set of pupils. In the first demonstration the leading idea was the dramatic story of King Arthur's death, the battle with "the heathen," and the weapons used. A sword was produced and drawn by the lecturer, and the sudden exhibition of the shining blade was well calculated to fire the imagination of the young and eager pupils, and lead them on to

follow the series of incidents, terminating with the return of Sir Bedivere and his account of the seizing of "Excalibur" by the arm "clothed in white samite" that rose to receive it above the surface of the mere.

* * *

THE demonstration that followed the second lecture was a well designed attempt to get a more advanced class of boys to fix more definitely in time and space the details of the story—to locate its position in the procession of the centuries, to fix the true meaning of the symbols used for the measuring of time, to establish the relation of one event to another, and thus to lead to some faint notions of historical perspective. The last of the demonstrations, where the audience became the class, was a model of clear arrangement of materials, and exhibited most effectively the nature of the problems with which the historian and the student are confronted in weighing and sifting evidence of different kinds and degrees of authority.

* * *

IT is characteristic of the physical and intellectual energy of Sir Edward Clarke, as well as of his good nature, that he should have sandwiched his admirable "Lesson on Shorthand," on Tuesday of the second week, between a long speech to his constituents at Plymouth on Monday night, and the opening of the Law Courts on Wednesday morning—travelling by early train in order to keep his promise to the College. His personal interest in his task was further displayed by the arrival of a clerk with a hundred sheets of cardboard and good lead pencils, where-with he begged his audience to transfer "the natural shorthand alphabet" from the blackboard to their tablets. This the audience did, and many of them made their first acquaintance with the venerable, but still vivid, system of Taylor, which was used for many years in the Reporters' Gallery of the House of Commons.

* * *

WHEN he was at a suburban school, Sir Edward said, his master offered to teach him shorthand, and gave him one lesson, and, though from that day he never had another, he became a perfect shorthand writer, and could report verbatim a speech or a sermon. It seemed to be thought that every one who learned shorthand should learn to report verbatim. It was not one person in a thousand who had any necessity to report verbatim. For other persons there was great value in knowledge of shorthand in preparing notes for speeches, copying extracts, making memoranda, and so on. His own private secretaries soon learnt his system, and he was at any time able to read the letters they had taken down.

* * *

AFTER reducing the alphabet, on phonetic principles, to sixteen letters, Sir Edward drew the symbols for them, according to Taylor's system, and added arbitrary signs for *sh*, *th*, and *ch*, and the terminations *ing*, *ion*, and *sion*, which he said were not absolutely necessary, but were useful in rapid writing. So, too, were contractions for long words, such as *notwithstanding*. Learners ought to avail themselves of simple lines, which did not depend upon thickness or thinness, nor upon their position in relation to the line of writing. Having shown the readiest manner of joining letters, he claimed he had done what he had promised; and that those who had copied the symbols could do the rest for themselves. A fairly lively discussion followed, but the speakers, though advocating various systems, respected Sir Edward's desire to keep clear of controversy.

* * *

TWO striking addresses were delivered by Dr. Woods Hutchinson on "Methods of Teaching the Life Sciences," which were followed by discussion—the first having special regard to the child under instruction, and the second to the subject. The lecturer treated his audience as a class of receptive children—receptive they certainly were—and gave them an object-lesson on the teeth of the dog. Dr. Woods Hutchinson is on a visit to this country from America, and we trust that

he will take away with him a pleasant impression of the methods of English teachers—especially of their holiday methods.

* * *

CANON LYTTTELTON was entertaining (as he always is) on his favourite text of school athletics. He even made something out of the Duke of Wellington's (more or less authentic) saying, that "the Battle of Waterloo was won in the playing fields of Eton." This was an astounding assumption, for, at the period to which the Duke referred, there could only have been about fifty boys out of the six hundred in the school who played cricket. Probably about ten out of the fifty were present at Waterloo, and the more one looked at the Duke's statement the greater nonsense it appeared.

* * *

THE Canon was glad to know that athleticism was being encouraged in ladies' schools, and he looked for the happiest results. No doubt the games were sources of some difficulty, but the ladies could overcome habits which at first led to trying disasters. Quite recently he visited a ladies' school, where "rounders" were being played, and, just as he turned the corner of the quadrangle, a lady hit a ball with terrific vigour. The player at mid-off let it slip through her hands; it landed on her cheek, whereupon she was led off by the umpire, crying. There were six sisters in the South who were so clever at cricket that they would play an eleven of their own sex. One day the best player of the six cut a ball "to leg." The lady "long-stop" was flirting with an officer, and it took her full in the back; so she collapsed upon the ground, and shed bitter tears.

* * *

QUESTIONS of school hygiene were amply discussed in Dr. Colman's three lectures on "Physiology applied to Education," dealing successively with the eye, the ear, and the vocal organs, and in Dr. Newsholme's "Essential Conditions of Healthy Life in Schools." Dr. Colman is familiar as a lecturer to audiences at the College, and the practical utility of his short course on January 5-7 was thoroughly recognized. Dr. Newsholme is Examiner in State and Preventive Medicine to the Universities of Oxford and London. He raised an interesting question as to the requirements which would be likely to be enforced in secondary schools under the responsibility of the State, and drew no very good augury from the conditions now existing in the elementary schools.

The main problem of school hygiene was that of ventilation. In connexion with this, cleanliness was essential. Every part of a school should be washable, and wet cleansing, instead of dry, should always be practised. Dust was the great enemy of health, and infectious dust was very apt to be spread in schools. Carnelley's results, showing how the micro-organisms in school air increased with dirtiness of schools and of scholars, were quoted. Natural ventilation by windows and other openings could only suffice in summer, in view of the dense aggregation of children in school. In winter the incoming air must be warmed—a point which he emphasized. This implied, in large schools, a mechanical system of ventilation, propulsion and aspiration of air being secured by special appliances. The Education Department still allowed the deadly system of "direct radiation" without stipulating for conjoined admission of fresh air. Such warmed air was necessarily expensive; but it amply repaid in improved health of teachers and scholars. Carnelley's researches had shown that the air in mechanically ventilated schools was greatly superior to that in schools where trust was placed in natural ventilation along with hot pipes or along with open fires, as still recommended by the Education Department.

* * *

MRS. BEHNKE's lecture on "The Training of the Voice" was much appreciated. She was quite an alarmist on "those terrible throat complaints and voice failure from which such an enormous number suffered now, entirely owing to the want of training in the physical part of their work. There were nearly 1,800 teachers in London alone suffering from throat ailments more or less serious, and of these the London School Board claimed 1,000." An experience of over a quarter of a century in voice training showed Mrs. Behnke that the primary cause of these troubles was the totally inadequate management of breath

for voice purposes; but she had devised a system of breathing exercises, the results of which had attracted the attention of many medical men. She had also devised a system of vowel training to correct impure pronunciation, which had been very successful.

* * *

Nor the least interesting feature of the Winter Meeting was the series of visits to educational institutions that had been arranged. The institutions visited presented, for the most part, certain distinctive features, in relation either to the teaching of technical or science subjects, or with regard to sanitary and hygienic arrangements. At University College the resources of that well known institution for higher education were exhibited, and the newly erected physical and engineering laboratories were among the principal objects of interest. At the Technical College of the City and Guilds of London Institute, in Leonard Street, Finsbury, a continuation school devoted mainly to instruction in the principles underlying a number of industrial occupations, the mechanical and chemical laboratories were seen in operation, and the working of the scheme was explained by the Principal, Professor Silvanus Thompson. At the Regent Street Polytechnic arrangements for systematic instruction in metal- and wood-work, as part of the curriculum of a technical day school, were seen under somewhat more straitened conditions as to space. At the newly-built Pitman Metropolitan School in Southampton Row, an institution specially concerned with preparation for business life, the special features of interest were the facilities afforded for the practice of book-keeping, shorthand, and type-writing, as far as possible under normal business conditions. At the North London Collegiate School for Girls, among other things, the arrangements for the regular medical inspection of the pupils, with registration of particulars in each individual case, were explained; while at St. Paul's School the High Master and four of his assistant-masters explained the resources of one of the most modern and completely equipped of the London public secondary schools.

* * *

IN addition to these visits to educational institutions, a party of fifty was conducted round the libraries of the British Museum; and another large party spent a couple of hours in visiting several interesting remains of Old London in the neighbourhood of the College. This last visit was most efficiently conducted by Miss M. Crombie, who had often taken parties of her elder pupils to similar places of historical interest in various parts of London.

* * *

AT the Conference on the Training of Modern Language Teachers on January 5, arranged by the Modern Language Association, Mr. H. W. Eve occupied the chair, in place of Mr. Michael Sadler, who was, unfortunately, laid up with influenza. Mr. Morant, however, was present, and this, no less than the space given to modern languages in the last volume of "Special Reports," affords gratifying evidence that the Education Department is fully alive to the importance of the objects which this active and rapidly growing Association has set itself.

* * *

THE teachers attending the Winter Meeting were invited to take part in a Conference on "Science Teaching," which was organized by the Technical Education Board of the London County Council, under the experienced direction of Dr. C. W. Kimmins, who, it will be remembered, delivered a course of lectures on "The Teaching of Science" at last year's Winter Meeting. This Conference was held on January 12 and 13, at the South-West London Polytechnic, Chelsea, and was numerously attended on both days. Papers were read on "The Teaching of Elementary Experimental Science—Physics, Mechanics, and Chemistry," and the discussions which followed showed the deep interest taken in the subject. We regret that limits of space do not allow us to give a full account of this important Conference.

PROF. REIN, of Jena, set the ball rolling, and gave a capital bird's-eye view of the conditions of modern language teaching in Germany. Unlike Miss Brebner (in "Methods of Teaching Modern Languages in Germany"), he spoke of the schools as a whole, and the picture he gave was, naturally, much less bright; even so, the results are far better than our own. He insisted on the importance of a knowledge of the life and ways of the nation whose language is learned. A sound training in the history and grammar of the language is essential, but it is not enough; the teacher must be able to speak with ease, otherwise his pupils will never have the courage to do so themselves at school, and even later on, when called upon to converse with foreigners.

* * *

WHAT is the best time for University men to go abroad to study the French and Germans of to-day? asked Dr. Heath. Mr. Findlay replied that they should go whenever they could; but Dr. Breul and Mr. Rippmann modified this by pointing to the time often wasted by students who go too early. If a student has limited means, he should go at the end of his University career. The more he knows the more he will profit by his stay abroad.

* * *

MR. EVE and Mr. Storr dwell on culture as the great aim of the modern language teacher, while Mr. Findlay preferred to regard him as the international peacemaker. Messrs. Eve and Storr are excellent types of the older generation, which paid more attention to literature than to the power of using the languages for intercourse; Mr. Findlay spoke as a "reformer," anxious—as he showed in his "Direct Method of Learning English"—to see *Realien* taught.

* * *

It is sometimes said that the "reformers" are quite content when they have made their pupils talk, and that they show little interest in opening up for them the treasures of literature. The misunderstanding has probably arisen from the fact that their efforts have been largely devoted to improving the teaching during the first two or three years, in which the imitation of the methods used for teaching Latin and Greek was particularly harmful. But to conclude from this that they are indifferent to the teaching in later years is altogether wrong.

* * *

MR. FABIAN WARE uttered a timely note of warning against the danger of debasing the teaching of modern languages by great concessions to the requirements of commerce. The boys of a modern side may justly demand instruction in the speaking and writing of modern languages. But even this should not be "commercial"; and, in addition, they should receive a taste for literature, and be taught to abandon some of their insular prejudices, and to take a broad and intelligent interest in the life of other nations. Our commerce will not derive real advantage from any number of narrow-minded clerks with the knack of writing French or German letters; what we want is men with a liberal education.

* * *

THAT the efforts of the "reformers" must extend to the early teaching of English also was rightly pointed out by Dr. Heath. The problem here is somewhat complicated. The historical spelling renders it very hard to make the living sounds of the language the starting point, and that is what the "new method" requires. The use of a phonetic alphabet would get over the difficulty; but it may confidently be asserted that no such alphabet will ever be generally accepted, even for purposes of teaching.

* * *

WE quite agree with Mr. Milner Barry when he complains that the study of German is neglected in our schools; but at present there is no prospect of its receiving the same attention as French. There can be no doubt that it should be the first foreign language learnt, if we consider that the every-day words are, in most cases, closely akin in English and German, and

that the pronunciation does not present much difficulty. French, on the other hand, should obviously go with Latin; but we have to reckon with the present, and not with an ideal state of things, and we shall consider it a great gain if Latin is not taken up before the age of twelve, as was suggested by Dr. J. S. Reid at Cambridge.

* * *

THE Chair of Physics in the University of Sydney, in the gift of the New South Wales Government, is now vacant. Graduates under the age of thirty-five may obtain particulars of Sir Daniel Cooper, G.C.M.G., 9 Victoria Street, Westminster.

* * *

THE REV. DR. WALLER has been compelled by ill-health to resign the Principalship of St. John's Hall, Highbury, in which he succeeded Dr. Boulton nearly fifteen years ago.

* * *

It is proposed to establish at the new Midland University "a chair of Brewing and Malting." Subscriptions to the foundation fund of the University are said to exceed £22,000 from Burton-on-Trent alone.

* * *

THE University Court of St. Andrews have appointed Dr. C. R. S. Marshall to the new Chair of Materia Medica, rendered vacant by the retirement of Dr. W. H. Dewytt, who was appointed last October.

* * *

THE Mastership of Pembroke College, Oxford, was vacated on December 29 by the death of Dr. Bartholomew Price. Dr. Price graduated in 1840, taking a first class in mathematics, and two years later became University Mathematical Scholar. In 1853 he was appointed Sedleian Professor of Natural Philosophy. He was the author of a treatise on the "Infinitesimal Calculus," published by the Clarendon Press in 1852, and served on the Royal Commission to inquire into the property and income of the Universities of Oxford and Cambridge and the colleges therein, in 1872.

* * *

WE regret to note the death of Mr. Alleyne Nicholson, Professor of Natural History in Aberdeen University. He studied at Göttingen and Edinburgh, and held chairs of Natural History at Toronto, Dublin, and St. Andrews. Prof. Nicholson had written largely on natural history. He was a Fellow of the Royal Society.

* * *

WE have to record the death of Dr. Joseph Coats, Professor of Pathology in Glasgow University. Dr. Coats was appointed in 1894.

* * *

MR. GEORGE HOWARD DARWIN, F.R.S., D.Sc., is to be the new President of the Royal Astronomical Society. Mr. Darwin, who is the second son of the late Charles Darwin, has been Plumian Professor of Astronomy and Experimental Philosophy at Cambridge University since 1883.

* * *

THE Council of the Victoria College, Wellington, New Zealand, have appointed the following Professors to fill the under-mentioned new Chairs:—Chemistry, Thomas Hill Easterfield, M.A. Camb., Ph.D. Wurzburg; Classics, John Brown, M.A. St. Andrews, B.A. Oxford; English, Hugh Mackenzie, M.A. St. Andrews; Mathematics, Richard Cockburn Maclaurin, M.A. (N.Z.), B.A. Camb.

* * *

MR. THOMAS REID, of Dundee University College, has been appointed Headmaster of the new Municipal Technical College, Birmingham.

* * *

DR. ANDREW THOMSON, D.Sc. Edinburgh, has been appointed Rector of the Dunfermline High School and the projected School of Science.

MISS ANNA ROWLANDS, B.A., Assistant Lecturer in Education at Aberystwyth, has been appointed Headmistress of the Girls' County School, Ruthin.

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MISS EWART, B.A., senior assistant-mistress at the County School, Abertillery, Monmouthshire, has been appointed senior assistant-mistress at the County School, Aberystwyth.

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MISS LILIAN WINSTANLEY, B.A. Victoria, Fellow of Victoria University, has been appointed Assistant Lecturer in English to the University College of Wales, Aberystwyth.

Literary Gossip. THE *English Historical Review* for January contains noteworthy articles on "Methods of Early Church History," by the Rev. A. C. Headlam, and "The Beginnings of Wessex," by Mr. W. H. Stevenson; with notes on "The English Boroughs in the Reign of King John," by Mr. A. Ballard, "Blake at Leghorn," by Dr. Gardiner, and other contributions of considerable and varied interest.

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We have quite a procession of "first numbers" this month—monthly and quarterly magazines, whose entrance into the crowded field of educational periodicals it is fitting that we should record. The *Educational Review* is very much improved in shape and substance, and we wish it all success in its new form. Amongst its contributors we may mention Mr. P. A. Barnett, Mrs. Bryant, Miss Dorothea Beale, Mr. H. B. Garrod, and Canon Lyttelton.

* * *

Child Life (Philip & Son) also is a resuscitation, and its old friends will scarcely know it again. It is now a most attractive quarterly magazine, full of excellent reading, admirably produced, and with an assured future before it. We understand that it has the support of all the Froebelian and kindred associations.

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THE *School World* (Macmillan) is described as "a monthly magazine for use in secondary schools." That sounds perilously like the sub-title of a text-book; but no doubt this new venture makes a bold attempt to combine something for the masters with something for the boys—hard work with intellectual play, educational theory with practical instruction, examination papers with "the school pulpit," school hygiene, chess, and a prize competition. If there was "a felt want" for a new educational monthly magazine, why then, of course, there will be a palpable reward for those who have supplied the want.

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THE *School Board Magazine* (Bemrose) explains itself by its title. Five-eighths of the first number is devoted to a report of the special meeting of the Association of School Boards.

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PROF. BIRRELL'S "Oration on the Ideal University," which helped to inaugurate the "second foundation week" of University College, London, in June of last year, is printed (somewhat late) in pamphlet form. We sample it by a paragraph.

The history of Oxford and Cambridge during the last century proves the result of national indifference. "I have known a confirmed debauchee chosen Professor of Moral Philosophy; and a fellow that never looked upon the stars soberly in his life, Professor of Astronomy. We have had History Professors who never read anything but 'Tom Thumb,' 'Jack the Giant Killer,' and such like records. We have had Professors of Greek who scarce understood their mother tongue; and not long ago a famous stock-jobber and gamester was elected Professor of Divinity." This scandalous record dates, I admit, from 1721; but readers of Porson's Life, and even of Adam Sedgwick's Life; will be able to carry down the bad tradition to our own day.

We do not quite take the allusion of the last sentence. Does Mr. Birrell mean that Porson and Sedgwick were scandalous?

COLLEGE OF PRECEPTORS.—HALF-YEARLY GENERAL MEETING.

THE Ordinary half-yearly General Meeting of the members of the Corporation was held at the College, Bloomsbury Square, on Saturday, January 21.

The Secretary having read the notice convening the meeting, Dr. Wormell was appointed Chairman.

The Report of the Council was laid before the meeting, and was taken as read, a copy having previously been sent to every member. It was as follows:—

REPORT OF THE COUNCIL.

The Council beg to lay the following Report of their proceedings for the past half-year before the Members of the College:—

1. They have to report that the number of entries for the Christmas Examination for Certificates is 7365, while the number of entries for the Junior Forms Examination is 1913. At the Midsummer Examination the total number of entries was 6391, so that the total for the present year is 15869. The Public Distribution of Prizes and Certificates to the successful candidates at the last Midsummer Examination took place at the College on the 5th of October, when the Chair was occupied by Mr. H. O. Arnold-Forster, M.P. Due notice will be given of the time and place of the forthcoming Distribution.

2. The Professional Preliminary Examination for intending medical students and others was held, as usual, in the first week in September, and was attended by 201 candidates. The Medical Council have recently decided, on and after the 1st of January, 1900, to withdraw recognition from the College Second Class Certificate; but they have not thought it advisable to proceed at once to make the standard of the First Class, or its equivalent, that of the qualifying Examination; and they have invited the College to set up a special examination for medical students, the standard of which shall be midway between those of the First and the Second Class Examinations. This special examination, it is proposed, should only be carried on for a limited period, until the Medical Council see their way to insist on a "Senior Local," or "First Class" Certificate, or its equivalent, as the minimum qualification for registration as a medical student.

3. For the Christmas Examination of Teachers for the College Diplomas 210 candidates have entered. At the Midsummer Examination the number was 270, making the total number of Diploma candidates for the year 480. The Examination will be held in London and at the following local centres:—Birmingham, Bristol, Leeds, Manchester, Plymouth, Glasgow, Jamaica, St. John's (Newfoundland), Antigua, and Hong Kong.

4. In addition to their own Examinations of pupils and teachers, and the Examination of schools by Visiting Examiners, the Council have conducted, during the past half-year, the Preliminary Examinations of the Pharmaceutical Society of Great Britain and Ireland.

5. The Twenty-sixth Annual Series of Lectures to Teachers on "The Science and Art of Education," which began in February last with a Course of Twelve Lectures on "The Characteristics and Development of the Child," by Professor James Sully, was completed with a Course of Twelve Lectures on "The Teacher and the Class," by Mr. P. A. Barnett, M.A., H.M. Inspector of Schools and Assistant Inspector of Training Colleges. The success of the Winter Meeting for Teachers, which was held at the College in January last, has encouraged the Council to make arrangements for a similar Meeting to take place in January next. The Meeting will extend over two weeks, and the Programme will comprise an Inaugural Address by Sir Joshua Fitch, series of Lectures and single Lectures on educational subjects, Visits to educational institutions, a Conference on the Training of Modern Language Teachers, a Conference on Science Teaching, and a Conversazione at the Clothworkers' Hall.

6. The usual Monthly Meetings of the Members have been held during the past half-year, at which the following papers have been read:—On the 12th October, by Mr. Francis Storr, B.A., "On Cribs"; on the 16th November, by Dr. R. Wormell, M.A., "On Edward Thring as a Teacher of Teachers"; and on the 7th December, by Mr. F. P. B. Shipham, M.A., "On Corporate Life and Games in Secondary Schools." The papers and the discussions on them have been reported, as usual, in the *Educational Times*.

7. The appointment of Dr. Findlay to the Headmastership of the Cardiff Intermediate School, which was opened in September last, has necessitated a modification of the arrangements for the training of teachers which have been carried on at the College, under his direction, for the past three years. In the circumstances, the Council have not deemed it advisable to proceed at once to the appointment of a new Principal of the Training Department, and are considering how it may be possible to provide training, by means of lectures and otherwise, for teachers who are wholly or partially engaged in school work.

8. A few days before the close of the last Session of Parliament, the Duke of Devonshire introduced in the House of Lords a Bill for the Establishment of a Board of Education and a Bill for the Registration of Teachers. The former of these Bills provides for a reorganization of the Education Department, so as to bring about a coordination of authorities having to do with secondary education as well as those concerned with primary education, including the Science and Art Depart-

ment and the Charity Commission in its relation to educational endowments. Provision is also made for the appointment, from time to time, of a "consultative committee for the purpose of advising the Board of Education on any matter referred to the committee by the Board." The limited character of this measure does not, at first sight, seem to promise much more than a simplification and coordination of departmental authorities; but the introduction of the "consultative committee," which would not consist wholly of Government officials, is a new feature with potential influence of considerable importance, especially if it should eventually become a committee of a permanent and representative character. The Registration of Teachers Bill is practically the same as that introduced two years ago, and is entirely permissive in its operation. The necessity of professional training is recognized by making evidence of attainment of such training an indispensable requirement for admission to the Register. Such recognition, even in a permissive measure, must be regarded as a distinct step in advance, and may reasonably be expected to assist the efforts that have been made by this College and by other bodies for promoting the systematic training of teachers for their profession.

9. The Council have been enabled, out of the surplus funds accruing from the regular operations of the College, to provide for the outlay on account of Scholarships for intending teachers, and to place the sum of £100 to the credit of the Benevolent Fund; but, owing to the large expenditure entailed by the necessity of reconstructing the entire drainage system of the College building, they have not been able to make any addition to the Teachers' Training Fund, on which they have had to draw during the year to the amount of about £425, which has been met by the sale of a part of the Stock in which the Fund is invested.

10. During the past half-year, the Diploma of Licentiate has been conferred on four candidates, and that of Associate on a hundred and eighteen, who had passed the required examinations. Twenty-six new members have been elected, and notice has been received of the withdrawal of five. The Council regret to have to report the death of a member of their body, Dr. F. C. Maxwell, and also of the following members of the College:—Dr. E. B. Aveling, L.C.P., the Rev. S. Lodge, and Mr. J. C. Strachan.

Mr. THORNTON, in reference to paragraph 6, asked whether some information could not be given as to the numbers who had attended the Winter Meeting, and its results.

Mr. EVE said about a hundred and fifty outsiders had taken tickets, and about the same number of members of the College had applied for the free admission to which they were entitled. The lectures had been extremely well attended, there being nearly always more than a hundred present. From a financial point of view the Council had reason to be satisfied, and he did not think that, on the whole, the outgoings would exceed the receipts by more than £20 or £30.

In reply to a question by Mr. THORNTON as to the intentions of the Council with regard to the future of the Training Department, the DEAN said it was clear that it would not be expedient to carry on the Training College under the same conditions as those on which it had been started, and therefore the Council had considered it advisable to suspend any extended operations for a time. At present little more was being undertaken in the direction of training than the courses of lectures which had been carried on for many years before the idea of the Training College was started; but he hoped the time might soon come when they would resume the work that Dr. Findlay had begun, on somewhat the same lines, and with better success than had attended his efforts.

Dr. BELL thought the Council had acted very wisely in this matter. They were bound to undertake work of this sort; but, unfortunately, it had not proved a success, and he was sure the general body of the members would agree that the leaders of the College were justified in the course they had adopted.

Mr. A. S. WILSON urged the Council to restart the scheme whenever there seemed to be a chance of its being carried to a successful issue. He gathered, from what had fallen from the Dean, that such was the intention of the Council; and, in his opinion, it was the right thing to do.

Mr. PINCHES said the operations of the Council in this direction had not been given up, but rather suspended. The Council found themselves in a difficulty when at such short notice Dr. Findlay was appointed Headmaster of the Cardiff Intermediate School, but they were fortunate enough to get Mr. Barnett to come in and undertake the autumn course of lectures. These lectures had given the greatest satisfaction to all who had attended them. Mr. Barnett had been consulted as to the course to be adopted in the future with regard to training, and he had expressed his desire to defer giving a definite opinion on the subject until he had had at least one term's experience in lecturing, and of becoming personally acquainted with the students who attended the course. No doubt the Council would take an

early opportunity of reconsidering the whole matter, with Mr. Barnett's help, by the light of the experience they had gained.

Mr. BAUMANN said he was glad to learn that there was some hope of an attempt being made to resuscitate the Training College. If it had proved a financial failure, and had failed to attract as large a number of students as might have been expected, it did not follow that it would meet with no better success in the future. Similar difficulties had been overcome before, and he believed it would require a number of years before they could expect to see the fruition of the efforts they had made for the professional training of teachers.

Mr. JAMES WILSON hoped that, before any steps were taken for the starting of a new Training College, the Council would take account of the fact that there was nothing like practical unanimity among the secondary teachers of England as to the need of formal training in the art of teaching. They were all agreed that a University training was necessary, and that, having got the University training, what the young men and women ought to do was to go down to the schools and learn their business there. To give up a year or more to hearing lectures, after they had been already listening to them for seven or eight years during their school and University education, was calculated to drive men from the profession altogether. They would not get the best men to enter the profession if they put up a barrier of that kind. Until they got unanimity among the teachers, it would be mere waste of the resources of the College to begin again what they had already attempted without success. If the Government, with its unlimited resources and powers, would make it a *sine qua non* that appointments should be given only to students who had been trained in one or other of the colleges, then they might resume the undertaking with some hope of success. Heads of schools had never come forward to back up the College by agreeing to take its students and give them appointments. Until some such guarantee was given he hoped they would remember that they had burnt their fingers already over this matter, and would not touch it again.

Mr. LONGSDON was sorry the Training College had to be given up; but, considering that it had not been supported as it should have been, he thought the Council had no alternative but to leave matters in abeyance for the present. He was firmly convinced that the work done by Dr. Findlay during the three years he had been working at the College would have a much wider influence than appeared on the surface in inducing assistant-masters to take some form of training.

The Rev. G. C. BELL said that in one of the rooms of the building they had a portrait of a man whom he was proud to have known, namely, Joseph Payne, whose memory ought to move them to repudiate some of the remarks which had been made by one, and only one, of the speakers. For some years many obstacles had prevented them from taking up the work of the training of teachers in a thorough manner, until at last the Council were enabled to start the Training College under the direction of Dr. Findlay. He agreed with a previous speaker that the work of this gentleman must not be measured by too rigid a standard of the number of pupils who attended, or the length of time over which the training was spread. The College of Preceptors had one very great advantage in that, situated as it was in the centre of this great city, it could draw teachers to its lectures who were already engaged in many of the schools of the metropolis; it could provide such facilities that they need not be taken away from their employment, or make any large pecuniary sacrifice, in the process of learning their profession. Furthermore the heads of schools needed themselves to be trained into the belief that training for the young members of the profession was a matter of the first importance. It was futile to say that practice at school was in itself sufficient for the purpose of training. It was impossible for headmasters or headmistresses, with all their responsibilities and teaching duties, adequately to supervise and attend to the work of training the younger members of their staffs. They could do something in this direction, and they ought to do a good deal, but they could not take the place of classes for professional training. He was not disposed to set great store by the theory of teaching, believing that practical work was of chief importance. He hoped that the Council would do what they could to re-establish the Training College.

Mr. PINCHES said Mr. Wilson had stated that there was nothing like unanimity on the question among teachers; but it was quite impossible to canvass—he would not say teachers—but all those who called themselves teachers. The only thing that the Council could do was what they had done, namely, to

gather the opinion of bodies representing teachers. Some ten years ago, in that room, the members of the College were unanimous in deciding that the surplus revenues of the College should be set aside for the purpose of training teachers; and since then the Headmasters' Conference had unanimously passed a resolution to the effect that it was desirable that teachers in secondary schools should be trained. The same course was followed by the Headmasters' Association, and also by the Assistant-Masters' Association, who were best qualified to express an opinion upon this subject. Therefore they were justified in saying that there was practical unanimity among acting teachers on this important matter. Then Mr. Wilson said that by encouraging the training of teachers we were raising a barrier which would prevent the more promising and gifted from entering the profession of teaching; but he (Mr. Pinches) thought that until they had such a barrier they could not call teaching a profession. If it was a barrier, it was a more important body than themselves who erected it; for, in the Bill introduced by the President of the Council last Session, it was proposed to set up this barrier, and he could not help thinking that the Council was taking a very wise course in assisting to raise it.

Miss DAY said the Headmistresses' Association had for something like twenty years taken great interest in this matter, and had sent a subscription of £25 a year to the Maria Grey Training College, thus showing the strong feeling they entertained on the subject.

The CHAIRMAN said he had no doubt that before very long the question would be again forced upon the Council, when it would become their duty to make another effort to establish the College. Recently he was present when some candidates for teachers' diplomas were being tested in practice. It appeared that the women had found facilities for training, and the examiners said that, if the women were to set the standard, not one of the male candidates could be allowed to pass. It would shortly be felt that it was to the interest of a young man desirous of entering the profession of teaching that he should obtain a diploma; and, if it was equally clear that women were to set the standard, and that diplomas would not be obtained by those who could not teach, then the need for training would be accepted all round. That would be the time for the College to make its next effort; and, when that effort was made, he believed it would be successful.

Mr. RULE said it was close upon thirty-nine years since, at a special meeting of the College, he introduced the question of scholastic registration. In those days he was, perhaps, more sanguine than he was now as to obtaining an Act of Parliament, though he was glad to find that there seemed to be at last some hope of securing a Bill. He thought one of the strongest positions they should take up was that professional training should be made an indispensable condition of registration. He regretted that the Bill was not all that could be desired; but it was better than no Bill at all, and he hoped that, as time went on, another Registration Bill of a more stringent character would be introduced.

The Report of the Council and the accompanying statement of accounts were then adopted.

The meeting then proceeded to the election of twelve members of the Council to fill the places of those retiring by rotation, and three Auditors.

The Chairman having appointed Mr. DICKINSON and Mr. RIDGWAY to act as scrutators, the voting papers were distributed, and the election was proceeded with. On the scrutators presenting their report, the Chairman announced that the following had been duly elected:—

MEMBERS OF THE COUNCIL.

Rev. R. Allott, M.A., Nonconformist Grammar School, Bishop's Stortford.
 S. Barlet, B.ès Sc., 47 Bassett Road, Notting Hill, W.
 H. Baumann, M.A., F.C.P., 42 Clifton Street, Brighton.
 J. P. Bidlake, B.A., F.C.P., 339 Essex Road, N.
 E. A. Butler, B.A., B.Sc., 39 Ashley Road, Crouch Hill, N.
 H. Chettle, M.A., Stationers' School, Hornsey, N.
 Miss E. P. Hughes, F.C.P., The Training College, Cambridge.
 E. E. Pinches, B.A., F.C.P., 2 Essex Court, Temple, E.C.
 L. Sergeant, B.A., 13 Girdler's Road, Brook Green, W.
 Rev. T. W. A. Sharpe, M.A., C.B., F.C.P., Beddington, Croydon.
 F. Storr, B.A., 40 Mecklenburgh Square, W.C.
 Rev. J. Twentymann, M.A., F.C.P., Ingoldsby Rectory, Grantham.

AUDITORS.

J. Bell, M.A., LL.D., 31 Caversham Road, N.W.
 Rev. T. Mitcheson, B.A., F.C.P., 13 Pelham Road, Wimbledon.
 James Swift, 229 New Cross Road, S.E.

The Dean then presented his report, which had been printed and distributed among the members present, and which was as follows:—

THE DEAN'S REPORT.

In addition to the general statement of the examination work of the College during the past half-year, which has been embodied in the report of the Council, I have now to submit to you, in detail, the statistics and results of the various examinations.

The Christmas Examination of candidates for Certificates took place on the 6th to the 10th December at 261 Local Centres and Schools. In the United Kingdom the Examination was held at the following places:—Aberystwyth, Aldershot, Alton, Amberley (Glos.), Anerley, Ashburne, Ashford (Kent), Aylesbury, Balham, Banbury, Barnsley, Barnstaple, Bath, Bedford, Belper, Bethesda, Bexhill, Bexley Heath, Biggleswade, Birkenhead, Birmingham, Blackheath, Blackpool, Blandford, Bodmin, Bognor, Bolton, Bournemouth, Braintree, Brentwood, Bridgwater, Bridlington, Brighton, Bristol, Buckingham, Burnham (Som.), Burnley, Bury St. Edmunds, Buxton, Camborne, Camelford, Cardiff, Carlisle, Castle Cary, Cheltenham, Chepstow, Chertsey, Clacton-on-Sea, Clevedon, Cowes, Crewe, Croydon, Derby, Devizes, Doncaster, Dover, Dunstable, Durham, Ealing, Earl's Colne, Eastbourne, Eccles, Epsom, Evesham, Exeter, Farnworth (Widnes), Faversham, Felixstowe, Framlingham, Gillingham (Dorset), Goole, Gravesend, Grimsby, Guildford, Halifax, Harrogate, Hartlepool, Hastings, Hatfield, Haverfordwest, Hemel Hempstead, Hereford, Herne Bay, Holyhead, Hornsea, Huddersfield, Hull, Hulme, Ilfracombe, Jersey, Kingsland R.S.O., King's Lynn, Kirkby Lonsdale, Knighton, Langland Bay, Leamington, Leeds, Leek, Lewes, Lincoln, Liskeard, Littlehampton, Liverpool, Llandudno, London, Longton (Staffs.), Loughton, Louth (Lincs.), Lowestoft, Ludlow, Luton, Maidenhead, Malmesbury, Malvern, Manchester, Margate, Market Bosworth, Mariborough, Matlock, Midhurst, Minchear, Morecambe, Neath, Needham Market, Newbury, Newcastle-on-Tyne, New Malden, Newmarket, Newport (Mon.), Northampton, Norwich, Nottingham, Ongar, Pencader, Penketh, Penzance, Plymouth, Portsea, Portsmouth, Putney, Ramsgate, Reading, Redruth, Richmond-on-Thames, Romford, Ruabon, Ryde, Saffron Walden, St. Anne's, St. Austell, St. Helen's, St. Leonards-on-Sea, St. Neots, Scarborough, Selby, Sovonaks, Sheffield, Shirley, Shrewsbury, Sidecup, Sittingbourne, Southampton, Southbourne, Southend, Southport, Southsea, Spalding, Stanford-le-Hope, Sudbury (Suffolk), Sunderland, Sutton Coldfield, Swindon, Taunton, Tetbury, Tewkesbury, Tiverton, Torquay, Trowbridge, Tunbridge Wells, Ullathorpe, Waltham Cross, Walton (Liverpool), Wanstead, Wateringbury, Watford, Wellington (Salop), Wells (Som.), Weston-super-Mare, Wigton, Winchester, Windsor, Winscombe, Wisbech, Woking, Wolverhampton, Worcester, Workop, Yalding, and York. The Examination was also held at Batticaloa (Ceylon); Nassau (Bahamas); Georgetown (British Guiana); St. George's (Grenada); Kingston and Stewart Town (Jamaica); Lagos; and Port of Spain (Trinidad).

The total number of candidates examined (not including 107 examined at Colonial Centres) was 7,332, of whom 4,084 were boys and 3,248 girls.

Taking the Christmas and Midsummer Examinations together, the total number of candidates examined for Certificates during the year (not including those who attended the supplementary examinations in March and September) was 12,464.

The following table shows the proportion of the candidates at the recent Examination who passed in the class for which they were entered:—

	Entered.	Passed.	Percentage.
First Class	535	287	54
Second Class	2,780	1,689	61
Third Class	4,017	3,263	81

The above table does not take account of those candidates who obtained Certificates of a lower class than that for which they were entered.

The number of candidates entered for the Junior Forms Examination (not including 46 examined at Colonial Centres) was 1,811—866 boys and 945 girls. Of these, 1,402 passed, or 77 per cent.

At the supplementary Examination for First and Second Class Certificates, which was held on the 6th to 8th of September, in London and at four Provincial Centres, viz., Birmingham, Bristol, Leeds, and Liverpool, 196 candidates presented themselves. The number of candidates examined at these supplementary examinations during the year was 405.

The Christmas Examination of Teachers for the College Diplomas took place on the 3rd of January and four following days, in London and at the following Local Centres:—Birmingham, Bristol, Cockermouth, Croydon, Glasgow, Jersey, Leeds, Manchester, Plymouth, Antigua, Chefoo, Hong-Kong, Jamaica, and St. John's, Newfoundland. It was attended by 192 candidates, of whom 131 were men and 61 women. The subjects of examination included the Theory and Practice of Education, Scripture History, English Language, English History, Geography, Arithmetic, Algebra, Euclid, Trigonometry, Analytical Geometry, Latin, Greek, French, German, Spanish, Natural Philosophy, Astronomy, Physics, Animal Physiology, Botany, Geology, Chemistry, Drawing, and Music. On the results of this Examination, 4 candidates obtained the Diploma of Licentiate, and 48 that of Associate.

The number of schools examined during the year under the Visiting Examination Schemes (A) and (B) was 17.

The Preliminary Literary Examinations of the Pharmaceutical Society

have been held, as usual, at the times appointed. The number of candidates examined during the year was 1548. The College has also conducted Scholarship Examinations for St. George's Hospital Medical School.

The Report was adopted.

A vote of thanks to the Chairman concluded the proceedings.

INTRODUCTORY ADDRESS AT THE WINTER MEETING OF TEACHERS, JANUARY, 1899.

On January 3, at the College of Preceptors, Sir Joshua Fitch opened the Winter Meeting for Teachers with an introductory address, in which he began by expressing his satisfaction at the repetition of the interesting and highly successful experiment initiated by the College last January. There was no profession, he said, whose members were in their daily work so isolated from each other as the teaching profession, and yet none in which they had more to learn from mutual intercourse. Nothing had impressed him more in his visit to America than the zest and enthusiasm which hundreds of teachers evinced at their annual summer meeting. He did not know how to convey his impression of the usefulness of the conferences both in the United States and in Canada, and their influence on public opinion. Having enlarged on this subject, Sir Joshua sketched the programme for the Winter Meeting. They would have during the fortnight many opportunities of hearing and discussing different views of professional life and duty, methods of instruction and discipline, school hygiene, psychology and its applications, the use and abuse of athletics, and the training of the speaking voice. More than this, the Council had wisely resolved to direct their attention to literary, social, and quasi-political questions, such as Greek ideals of education, and the reforms which had taken place in foreign countries, all of which had a real, though apparently remote, bearing on the life and calling of a teacher.

Having regard to the programme of subjects that would receive their attention during the Meeting, Sir Joshua observed that there was little need that he should enter upon any considerations of pure pedagogics, or discuss any of the practical conditions of school life. Nor would he yield to the temptation to comment on the intentions of the Government, the formation of new Secondary boards, or the registration of teachers; for, although these questions loomed large in their view at the present moment, yet, after all, legislation was a small and unimportant thing compared with the wisdom of the teaching body itself, the clearness and nobleness of its ideals, the personal zeal, enthusiasm, and freshness of mind brought to bear upon the fulfilment of those ideals. He proposed to use his privilege as chairman for the purpose of bringing before them some considerations respecting that part of education which seemed to have little or no connexion with educational politics, or even with school lessons; but which, considering man in his totality and the life that he had to lead, were necessary to the completeness of his education. One of the factors that went to constitute a complete equipment for an honourable and useful life was the sense of beauty and the recognition of what was comely and admirable in the outward world, in art, in literature, and in human character. It had been well said that we live by admiration, hope, and love. Our rank in the scale of intelligent human beings, and our power of deriving the utmost enjoyment in life, depended greatly upon what we admired and what we disliked, on what inspired and what disgusted us. The truly educated gentleman was impatient of ugliness in the surroundings of his home, and could not see without something akin to physical pain that which was ignoble or vulgar. They could not make aesthetics the subject of formal lessons, or use "Burke on the Sublime and Beautiful" as a text-book; but, if once the need for the cultivation of taste were recognized, other and indirect means would soon occur to them. Mr. Thring understood this, and at Uppingham took pains in the decoration of his art school with medallions of the great painters, and of his classrooms with portraits of great historians, with representations of famous historic scenes, and with pictures illustrative of the Greek and Roman classics. Who could doubt that in this unconscious way there was a real training of the aesthetic faculty? There were in London priceless treasures of art, and he did not think teachers appreciated or used them enough. Much might be done by taking from time to time small groups of elder scholars to our national collections, and still more might be accomplished if such visits were occasionally preceded by simple lectures on the symbolism of the early Christian painters, and on the distinctive characteristics of the Umbrian, the Venetian, the Dutch and the French schools of art. When they considered that a great picture gallery was a record of many of the noblest thoughts, the sweetest fancies, the ripest knowledge, and the deepest religious convictions of some of the most gifted of our race, they became aware how large a part its contents ought to play in education, and how high and imperative a duty it was to take care that its value as an instrument of moral teaching and of intellectual refinement was not neglected. He dwelt upon these extra-scholastic considerations because the love of beauty, the instinctive perception of the difference between what was noble and what was ignoble in art, in nature, and in personal habits, was a great help in maintaining and elevating the standard of life, and in

making that life sweeter, more interesting, and better worth living; and because the influence of a good teacher extended beyond the frontier of formal scholastic lessons, and would be rightly exerted in just the proportion in which he tried to forecast the future of his pupils and the conditions of their honour and success in that larger world of which school formed a part.

Sir Joshua then turned to what pupils should read, and urged the cultivation of a taste for good literature and a distaste for what was tawdry and meretricious. He was sure that for the formation of a pure taste and for the development of a true literary sympathy it was well that even in school some books should be read by and for themselves as a whole, and not in selections, and without the intrusion of the commentator and his critical apparatus. Place the scholar within reach of good books and let him, as Charles Lamb said, "browse at will on that fair and wholesome pasturage." Only let them take care that he knew who were the great masters of style and thought, and that he was encouraged from the first always to go to them and their works, and not to be content with extracts or literary essays about them, or reviews or "reviews of reviews." If this was kept in view, it could not fail to have a potent after-effect when the time came for the pupil to form his own plans of life and to decide how his hours of recreation should be spent. Again, if a book was worth reading, it was worth thinking about and questioning one's self about it. And to this end it was well to form a habit of writing something about the impression an author had left upon the mind while the memory was fresh. The practice would serve to fix the habit of attention and thoughtfulness, and, if begun by occasional exercise in school, it would remain as a permanent factor in the formation of character and in the economy of time.

As they tried to view the work of a school in the light of the future destination of the man, they were confronted with the problem how to give a fair chance of development to the special aptitudes and needs of their scholar. This was an old and ever-recurring problem, and the last word had not yet been said about it. No two human beings were exactly fitted for the same career or the same duties, and it was part of education—a very difficult part, it must be owned—to discover and develop the special gift and capacity of each scholar. It was wise to recognize once for all that there were other possible types of excellence than those included in the teacher's programme, that there were forces and impulses at work in the heart and brain of their least interesting pupils which they had never measured and could not measure, and that it was their duty to find, if they could, proper scope for the exercise of those forces. "It was wonderful," said President Eliot, "what small personal gifts may become the means of conspicuous service or achievement if only they get discovered, trained, and applied." They could not discover the special gifts and tendencies of individuals if the programme for all alike failed to represent the main varieties of intellectual activity, and so give to every faculty a chance of finding its proper exercise. Let them not overload the curriculum by multiplying the number of necessary subjects, but hold fast resolutely by the recognized and staple subjects which experience had shown to have the best formative value. Secure a definite proportion of hours to these subjects; and for the rest of the available time provide as many forms of intellectual and other activity as their appliances and their teaching staff had at command. There was no gift or fancy, however exceptional, for which the social organism could not find a use. They must not begin to specialize too early, but as the pupils drew nearer to the end of their school life opportunity should be found for making it clear that the conditions of success in after life were substantially the same as the conditions of success in the school.

Sir Joshua continued: One other necessary part of the equipment of a man for an honourable life is patriotism; and this is a sentiment which may be greatly encouraged before the youth leaves school to go out into the world. By this I do not mean that theatrical patriotism which finds expression in waving the Union Jack about or singing "Rule Britannia" in schools. Fourth of July celebrations, saluting the flag, and chanting patriotic songs may easily assume a degenerate form, and become unreal, boastful, stazy, and, to say the truth, a little vulgar. But a rational love and pride for our country, founded on some knowledge of the privileges we enjoy as Englishmen, and of the debt we owe those who won them for us, are necessary to every English citizen. In France and in Italy there is a stronger sense than in England of the value even in schools of what is called *l'instruction civique*. Paul Bert's well known book, bearing that title, has a series of striking lessons on the different branches of the public service—the Army; the civil administration; Parliament; courts of justice; the local magistracy; taxation; the conditions which determine wages; service on juries; the provision of public libraries, museums, and schools. On all these subjects it is possible to give interesting and effective lessons to elder scholars. The correlative claims and duties which citizenship involves, the obligation which the possession of great privileges in a free State imposes on all its members to do something for the community in return are matters which ought to be kept in view, in historical as well as in ethical and religious teaching. Ours is a democratic State, and is likely to become more democratic in the twentieth century than in the nineteenth. Many of the traditional objects of reverence which

were set before our fathers are losing their hold upon the popular imagination. The claims of high birth, rank, wealth, and official station to respect and deference impress the children of this generation less than heretofore. The relics of the feudal spirit which find expression in the injunction of the Church Catechism "to order myself lowly and reverently before my betters" are felt by all of us to be more difficult to enforce or even to explain satisfactorily to the boys and girls who now learn that formula by heart. It is of no use to bewail this. We must accept the facts, and try to make the best of them. Yet the faculty of reverence is not dead. There must be some object to call it into exercise, unless we are to shrink up into a poor, attenuated, and selfish life. And it will be some compensation, at least, for democratic change if it brings with it a stronger love of freedom, a higher conception of civic duty, a loyalty and devotion to the public interests, a willingness to offer personal service in such manifold forms as are prescribed in our modern civilization, by municipal life, the administration of charity, and efforts for social improvement. There is a higher kind of patriotism yet possible to us, even though it is to be nurtured under new conditions, and it is to be found in a growing sense among our people, of the responsibility of each one to contribute something to the greatness of the nation, in fidelity to duty, in helpfulness to others, in toleration, in self-cultivation, in being proud of his country and so ordering his life as to make the country proud of him. That is a true ideal of Christian democracy and of Christian manhood, which is embodied in the Divine saying: "If any one would be greatest among you, let him be your servant."

Finally, we need to be reminded that after all education is an inductive science—a science essentially dependent on observation and experience. And, as an inductive science, it is at present in a very early stage of development. In the history of science, we know that at first its votaries sought to interpret the secrets of nature, and set about the task by laying down first principles. Thales, Democritus, Heraclitus, and others, are all credited with theories which were supposed to account for some of the phenomena of nature. These philosophers treated natural science as Euclid treated geometry, with its complete deductive and logical apparatus of axioms, syllogisms, and demonstrations. And, when this method proved unsatisfying, Bacon, as you know, exhorted the student of nature to abandon hypotheses, to dismiss from his mind all *a priori* theories, and to have resort to the teaching of experience. Let us look these facts in the face, he said, and see what they have to say. Let us reserve our generalizations until we know more, and, even when we get them, let us accept them as provisional only, and be ready to find them absorbed and superseded some day by larger generalizations and by wider and more thorough research. And you know what vast and memorable results have followed from the frank acceptance of this principle by naturalists, by chemists, by geologists, and by workers in all fields of experimental science. But in education we have not yet got far beyond the first stage. We quote some sage or seer; we ask what doctrine Aristotle, or Quintilian, Socrates, Ascham, Locke, Rousseau, or Pestalozzi has laid down; and we seek to interpret the duties of our profession in the light of what some one of them has taught. So far we do well. We classify educational writers as Humanists or as Realists. We are Arnoldians, or Froebelian, or Herbartians, and we wish to walk worthy of the vocation wherein we are called. But there is yet need for a larger use of the Baconian induction. What, after all, has been the outcome of these theories? How do they fit the actual facts of experience and of life? If they will not stand this test, they may need to be revised or perhaps recalled altogether. For example, are the results of primary education on the intelligence, the conduct, and the manners of the rising generation all that we desired and hoped? If not, why not? Is any practical difference discernible in after life between boys educated on one system and on another? Have the efforts of religious bodies to attach young people to their several communions, by means of early enforcement of formularies and creeds, succeeded in their purpose? How much of the teaching enforced by authority—how much of that which we ourselves received—is found to have remained with us and has left a permanent mark for good on our character or our aims in life? What would be learned suppose we collated the autobiography of famous men, such as Gibbon, Wordsworth, and Coleridge, as to the effect of school lessons upon them, and the retrospect they indulged in afterwards? Is any difference to be detected in the pulpit or the bar between men classically and others scientifically trained? And as to teachers themselves: What is the influence of theoretic studies of the history and philosophy of education on the practical duty of the professors of that science, and how is it found to tell on the influence they exert on their pupils? We must have the courage to face these questions, and to accept the results when they are properly verified whether they confirm our preconceived theories or not.

The best and most fruitful discoveries in the science of education have yet to be made. Every schoolroom is a laboratory in which experiments are being tried. Every teacher has it in his power to contribute to the common stock of useful data on which we are to build the pedagogic philosophy of the future. And it is because I believe that a Winter Meeting like this, with all the stimulus it will give to new thought and to a wide comparison of experience, will greatly help towards the evolution of such a philosophy, that I gladly welcome the members of

the profession to London, and I look forward with high hopes to the complete success and abiding usefulness of the lectures, visits, and discussions which will occupy you during the next few days.

REVIEWS.

TEACHING AS AN ART.

- (1) *The Art of Teaching*. By David Salmon. (Longmans.)
- (2) *Psychology in the Schoolroom*. By T. F. G. Dexter, B.A., B.Sc., and A. H. Garlick. B.A. (Longmans.)
- (3) *Introduction to the Herbartian Principles of Teaching*. By Catherine I. Dodd. (Sonnenschein.)

† The appearance of three more volumes on the principles and art of teaching is significant.

The first, as its name implies, is a work chiefly on the practice of teaching. There are some valuable suggestions on the best ways to maintain order and attention, and on oral questioning, with an illustration of the Socratic method. The main part of the book deals with the various subjects usually taught in primary schools. With much of this we heartily agree. Nothing could be better, in the chapter on Literature, than "the curiosities of the journey must not make the pilgrim forget the shrine which he sets out to reach." Our classics are "not to be considered as an aggregation of lines to be parsed, analyzed, and paraphrased, allusions to be explained and words to be defined and traced to their roots"; but we do not agree with Mr. Salmon that "the trail of the examiner" is over nearly all recent school editions of our classics. On the contrary, we have noticed a great improvement in this respect lately, and, after all, there must be explanations, or the "shrine"—that is, the full appreciation of the work—will not be reached.

The second volume on our list is a more ambitious work. It is a handbook of physiology and psychology, with special application of each principle to the schoolroom. The work is elaborate and very carefully written. The authors are evidently well acquainted with recent writers on the subject, as Prof. Sully and Mr. Holman. We do not doubt that the book may be useful as a work of reference on particular points; but there are too many headlines, subdivisions, and tables to make it agreeable to read through.

Miss Dodd's interesting volume on the Herbartian Principles of Teaching is prefaced by an introduction by Prof. Rein, of Jena, who says that, though "it may appear a bold and futile undertaking to transplant Herbartian theories to English soil, . . . we welcome the present work as a valuable aid to the thoughtful teacher, who is not content with mechanical routine, but is resolved to undertake and pursue his professional task in the spirit of an artist." The one supreme aim of education, according to Herbart, is the development of moral character, and the expansion and treatment of this cardinal principle forms one of the chief aims of this book. The author, very wisely, does not encumber her work by a detailed account of Herbart's psychology; but, taking the three chief doctrines based on this psychology—(1) how to choose subject-matter for instruction, (2) how to connect it, (3) how to present it to the children—she expounds them in detail, with many interesting examples, and shows their possible application in English primary schools. With most of her conclusions and *dieta* most teachers will cordially agree, and few would rise from a perusal of her volume without feeling stimulated, and the richer for some practical suggestions (we hardly like to say "tips," but that is our meaning) on particular points in teaching. The account of work done in some Herbartian schools in Germany is a case in point; for instance, the teaching of arithmetic. The work is almost entirely oral; the children do not work out sums on paper. The boys work at the blackboard; "the master says very little. A lifting of the eyebrows, or a single word of encouragement or dissent, is sufficient. The boys state the difficulty and unravel it for themselves." The "backbone of the entire instruction" is history. We commend the chapters on the selection of historical material to all teachers, though we regret that we cannot present them with the "four hours a week" the system requires. We draw special attention to the scheme for treating Bible history side by side with secular history, and with attention to chronological development, and to the simple charts that are appended. We foresee objections to the section dealing with the correlation of kindred studies, or what the author calls "concentrated schemes." The lesson on the Spanish Armada—which, by the way, takes a whole term—is fascinating; but it

strikes us *prima facie* as a far cry to get a lesson on "the composition of flame" and "telegraph communication" out of it. We may say, in conclusion, that there is not a dull page in the book. We venture to say this because our readers know that books on Herbart are not always so interesting as they are doubtless meritorious.

"Mr. W. H."

A Life of William Shakespeare. By Sidney Lee. (Smith, Elder, & Co.).

Mr. Sidney Lee's "Life of Shakespeare" has already, by the date on which this notice appears, become a modern "classic." And has it not also been crowned by an enterprising literary kingmaker? Under the circumstances, therefore, it would be unnecessary to call particular attention to the book as a contribution to Shakespearean literature. Its interest, too, lies rather in the way in which it deals with old material than in any presentation of new.

Any surprise which might have been aroused by Mr. Lee's attitude toward certain controversial points arising out of Shakespeare's work was rather discounted—before the actual appearance of the book—by some of his later articles in the "Dictionary of National Biography"—notably by that on Thomas Thorpe the publisher. That Mr. Lee had thrown over the Pembroke theory of the sonnets was known; that he had reduced "Mr. W. H.'s" ingenious history to the tale of an obscure publisher's tout had agitated as much of the world as was liable to such agitation; and Mr. Sidney Lee, the Southamptonite, was already a recognized figure in the history of this most vexed of all literary questions. But, though it cannot be doubted that Mr. Lee feels himself to have all the reasons in the world for his dogmatism on the subject, his language is nevertheless bold beyond discretion. "The Pembroke theory," he says, "will henceforth be relegated, I trust, to the category of popular delusions." And again: "That Thorpe had no 'inspirer' in his mind when he addressed himself to 'Mr. W. H.' is finally proved by the circumstance that the only identifiable male 'inspirer' of the poems was the Earl of Southampton, to whom the initials 'W. H.' do not apply." Strong language, however, is not argument; and Mr. Lee's theory of William Hall, a scarcely known book agent, or rather, pirate, as the dedicatee, by Thorpe's agency, of the sonnets, has not convinced any one. Indeed, did the Southamptonites rest their contention on so flimsy a theory, they would be in a bad plight.

There really would not be so much importance in the fact that Mr. Lee has become an ardent Southamptonite, were it not that he—who is so anxious to redeem Shakespeare from the charge of dedicating his sonnets to Pembroke after swearing eternal devotion to Southampton—thereby makes out Shakespeare to be as insincere and bombastic a versifier as the worst of his age. In his chapters on "the borrowed conceits of the sonnets" and "the patronage of the Earl of Southampton," he leaves Shakespeare with but little to boast. He practically would show that no spark of genuine sentiment shines in the greater part of the sonnets, and that the whole is a rhetorico-poetical exercise like the works of some inferior Daniel or Drayton, or of a Barnabe Barnes—who, forsooth, is the "better spirit," the vessel "of tall building and of goodly pride." What?

Was it the full proud sail of his great verse . . .
Was it his spirit, by spirits taught to write
Above a mortal pitch, that struck me dead?

Is this then Barnabe Barnes? No! Let us leave Shakespeare some literary judgment.

Enough has been said to show that Mr. Lee's "Life of Shakespeare" is no dull dishing-up of accepted commonplaces. It will be read in many different ways, and we think that few will accept the conclusions as a whole. But undoubtedly the work is one of very conspicuous merit, and, where dangerous controversies do not lead the author into perilous situations, the learning and knowledge of the period displayed compel admiration. The account of the poet's life and the history of his dramatic works, the description of Shakespearean remains, the bibliography, and the collection of opinions from all sources on Shakespeare's genius, all these go to make up a creditable piece of work. And, as to the points on which Mr. Lee is likely to rouse most opposition, is it not true that controversial writings are generally the most interesting?

NATIONAL BIOGRAPHY.

Dictionary of National Biography. Edited by Sidney Lee. Vols. LV.-LVII.: Stow-Tytler. (Smith, Elder, & Co.)

These three volumes deal with a long roll of more or less distinguished English men and women—Stricklands and Stuarts and Swifts and Sydenhams, Talbots and Taylors and Temples, Tennysons, Thackerays, Thomsons, and some fifteen hundred more. The value and interest of the Dictionary may be said to consist as much in the brief notices of almost unknown or forgotten people, on whom recent research has thrown fresh light, as in the long biographies of famous people, with whose lives and deeds we are familiar. In many instances, no doubt, the best existing biographies of well known Englishmen, Scotchmen, and Irishmen are to be found in these volumes, and unquestionably we could scarcely wish for better lives than those of John Tyndall by his widow, of Swift and Thackeray by Mr. Leslie Stephen, and of Tennyson by Canon Ainger; but, taking these somewhat for granted, the importance of the minor notices deserves to be fully recognized. We light upon one by hazard, the five columns devoted by Mr. Seccombe to John Thelwall, who, just a hundred years ago, was in great trouble as a reformer, being unable to re-act and recant after the excesses of the French Revolution, and falling a victim, in consequence, to the anti-secession laws of Pitt. He was tried more than once, but always acquitted. In 1794 Erskine defended him at the Old Bailey. Thelwall had handed a pencilled note to his counsel, saying he wished to plead his own cause. "If you do, you will be hanged," was Erskine's reply; to which he rejoined: "Then I'll be hanged if I do." In 1798 he withdrew from active politics, not because he had changed his opinions, but because he had a wife and children to support, and set up as a lecturer on elocution. In this line he had considerable success, especially amongst barristers and clergymen.

He made the acquaintance of Southey, Hazlitt, and Coleridge (who spoke of him as an honest man, with the additional rare distinction of having nearly been hanged), and also of Talfourd, Crabb Robinson and Charles Lamb. From the ordinary groove of elocutionary teaching, Thelwall gradually concentrated his attention upon the cure of stammering, and more generally upon the correction of defects arising from malformation of the organs of speech. In 1809 he took a large house in Lincoln's Inn Fields (No. 57) so that he might take complete charge of patients, holding that the science of correcting impediments involved the correcting and regulating of the whole mental and moral habit of the pupil. His system had a remarkable success. . . . Crabb Robinson visited his institution on December 27, 1815, and was tickled by Thelwall's idea of having Milton's "Comus" recited by a troupe of stutters, but was astonished at the results attained.

Thelwall's eldest son, Algernon Sydney Thelwall (1795-1863), went to Cambridge and took orders, was minister of Bedford Chapel, and after his father's death became well known as a lecturer on public reading and elocution at King's College, London, where he was succeeded by the late Mr. D'Orsey.

Another short biography, taken from the end of the last volume, is Mr. James Tait's Wat Tyler, the record of this famous rebel furnishing a good instance of the scrupulous watchfulness displayed by the contributors to the Dictionary. Mr. Tait has based his notice on the sixteenth-century transcript of the anonymous chronicle once belonging to St. Mary's Abbey at York, which was first printed in the *English Historical Review* of July, 1898, and which was noticed six months ago in the *Educational Times* as an important historical document. Perhaps Mr. Tait might have secured another column or two for his life of the Tyler—if he was a tiler, and not merely Wat Hegheler. The known events of his career could scarcely be increased in bulk; but it is just in such cases as this that we may fairly expect to see biography expanded and supported by history, and the motive springs of the Kentishman's fatal expedition to London belong to a range of facts which still demand elucidation.

A Manual of Psychology, Vol. I. By G. F. Stout, M.A., Editor of *Mind*, &c. (University Correspondence College Press.)

Mr. Stout has been very favourably known for many years past as a diligent and acute student and teacher of psychology and the cognate sciences. From Cambridge he was drawn to Aberdeen to lecture specially on Comparative Psychology, and recently he was summoned to Oxford as a Reader in the same science. These migrations, indeed, are very natural for the man who was selected to fill the shoes of the late Prof. Croom Robertson as Editor of *Mind*—a technical periodical to which he had long been a valued contributor. Mr. Stout's work on "Ana-

lytic Psychology," which distinctly raised his reputation, is frequently quoted in the present volume. This "Manual" will be found to be adapted with the skill of a practical teacher to the needs of the student. Mr. Stout aims at imparting "a real interest in the subject." The beginner, he says, "ought to be able to do riders in psychology as he does riders in Euclid"; he ought to be "able to live himself into psychological problems." Yes, but still he must have a little time to familiarize himself with the special environment; and, probably, there is no element in Mr. Stout's book that will be more helpful to him than the careful definition and illustration of terms, which will bring his thoughts to anchor, and prevent them from wandering vaguely and unprofitably. He will always be able to know where he is, with precision. Such a quality of a scientific book might be expected, but it is not always safe to take it for granted in psychology or elsewhere.

Mr. Stout follows the order of mental development. The earlier stages are illustrated from the mental life of animals; the phases of ideal construction of self and the world, from the mental condition of the lower human races. The illustration is fairly full, considering the limits of space. After preliminary chapters on the scope, data, and methods of the science, and on the relation of body and mind, Mr. Stout presents a general analysis, and then deals with Sensation, the treatment of which occupies the final half of this first volume. On the very exacting question of the immediate connexion between conscious and nervous process, Mr. Stout rather summarily rejects the theory of materialism, and prefers psycho-physical parallelism to interaction as a working hypothesis, with frank admission of the attendant difficulties. Very well; there is no better plan than to indicate exactly the various attitudes of inquirers, and to state explicitly your own preference, and proceed to work out the problem on your own hypothesis. There is no possible settlement so long as any plausible hypothesis has not received adequate examination. Probably the Associationists will have something to say by way of modification of Mr. Stout's destructive criticism on the basis of J. S. Mill's incidental doctrine of "mental chemistry." The point needs more ample treatment, though Mr. Stout makes his own view clear enough. What is consciousness? Mr. Stout firmly puts aside divergent views and affirms definitely that "consciousness includes not only awareness of our own states, but those states themselves, whether we have cognizance of them or not." Thus: "If a man is angry, that is a state of consciousness, even though he does not know that he is angry." But is not this a question of naming? The man is conscious of his state, knowing that it is so and so; you call it angry, he may call it calm. Anyhow, beginners are apt to find difficulty in consciousness without cognizance. The physical side of sensation is ably treated, with constant reference to the best English and German investigations. There is no attempt at any charm of style beyond lucidity, but students ought to be well pleased when they get that primary virtue in their text-book.

RICHARD AND SALADIN.

"Heroes of the Nations."—Edited by Evelyn Abbott, M.A. *Saladin and the Fall of the Kingdom of Jerusalem.* By Stanley Lane-Poole, M.A. (G. P. Putnam's Sons.)

Every Englishman—at least, every English reader of Scott—knows Saladin very well. His name inevitably recalls that of Richard Cœur de Lion; and, to some of us, it will recall the picture of a ghastly feast from which the Moslem leaders went away somewhat worse than unsatisfied, with hearts full of natural bitterness against their Christian foes. But, if this is the measure of our knowledge, we have nothing to boast of except romance and fable. Prof. Lane Poole is here to give us ascertained facts as to El Melik en Nasir Sala-ed-din Yusuf ibn Ayyub, whose style and title we abbreviate into Saladin, and who bore the brunt of the Crusaders' attack in the Holy War of 1187-1191. The author has a chapter on "Saladin in Romance," in which he estimates the historical significance of the Cœur de Lion cycle in earlier and later romance; but his main object is to record history from authentic sources, and he has done this with great success and interest. Four introductory chapters tell of Saladin's world, of the first crusade in 1098, and of the series of events ending with the fall of Edessa, and the attempt of Zenghy the Atabeg to build up a Syrian Empire. We then come to the youth and early manhood of Saladin, the conquest of Egypt, Syria, and Mesopotamia, until Richard appears on the scene. From Jerusalem to Tyre, Acre, Jaffa, the narrative takes us over the ground of the memorable invasion of Pales-

tine by the "Franks," ending in the failure of the latter before the walls of Jerusalem and their disastrous retreat—compensated for the English by Richard's splendid rescue of the garrison of Jaffa.

To land in face of the Saracen army, if nothing was left to be rescued, was an adventure too foolhardy even for Cœur de Lion. In this uncertainty and dismay, his quick eye caught sight of a man who plunged boldly from the castle into the sea, and swam lustily towards the fleet. He was soon pulled on board, and proved to be a priest. "O noble King," he panted, "the remnant hunger for thy coming. They are borne down by the brandished swords of yonder butchers; their necks are stretched out as sheep for the slaughter; they will perish on the spot unless God helps them through thee." And he showed the King where the garrison still stood at bay "in front of yonder tower." That was enough for Richard: "Perish the hindmost!" he shouted, and the King's red galley pulled hard for the shore. Ere it was beached, Richard was up to his middle in the sea; his knights leaped after him, and they set upon the Saracens with might and main. Right and left the King laid men low with swingeing blows from his famous Danish axe. The Moslems scattered in all directions, the beach was cleared: "under my very eyes" says the astonished secretary, "they drove us out of the harbour." Up a stairway of the Templars' house the King rushed alone, and, in an instant, the English flag was waving on the walls, a signal of salvation to the garrison. Down they came at the charge, and, meeting their deliverer hacking with his sword, as only Richard knew how to do, they all joined together, and soon there was not a live Moslem in the streets.

Clearly the Lion-heart has not been overlauded. The story of his prowess is interwoven with the biography of his chivalrous enemy, and the whole narrative is very pleasant reading.

WINDOWS OF THE SOUL.

The Five Windows of the Soul; or, Thoughts on Perceiving. By E. H. Aitken. (John Murray.)

The first thing that strikes one in this volume is the charm of the style, and it is sustained with even mastery to the last page. Closely allied with this is a complete grasp of the materials and a clear conception of purpose. Even if the author did not tell us that fifteen years had elapsed since he caught the germ of the book, one would necessarily infer that the subject had long been turning over in his mind. The fruitful germ was a remark that beauty might be defined in terms of motion—a remark by no means original, but striking, as it so happened, at the psychological moment. "Dwelling on the idea that all 'taste' is essentially a perception of truth," says Mr. Aitken, "I came to link the highest intuitions of human genius with the dim perceptions of the worm that gropes its way through the ground under our feet, and to regard as one and the same thing that wonderful faculty by which each sentient creature, according to the measure of its capacity, feels, tastes, smells, hears, sees, or otherwise apprehends the facts of its environment. From this point of view all creation assumed an aspect which was novel to me, and very impressive." The main originality of the matter, to our mind, is the manner in which Mr. Aitken has worked out his exposition—the judicious selection of points, the deft presentation of the subject, and the fine tone of the workmanship. Mr. Aitken does not profess to give anything like an exhaustive account of the senses. "Indeed," he says, "my aim has not been to give an account of anything, but to present some familiar things in an aspect which is, perhaps, not familiar, and to impart a fuller meaning to the common use of that class of words which we borrow from our senses and apply to higher purposes." The book is in no sense a text-book; but it is a capital book for collateral reading, and, in fact, is admirably calculated to inspire and foster, not merely an interest in science, but also intelligent speculation on the immediate facts, whatever be the particular branch of study. As Mr. Aitken passes upwards in the scale of development in each of the senses, he unrolls, with strikingly suggestive commentary, a marvellous panorama of mysterious craftsmanship, familiar, yet largely unexplained. It is unnecessary to dwell on particular points; but perhaps there is nothing more engaging than his account of the variety of the effects of music on different animals at the Zoological Gardens. After all, what he is most concerned for is not any matter of description, but rather the moral or spiritual bearing of the physical facts. If the stricter scientists may quarrel with him for confounding the boundaries of pegged-out claims, yet the confusion may well be condoned for its suggestive interest. In his last chapter Mr. Aitken rises to the formal antithesis of right and wrong as discriminated by the moral sense; but he has already discerned the working of the opposing principles from the very beginnings of rudimentary sense organs of every kind.

GENERAL NOTICES.

CLASSICS.

Attic Sentence Construction, by G. Murray (Glasgow: MacLehose), is a brief pamphlet in tabular form, in which Professor Murray "attempts to give an outline of all normal forms of Attic sentence construction." The grouping of the constructions is very well managed, and as an outline of syntax the rules should be of value to students. But Prof. Murray very properly hints that for junior students a lecturer or master will be necessary, for his rules will certainly be beyond the comprehension of beginners in Greek syntax. We venture one word of criticism. It does not seem to us that the usage of Attic prose in the construction of questions in reported speech is clearly or sufficiently dealt with. Prof. Murray says only that rhetorical or unreal questions are put into the infinitive; but (1) does that form of question appear with anything like frequency in Attic prose? (2) What happens to real questions? In other words, how do you put into the indirect form the question that we are here writing?

The *Tutorial Greek Reader* (Clive & Co.) appears in a second and enlarged edition. There are a number of somewhat harder extracts and an appendix containing pieces set in the London Matriculation. The *Tutorial Latin Grammar*, issued by the same publishers, has reached its third edition, which is sufficient proof that the book possesses merit. The book is based on Neue, Dräger, Roby, and Lewis and Short. It is strange not to find the names of Riemann, Schmalz, and Gildersleeve in the list of authorities. The rules are conveniently arranged, but here and there we miss an important point. Thus, for instance, we cannot find any notice of the Ciceronian construction *antequam dico*, or any reference to the rules respecting the hypothetical pluperfect subjunctive when it becomes dependent on *ut*. In the latter case our inability may be due only to the index.

Greek Test Papers, by J. Moir (Blackwood), is a series of graduated question papers designed chiefly for candidates for the Scotch examinations. The fact that the editor writes with thirty years' experience of teaching is a sufficient guarantee for the quality of his work.

Messrs. Blackie have issued a fourpenny collection of *Latin Unseens* (Intermediate Section). The plan presumably works well; but for ourselves we do not like the classics in this form. It is, however, a very good four-penn'orth, and nobody who uses it need scruple to fling it on the fire after he has had enough.

Cornelius Nepos, Vol. I., by H. Wilkinson (Macmillan), is the beginning of a complete edition of Nepos in the "Elementary Series." The vocabulary is a good one, and the notes are simple and adequate. The book is really suitable for beginners. In the same series we have *Pliny's Letters*, I.-XII., by C. J. Phillips. The subject does not seem to us well suited to beginners. The notes are of necessity largely concerned with antiquarian matters, and we think that a perusal of this volume will leave the young pupil very little—if at all—advanced in his knowledge of Latin. We do not see the use of long notes on such words as *sponsalia* and *triclinia* in such a series as that to which the volume belongs.

FRENCH.

Practical French Course for Beginners. By S. Conrad. (Simpkin, Marshall, & Co.)

We hasten to warn our readers that there is little in this volume to bear out the statement that it is a step in the "New" (title page) or "Newer" (cover) direction, if this is meant to indicate the New Method of the Continental "reformers." The very first page (on Pronunciation) is hopelessly wrong. The lessons are very much the same as in twenty other elementary grammars: rules first, examples afterwards, translation into French at the very beginning; an unwieldy vocabulary, without sufficient repetition. The printing is good, the paper flimsy.

French Commercial Correspondence. Preliminary Course. By L. Soleil. (Kegan Paul.)

M. Soleil thinks "that, provided a very easy and strictly elementary book be used, there is no reason why a boy should not commence his study of commercial French as soon as that of the grammar of the language." We trust that teachers will see fit to put off the evil day, and try to imbue their pupils with literature while they can. They should not allow themselves to be tempted by this well arranged and handy "Preliminary Course" to spend time over commercial correspondence, which is, indeed, outside the curriculum of any school that prides itself on giving a liberal education, and does not cram for any particular profession. For commercial schools the book may be recommended.

The Junior Student's Vade Mecum to His Studies in French. (The Manchester Clerical, Medical, and Scholastic Association.)

From the preface we learn that "in both construction and form it is unique and copyright." The latter is no great distinction, and "unique" may imply blame as well as praise. It is a cram book, and we trust that there will not be many junior students who grasp at it as a last resource.

GERMAN.

Die Schwierigkeiten unserer Muttersprache. By Bennowitz and Link. (Leipzig: G. A. Gloeckner.)

The increased attention given in this country to German composition, alike for academic and commercial purposes, should give circulation here to a concise, clearly written manual, which sets forth the requirements of a pure, idiomatic modern style of writing by reference in particular to the deterioration of the language in the hands of Government officials, journalists, and traders, and discriminates from the point of view of a purist the principles applicable to doubtful and difficult points. Such a book in its German dress may well attract the attention of teachers and corresponding clerks, and should be used alongside of the school manuals of grammar, and especially of manuals of commercial German, such as the books of Bemschel, Preisinger, and Bally, which more or less faithfully reproduce most of the weaknesses here exposed.

We are told that the South German, when speaking of his salary, ignores the correct masculine gender of "Gehalt," and, to the confusion of meaning, that one must not let pass the not unusual plural forms—"Geschafter" and "Collis"; that some newspapers would lead their readers to accept the weak declension for "Wirt"; that Goethe's "Leiden des jungen Werthers" should not now pass muster; that "Generale" should not be modified, as given in Otto (South German). Under the verb, we may call attention to the remarks on "wiegen" and "wagen," the faulty newspaper treatment of participles, the Swiss and Austrian treatment of separable forms, the misuse of the dative case by commission agents, &c., who are Polish Jews; and the frequent confusion of "lehren" and "lernen." We think, however, that the objection offered to "einen Wechsel begeben," for which the writers would use "verkaufen," alone is needless—British traders will always speak of "negotiating" a bill. Under prepositions, good remarks may be found on the uses of "von," instead of the genitive. Under syntax, right use of the subjunctive mood is well stated, although difference of judgment might be evoked by the application made of the rule to newspaper reports. So too for common faulty adverbial complements as in "ein Bewerber um die Stelle." We may note also the discrimination of the pronouns "welcher," "der," in regard of conjoined relative clauses, one of which is subordinate to the other; and the absurd use made of such forms as "einliegend," "beigefaltet," &c., when really qualifying the writer or recipient of a letter. Occasional expressions are criticized, which, we think, will be persistent; such as "ueberrreichen" ("hand over"). The inversion of a verb after "und," which is seldom noticed in other books, is here helpfully discussed. The needless use of certain foreign words is taken up towards the end of the volume. We agree with the writers that commercial schools should be looked to for the correction of much that is here criticized.

German Passages for Unprepared Translation. Selected by E. Ehrke. (Clarendon Press.)

A book of this kind was badly needed; one had, indeed, been published some years ago, but it was disfigured by many misprints. This volume is carefully printed; it is, however, time the Clarendon Press discarded this old-fashioned and worn fount of type. Herr Ehrke has made a very good selection. The passages are all in prose, and are taken from the eighteenth-century classics and more recent writers. It seems a pity that no sixteenth-century German was included, and that there are no specimens of modern dialect writings; both are extremely useful in the case of advanced students. With this reservation, we have nothing but praise for the book.

Object Lessons in German. By J. J. Trotter. (Nelson.)

This volume, which "can be used along with a first German course," is based on M. Alec Cran's "Object Lessons in French," and we must express our regret that the value of this book also is greatly diminished by the presence in the text of numerous suggestions intended for the teacher only. The translation has been well done, though there are some slips. The dialogue is good, but too many words are introduced; the usual failing of such books is the attempt to make the vocabulary "exhaustive." A few remarks we have jotted down: we have never found it "advisable" to teach pupils to call each other "Sie" (page 7); are boys' coats usually lined with silk? (page 20); "Niemand" should be "niemand" (page 22); a boy is told (in the book, page 24) to put on his cap, and then explains that he did it unthinkingly; "Basen" is not poetical (page 31); the window on page 35 is said to have six panes, that on page 41 eight, but the pictures do not agree with this; "Gesammt-" should be "Gesamt-" (page 41); something is wrong with the picture on page 45 (the boy is said to have eaten his soup, but has apparently done so without disturbing his napkin, which lies carefully folded between knife and fork), &c. In the hands of a good teacher the book may prove useful.

MISCELLANEOUS.

The Romance of the House of Savoy (1003-1519). By Alethea Weil. Two vols. (G. P. Putnam's Sons.)

The title of Mrs. Weil's charming volumes is thoroughly appropriate to their subject. Few royal houses have had a more romantic history, and the records here brought together in a most attractive summary will be very welcome to English readers, who will find much that is

new to them. The text is adorned by an unusually large number of excellent portraits and other illustrations. Some of the portraits of the old Counts of Savoy are "designed by F. T. D. Lange from contemporary or early sources"—that is to say, they are not fully authentic, but only the artist's conception, from coins and other evidence, of what the originals must have looked like. Many "historical" portraits, not to mention Wardour Street "ancestors," have no better authority. But it is the text of this story which will be its best recommendation.

Trigonometry at a Glance: a Graphic Demonstration of the Various Functions. By G. W. Usill and F. J. Browne. (Philip & Son.)

A convenient folding-card to illustrate the trigonometrical ratios of an angle, by means of a travelling radius and two complementary right-angled triangles. The title implies rather too much; but the device is ingenious.

From Messrs. W. Collins & Sons, we have their *New Academic Atlas*, containing forty-eight full-page maps of modern geography, together with a concise gazetteer of the world; and a *New Advanced Atlas*, with the same maps, but without the gazetteer. Both works are well and clearly printed, and will be found very serviceable.

Prophets of the Century: Essays. Edited by Arthur Rickett, M.A. (Ward, Lock, & Co.)

The modern sages commemorated by Mr. Rickett and his friends are Wordsworth, Shelley, Carlyle, Emerson, Tennyson, Browning, George Eliot, Ruskin, Whitman, William Morris, Tolstoy, and Ibsen. We do not quarrel with the selection. The prophet, as Mr. Lilley says in his essay on Shelley, "is a moral pioneer." The world "is wise, or, at least, prudent. It does not follow the pioneer at once; it waits till he has justified himself. . . . His contemporaries will not or cannot understand him. They often distort, they always resent, his message. It is another generation that gets hold of his meaning." The words are more applicable to Shelley than to some of the men above mentioned, whose message was assuredly not resented by their contemporaries. These twelve essays are all well written, and the editor has made a very good choice of his collaborators, who have combined to produce an admirable group of biographical studies.

An Introduction to the Study of the Renaissance. By Lilian F. Field. (Smith, Elder, & Co.)

Miss Field has performed her task in excellent fashion. Her summary of reaction, revival, and renaissance in European learning, literature, and the arts, which led the world back from the dark to the dazzling ages of human thought and achievement, has been made with great care and considerable scholarship and judgment. It is a very commendable *résumé* of the main features of three or four centuries, ending with the sixteenth, and may safely be adopted as an "Introduction," if not as a student's handbook of intellectual development during the period indicated.

Handbook for Literary and Debating Societies. By Laurence M. Gibson, M.A. (Hodder and Stoughton.)

A very helpful book for debaters. Mr. Gibson gives brief directions for the conduct of a public meeting, a large number of subjects and skeleton debates, and a list of references for each subject. As the arguments are arranged *pro* and *contra*, and, as Mr. Gibson is competent for what he has undertaken, it is clear that this book is the very thing that a young debater, or a young essay-writer, mostly needs.

New Methods in Education: Art Real Manual Training Nature Study. By J. Liberty Tadd. (Sampson Low & Co.)

This large and copiously illustrated volume, printed in America, is introduced to us by the English publisher apparently in an experimental mood, by way of discovering whether it is likely to meet a want on this side of the Atlantic. We are bound to say that in the course of the past year or two we have noticed three or four practical and thoroughly artistic works of English origin going over much the same ground, and, in all impartiality, we cannot say that Mr. Tadd's somewhat costly volume has any claim to be preferred to them. Blackboard class-training in freehand line-drawing is no new method in English education. In the absence of other manuals no doubt this one has real merits, but there is no want for it to meet.

WE HAVE ALSO RECEIVED the following publications and new editions:—

Picture Logic: An Attempt to Popularize the Science of Reasoning by the Combination of Humorous Pictures with Examples of Reasoning taken from Daily Life, by A. J. Swinburne, B.A. (Longmans)—a sixth edition of an ingenious and shrewd simplification of logic.

The Theory and Practice of Handwriting: A Manual for School Boards, Teachers, and Students, with Diagrams and Illustrations, by John Jackson (Sampson Low, Marston, & Co.)—the fourth edition of a serviceable work, with a new chapter on "Ambidexterity."

"Blackwood's School Shakespeare."—*Julius Cæsar*, with Introduction, Notes, and Glossary, by R. Brimley Johnson (Blackwood & Sons). "The Pitt Press Shakespeare."—*King Richard II.*, by A. W. Verity, M.A. (Cambridge University Press).

Short Studies of Shakespeare's Plays, by Cyril Ransome, M.A. (Macmillan)—simple and popular expositions, very helpful to young students.

The Lays of Ancient Rome and other Poems by Lord Macaulay, edited,

with Introduction and Notes, by J. H. Flather, M.A. (Cambridge University Press)—a very good school edition.

A Practical Method of Teaching Geography (England and Wales), by J. H. Overton (Cassell & Co.)—a series of twenty-two outline and partially detailed maps, well calculated to impress upon an English or Welsh boy a definite picture of his native country.

Examples in An Arithmetic for Schools, by S. Loney, M.A. (Macmillan)—an excellent and comprehensive collection with-out answers.

Mathematical Tables for the Use of Students in Technical Schools and Colleges, by J. P. Wrasop, B.A., and W. W. Haldane Gee, B.Sc. (Macmillan)—a well printed thin volume of four-place logarithms, weights and measures, and trigonometrical tables.

School Arithmetic for Course B, Standards I. and II. (Blackie & Son).

Attractive Work: Floral Designs and Telling Stories (C. A. Pearson)—faintly printed designs for colouring.

Handbooks.—*The Rutlish Geography Readers, Part VI: Geography of Greater Britain* (Blackie & Son)—good reading, well illustrated.—*Introduction to English Literature, from Macmillan's Advanced Reader,* (Macmillan)—elementary and thin, but generally correct.—*Poetry for Children, Books I. to VI.* in penny parts, and the six parts in one (Cassell & Co.)—a skilful selection of light and often humorous pieces.—"Ship" Literary Readers: *Introductory Reader to Standard I.* (Longmans)—Macmillan's *New Literary Readers, Standard 0* (Macmillan)—we do not like the use of the term "literary" for such very elementary readers as the two last mentioned.—*Things of Every Day: a Popular Science Reader on some Common Things* (Blackwood & Sons)—selected portions of Prof. Johnston's "Chemistry of Common Life," thoroughly adapted as a natural science reading-book.

Stormonth's Handy School Dictionary, Pronouncing and Explanatory (Blackwood & Sons)—a new and revised edition, by William Bayne, of a very useful little dictionary for schools.

"Sullivan's School Series.—*Modern Geography* (Longmans)—a compact little volume, all short statements and lists, somewhat approximating to "cram."

Happiness, by Lucy H. M. Soulsby (Longmans)—one of the author's sensible chats for girls, very comprehensive in its illustrations and references.

Amongst Readers, we have the following: *The Newton Object-Lesson Handbook, Part I.* (Blackie & Son)—illustrated and interleaved with ruled paper; a companion to the "Newton Object-Lesson."

CORRESPONDENCE.

LIMITS OF SANITARY INSPECTION.

To the Editor of the Educational Times.

SIR,—The recent decision of the High Court in the case of the Vestry of St. Pancras and the North London Collegiate School for Girls turns upon the claim made by the Vestry as the sanitary authority for an unconditional right of entry, without assigning cause, into every building in the parish. The Court has decided, as the magistrate had previously held, that the right of entry is conditional upon the existence of reasonable cause. The decision has as much reference to private houses as to the North London School, but out of it arises a question of public policy affecting secondary schools.

The governors of the school would have made no objection to the ordinary inspection of drains and the sanitary works connected with them. They would not even have opposed a house-to-house sanitary inspection in the locality. The Health Committee of the Vestry of St. Pancras, however, were aiming not at a house-to-house inspection, but at a school-to-school inspection. Now, school inspection for sanitary purposes involves the assumption of control over methods of ventilation, the ratio of numbers to cubic space in class-rooms, and other details, all fit subjects for proper investigation, but the regulation of which by a vestry inspector (not even the medical officer of health himself), whose official experience is of factories and workshops, not of schools, has never yet been contemplated by any Act of Parliament. The Public Health Act deals with schools only as included under the term "house," but the Vestry has been engaged in an attempt to use the powers of the Act with a liberal interpretation of Section 1, so as to take upon itself the sanitary inspection of schools, as if they were in the same legal category as factories or common lodging houses. The Vestry might with equal reason claim control over the number of guests at a private party and the ventilation of the reception rooms.

Thus the question which the school authorities had to decide was whether they would—by allowing the Vestry to inspect, as a right, in this fashion, the largest and most important secondary school in the parish—aid it towards the acquisition of power in the management of secondary schools beyond its legal rights. We do not for a moment dispute the proposition that there should be some public inspection and control of schools as schools, whether public or private, as to their sanitary condition, with a right of entry more absolute than that given to the Vestry for ordinary houses, and even with a right to make "surprise

visits." What we do dispute is that the Vestry is a suitable authority for this purpose. The school sanitary inspector should have special acquaintance with schools as well as with health. The Vestry has no fitness for the selection of such experts, and the area within its jurisdiction is too small for it to employ one in addition to its other sanitary officers. Nor is it in any degree qualified to draw up school regulations.

The Royal Commission on Secondary Education, 1895, made a definite recommendation on the subject of sanitary inspection, which we hope may be carried into effect in the Government Bills of next Session. It is as follows:—

"We accordingly recommend that the Local Authority be empowered to cause all schools, whether endowed (or in any sense public), proprietary, or private, within its area, to be inspected as respects the sanitary condition of their buildings and class-rooms, and to require them to conform to such general regulations for securing health as may be issued by the Central Office."

The Local Authority and Central Office here mentioned are the Local and Central Educational Authorities respectively, the establishment of which for all purposes of educational organization was contemplated by the Commissioners. The area of this Local Authority was to be no less than that of the administrative county. Nevertheless, the Commissioners thought it expedient to entrust the making of regulations not to the Local Authority, but to the Central Office.

The compulsory sanitary inspection of schools, judiciously guarded as the Commissioners recommend, would be welcomed by governing bodies and heads of schools generally. The Education Bill that was introduced last Session by Colonel Lockwood, and understood to be approved in its general features by the associations representing heads of secondary schools, contained the following clauses:—

"(1) It shall be the duty of the Education Department to cause a sanitary inspection of every school in England, not being a public elementary school, to be made as soon as may be after the passing of this Act, and afterwards at such intervals and times as they may think fit in each case.

"(2) Any person appointed by the Education Department to make a sanitary inspection under this Act on their behalf of any school may for that purpose enter the school premises at any reasonable time, and do all things necessary for making an effective inspection."

We ourselves prefer the solution suggested by the Commissioners to that of Colonel Lockwood's Bill; but we quote the above clauses in evidence of the fact that educational opinion is clear as to the need of school sanitary inspection, and equally clear as to the qualifications requisite in the authority to which it is entrusted.

Having a very clear conscience as to the sanitation of the North London Collegiate School, every point of which was carefully considered by its enlightened founder, Miss Francis Mary Buss, with the aid of skilled advisers, and has been diligently watched down to the present day, the governors of the school do not regret that it fell to them to maintain the claim of the secondary schools in general that the control of their sanitation should not fall into the hands of an authority neither posse-sing, nor designed by the Legislature to possess, the special knowledge necessary for the due exercise of such control.—We are, Sir, yours faithfully,

WILLIAM LATHAM, *Chairman of the Governors.*
SOPHIE BRYANT, *Headmistress.*

North London Collegiate School for Girls,
Camden Road, N.W., January 23, 1899.

THE WINTER MEETING.—SIR EDWARD CLARKE ON SHORTHAND.

To the Editor of the Educational Times.

SIR,—As a practical teacher of shorthand of fourteen years' experience, I may, perhaps, be allowed to make a few remarks on Sir Edward Clarke's "Lesson in Shorthand" at the College of Preceptors. The system Sir Edward uses, and which he brought before his audience, was "Harding's Improvement of Taylor." Taylor's system was published in 1786, and Harding's "Improvement" in 1823. The Taylor system in one form or another was almost the only one in general use in this country in the early part of the century. It has been adopted, sometimes modified, in many other countries, and a vast amount of excellent work is being done with it to-day by professional reporters and shorthand writers in London and many other European capitals. It is not generally known that Pitman's first edition, 1837, was issued as this system further "improved," the indebtedness of the author to Taylor and Harding being stated on the title-page. It was suggested to young Mr. Pitman that he would do better commercially by altering it further (Taylor's copyright having expired), altering the name, and calling it his own. These suggestions he adopted. These facts are all plainly stated in his own middle-life publications.

I am one of those who, having gone into the matter very carefully, and formed a judgment upon a great mass of evidence, agree with Sir Edward and those who supported him, that Pitman's "improvements" were—taken in the aggregate, and viewed from the standpoint

of the general writer—no improvements at all, but, on the contrary, converted a very simple and easily handled machine into one of extraordinary complexity, which the vast majority of those who attempt it sooner or later give up as being beyond their powers to master. At the same time, I am bound to admit that, if, in choosing a system for schools, I were limited to a simple Taylor system and Pitman's extremely complicated "improved" Taylor, I would elect the latter, as having a fine set of text-books, good ranges of exercises, a wide literature, and many other great aids to the teacher and learner. There is no one to carry on the propaganda of copyright-expired systems like Taylor and Gurney in the way in which the Pitman firm continues the propaganda of Sir Isaac.

But then we come to the question: Is the choice thus limited? While agreeing with Sir Edward in some of his contentions, I side with his critic the *Daily News* in saying that his "Shorthand in One Lesson" was a snare. The simplicity was got by practically disregarding the vowels (without which the "skeletons" of words are dead). Taylor, both in its original form and as "improved" successively by Harding and Pitman, is mainly consonantal. Now, with consonant-skeletons, it is possible to take notes which may be "deciphered" with more or less ease by the writer himself while the subject is still fresh in his mind, but how difficult such notes are to read after any lapse of time may be instantly proved by any one who will take any passage from any source and convert it into "skeletons." I open a popular poet at random and I take half-a-dozen lines that meet my eye:—

"t v chldhd nt mnhd
n hd grn m hwth
skld n l dh krft v hntrs
lrnd n l dh lr v ldmn
n l ythfl sprts nd pstm
n l mnl rts nd lbsr."

Now this is a perfectly fair average example. I do not say it is impossible to decipher it, but I say it is quite impossible to read it with any degree of certainty and fluency. As to fluency, why, the very first letter is a poser. There are at least fourteen words of which "t" is the skeleton. There are at least twelve more of which "v" is the skeleton, so that between the first two words alone there are 14 x 12, or 168, possible readings; for any one of the first may be tried with any one of the second. Then, as to certainty, is "mnl" "manual," "menial," "mainly," "meanly," or "manilla"? The Pitmans publish a "Reporter's Assistant" to the solution of such problems, but I never yet knew the schoolboy who had any decent command of one-tenth of its eighty closely packed pages. Sir Edward Clarke is a man of exceptional intellect; he has an exceptional command of the English language. I endorse the remark made to me many years ago by a very experienced shorthand teacher—master of many systems, who was then teaching Taylor's to some local pupils—"those consonantal systems are very simple, but they are only fit for clever chaps who know the language very well." What can your average schoolboy do with notes such as above—notes, moreover, remember, not in the clear and familiar characters of ordinary print, or even of common longhand, but "pothooks and hangers"?

I am almost afraid to go any further, or it will be said I have "an axe to grind." But there seems to be a great amount of apathy among schoolmasters as to what systems are taught in their schools, and as to the results, and this has always seemed to me very blameworthy and very much to be deplored. At the risk of bringing down denunciations upon myself, I will answer the question that I know will be asked—"What systems do you recommend?" I cannot do better than quote the official verdict as to the last keen contest for the Salisbury Challenge Shield, for which nearly sixty candidates entered:—"The results are certainly strongly in favour of the more recent (joined-vowel cursive) systems of shorthand, and the advantage rests with them not at one stage only, but in all, and not in one particular only, but alike in simplicity, brevity, speed, and legibility, as judged by the transcripts." As a matter of fact, the top places went as follows:—Oxford shorthand, two years, 950; Oxford shorthand, under two years, 845; Pitman & Sons' shorthand, five years, 755, and these results were typical of those all the way down the list, as well as those at all the nine similar open examinations held previously.—I am, yours sincerely,

PERCY E. KINGSFORD, M.J.I.,
Shorthand Master at Dover College.

Excelsior, Dover, January 14, 1899.

THE WINTER MEETING AND DENTAL HYGIENE.

To the Editor of the Educational Times.

SIR,—It is a matter of congratulation that the Winter Meeting passed off so satisfactorily. Not the least successful of the lectures were those devoted to physiology applied to education. I may, however, be allowed to express regret that neither in last year's course nor in this was any reference made to the importance of a dental examination of children. This duty is becoming increasingly manifest to those in charge of schools and public institutions. The proper performance

of the functions of mastication, digestion, and assimilation is of such grave import to health that it needs but to be stated to be allowed. So long as the physical basis of life is impaired—as it frequently is in this direction—the best results will not be obtainable from the instruments of thought.

In two schools I visited last week the physical charts of individual children comprised almost every point worthy of note with the exception of that relating to the soundness, regularity, and state of renewal of the teeth. Surely, if teachers consider it worth while to bring under the parents' notice defects of vision or hearing which they conceive—

and rightly—as in danger of being overlooked, they should equally esteem it a duty to notify dental defects, which experience shows are frequently a matter of culpable indifference to the guardians at home. I put altogether out of account the acute physical suffering which is so marked a penalty of dental neglect.

I have ventured to treat the matter somewhat at large in a pamphlet to which attention is called this month in the advertisement columns of this journal.—I am, Sir, faithfully yours,
55 Gunterstone Road, West Kensington, W., J. O. BEVAN.
January 17, 1899.

TEACHERS' DIPLOMA EXAMINATION—PASS LIST, JANUARY, 1899.

Theory and Practice of Education.

LICENTIATESHIP.

Boothroyd, G. A.
Dobbs, Miss E. M.
Fraser, H. M.
Haslam, G. H.
Haycock, G. S.
Irvine, J. B.
Jones, W. C. S.
Morris, W. R.
Rogers, F. E.

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Ashcroft, G. E.
Badger, D. J.
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Billingham, C.
Binley, Miss A. E. B.
Bradburn, W.
Butcher, Miss A. M.
Carpenter, C. E.
Chambers, Miss W. E.
Chester, J. M.
Clarke, W. G.
Coningham, J. P.
Ford, Miss J. G.
Fox, E. J.
Freeston, O.
Geen, W.
Green, J. E.
Grindrod, J. A.
Haden, A.
Hancock, Miss E. M.
Harris, A.
Hart, C. H.
Herlihy, W. J.
Hill, W. G.
Hinchliff, C. G.
Hooks, P. N. H.
Horrex, A. S.
Hutchinson, Miss M.
Jennings, F. H.
Jones, Miss M.
Letchford, L.
Magill, Miss E. A.
Molyneux, C. G.
Moreton, E. H.
Morpheu, J.
Morris, J. F.
Mullins, A. J.
Nichols, H. R.
Passmore, Miss B. E.
Peckston, Miss E. R.
Price, Miss D.
Quickfall, F.
Ritchie, Miss A. E.
Shrive, S. G.
Sinclair, Miss E. J.
Stephens, Miss C.
Taylor, H. A.
Thompson, J. L.
Vane, Miss M. A.
Ward, A.
Wicks, Miss A.
Williams, Miss L. M.
Woosnam, C. T.

English Grammar.

Alder, J. F.
Bradburn, W.
Brows, Miss M.
Butcher, Miss A. M. (hon.)
Calver, J.
Cawthorne, J.
Chesman, R. P. E.
Cooke, R.
Divane, Miss M. A.
Drewitt, H. J.
Forge, Miss L.
Foster, L.
Getz, J. L. T.
Glenny, Miss E. F.
Gutteridge, Miss M. E.
Hart, G. L.
Hay, W. G.
Herlihy, W. J.
Hill, W. G.
Hinton, Miss E.
Holl, Miss E. M.
Hudson, C. W.

English Grammar—continued.

Hulls, Miss H.
Jordan, F. W.
Kent, J. H. (hon.)
Mansfield, Miss A. L.
March, Miss A. L.
Mason, Miss A. S.
Mattison, W.
Morzan, W.
Nichols, H. R.
Parkerson, L. S.
Puttick, Miss A.
Quickfall, F. (hon.)
Reynolds, Miss E.
Ritchie, Miss A. E. (hon.)
Roberts, R. E.
Sadler, Miss E. K.
Shimwell, Miss J. E.
Skinner, G. E. A.
Stephens, Miss C.
Symmons, R. H.
Tustin, R. B. B.
Tustin, E. B.

English History.

Alder, J. F.
Bailey, C. J.
Bradburn, W.
Brows, Miss M.
Butcher, Miss A. M. (hon.)
Calver, J.
Cooke, R.
Drewitt, H. J.
Forge, Miss L.
Foster, L.
Getz, J. L. T.
Glenny, Miss E. F.
Gutteridge, Miss M. E.
Hart, C. H.
Hart, G. L.
Hazeldine, J.
Hill, W. G. (hon.)
Hinton, Miss E.
Holl, Miss E. M.
Jordan, F. W.
Kent, J. H.
Kershaw, W.
Magill, Miss E. A.
Mansfield, Miss A. L.
Mattison, W.
Metcalfe, A. M.
Quickfall, F.
Reynolds, Miss E.
Ritchie, Miss A. E.
Sadler, Miss E. K. (hon.)
Shimwell, Miss J. E.
Skinner, G. E. A.
Stephens, Miss C.
Symmons, R. H.
Tustin, R. B. B.
Wicks, Miss A.
Wilbee, Miss A. S.

Geography.

Alder, J. F.
Bailey, C. J.
Bosomworth, H.
Bradburn, W.
Butcher, Miss A. M.
Calver, J.
Cawthorne, J.
Clarke, F. A.
Cooke, R.
Drewitt, A.
Drewitt, H. J.
Duff, A. M. (hon.)
Forge, Miss L.
Foster, L.
Glenny, Miss E. F.
Gottlieb, J. M.
Griffiths, J.
Gutteridge, Miss M. E.
Hancock, Miss E. M.
Hart, G. L.
Hay, W. G.
Henderson, B. L. K. (hon.)
Hill, W. G.
Hinton, Miss E.
Hodkinson, A.
Holl, Miss E. M.

Geography—continued.

Hudson, C. W. (hon.)
Hulls, Miss H.
Irvine, J. B.
Jordan, F. W.
Kent, J. H. (hon.)
Kershaw, W.
Mattison, W. (hon.)
Metcalfe, A. M.
Morzan, Miss E.
Morzan, W. (hon.)
Morris, H.
Morris, Miss L. M.
Naumann, Miss E.
Nettel, Miss C. M.
Nichols, H. R. (hon.)
Osborne, S. H.
Parkerson, L. S.
Parkett, Miss A.
Skinner, G. E. A.
Stephens, Miss C.
Quickfall, F.
Reynolds, Miss E.
Ritchie, Miss A. E.
Roberts, R. E.
Roe, Miss L. M.
Sadler, Miss E. K.
Shimwell, Miss J. E.
Skinner, G. E. A.
Smith, A.
Stephens, Miss C.
Tustin, Miss M. E.
Tustin, R. B. B.
Usher, J. B. G.
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Whitley, Miss E. L.
Wilbee, Miss A. S.

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Alder, J. F.
Beck, P. L. (hon.)
Bosomworth, H.
Bradburn, W.
Breakspear, Miss A.
Butcher, Miss A. M.
Butcher, F. E.
Calver, J.
Cawthorne, J.
Drewitt, A.
Drewitt, H. J.
Duff, A. M. (hon.)
Forge, Miss L.
Gutteridge, Miss M. E.
Hay, W. G.
Hill, W. G.
Hodkinson, A.
Hudson, C. W.
Kent, J. H.
Kershaw, W.
Mason, Miss A. S.
Mattison, W. (hon.)
Metcalfe, A. M.
Morzan, W.
Nettel, Miss C. M.
Nichols, H. R.
Passmore, Miss B. E.
Puttick, Miss A.
Quickfall, F.
Ritchie, Miss A. E. (hon.)
Roberts, R. E.
Sadler, Miss E. K.
Shimwell, Miss J. E.
Stephens, Miss C.
Symmons, R. H.
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Wicks, Miss A.
Wise, Miss A. B.

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Butcher, Miss A. M.
Drewitt, A.
Hay, W. G.
Kershaw, W.
Morzan, W.
Ritchie, Miss A. E.
Snape, A.

Euclid.

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Capwell, E. E.
Cawthorne, J.
Hart, G. L.
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Reynolds, Miss E.
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Whitley, Miss E. L.

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Everitt, Miss H. C.
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Parlett, Miss L. E.
Youens, C. H. I.
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Forge, Miss L.
Gutteridge, Miss M. E.
Hart, G. L.
Hinton, Miss E. (hon.)
Holl, Miss E. M.
Hulls, Miss H.
Jennings, F. H. (hon.)
Piggott, G. H. O.
Quickfall, F.
Sadler, Miss E. K.
Tustin, R. B. B. (hon.)
Whitley, Miss E. L.
Williams, Miss L. M.

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Swift, J. A.
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Gillitt, Miss M. F.
Glenny, Miss E. F.
Tinney, Miss M. E.

Spanish.

LICENTIATESHIP.
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Latin.

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Calver, J.
Irvine, J. B.
Kent, J. H.
Wilson, A. S.
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Butcher, Miss A. M.
Piggott, G. H. O.

Greek.

LICENTIATESHIP.
Calver, J.
Kent, J. H.

Experimental Physics.

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Roberts, R. E.
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Alder, J. F.
Hodkinson, A.
Kershaw, W.
Woosnam, C. T.

Chemistry.

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Bosomworth, H.
Kershaw, W.

Animal Physiology.

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Haycock, G. S.
Hodder, E. G.
Keenan, J. T.
Morris, W. R. (hon.)
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Bosomworth, H.
Breakspear, Miss A.
Cozens, T. J.
Divane, Miss M. A.
Griffiths, J.
Hart, C. H.
Hazeldine, J.
Hill, W. G.
Lane, A.
March, Miss A. L. (hon.)
Mason, Miss A. S.
Miche, Miss M. C.
Peckston, Miss E. R. (hon.)
Sillet, W. E.
Stephens, Miss C.

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LICENTIATESHIP.
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ASSOCIATESHIP.
Banbery, E.

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Butcher, Miss A. M.
Glenny, Miss E. F.
Hinton, Miss E. (hon.)
Shimwell, Miss J. E.

Drawing.

Forge, Miss L.
Griffiths, J.
Gutteridge, Miss M. E.

Music.

Dodwell, Miss E.
Hinton, Miss E.

ADJOURNED MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

AN adjourned meeting of the Council was held at the College on January 21. Present: Dr. Wormell, Vice-President, in the Chair; Miss Bailey, Mr. Barlet, Mr. Baumann, Rev. G. C. Bell, Rev. J. O. Bevan, Mr. Bidlake, Mr. Butler, Miss Day, Mr. Eve, Rev. Dr. Hiron, Rev. E. Lee, Mr. Leatham, Mr. Pinches, Mr. Rule, and Mr. Sergeant.

Diplomas were awarded to the successful candidates at the Christmas Examination of teachers as follows:—

<i>Licentiate'ship :</i>		
Miss E. Dodwell.	H. M. Fraser.	F. E. Rogers.
W. M. P. Wilkes.	A. S. Wilson.	

<i>Associateship :</i>		
J. F. Alder.	J. E. Green.	J. F. Morris.
D. J. Badger.	J. A. Grindrod.	Miss L. M. Morris.
C. Billingham.	A. Haden.	A. J. Mullins.
Miss A. E. B. Binley.	Miss E. M. Hancock.	Miss C. M. Nettell.
Miss A. M. Butcher.	A. Harris.	Miss E. R. Peckston.
F. E. Butcher.	B. L. K. Henderson.	Miss D. Price.
C. E. Carpenter.	C. G. Hinchliff.	F. Quickfall.
Miss W. E. Chambers.	P. N. H. Hooks.	Miss A. E. Ritchie.
J. M. Chester.	A. S. Horrex.	Miss E. J. Sinclair.
W. G. Clarke.	Miss M. Hutchinson.	H. A. Taylor.
J. P. Coningham.	F. H. Jenninks.	J. L. Thompson.
A. Drewitt.	Miss M. Jones.	A. Ward.
R. J. Fox.	L. Letchford.	Miss A. Wicks.
Miss J. G. Ford.	C. G. Molyneux.	Miss L. M. Williams.
O. Freeston.	E. H. Moreton.	Miss A. E. Wise.
W. Geen.	J. Morphen.	C. T. Woosnam.

The thanks of the Council were voted to the Master, Wardens, and Court of Assistants of the Clothworkers' Company, as well as to lecturers and others who had taken part in the Winter Meeting for Teachers, which was held on the 3rd to the 14th of January.

MATHEMATICS.

13994. (R. F. DAVIS, M.A.)—If ABC is an isosceles triangle, D the middle point of the base BC, and upon BA, CA points P, Q are taken such that BP · CQ = BD², prove that the envelope of PQ is the circle whose centre is D and which touches AB, AC.

Solution by Professor A. DROZ-FARNY, and G. W. PRESTON, B.A.

De l'égalité BP · CQ = (BD)² on déduit

$$BP : BD = CD : CQ,$$

et, comme les angles B et C sont égaux, les triangles BDP et CQD sont semblables et par conséquent

$$\angle PDQ = B = C.$$

Comme

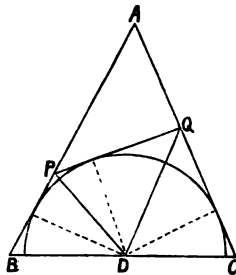
$$DP : DQ = BD : CQ = CD : CQ,$$

les triangles PDQ et CDQ sont aussi semblables; d'où

$$\angle PQD = DQC,$$

et de même $\angle QPD = DPB$.

Les perpendiculaires abaissées de D sur les côtés CQ, PQ, BP sont donc égales; d'où le théorème.



14032. (Rev. T. MITCHELSON, B.A.)—P and Q are the ends of conjugate semi-diameters of an ellipse, whose centre is C and foci H and S. The tangents meet in R, and M and N are the mid-points of HP and SQ; while CR meets PQ in T, MN in L. Show that the loci of M and N are ellipses whose common chord is equal to half the latus rectum of the original ellipse, the chord being bisected in C. The loci of L, T, and R are ellipses.

Solution by F. H. PEACHELL, B.A.; R. KNOWLES, B.A.; and the PROPOSER.

Let P be the point ϕ ; then Q is point $\phi + \frac{1}{2}\pi$.

(1) Coordinates of R are

$$a(\cos \phi - \sin \phi), \quad b(\cos \phi + \sin \phi);$$

therefore $x^2/a^2 = 1 - 2 \sin \phi \cos \phi$,

$$y^2/b^2 = 1 + 2 \sin \phi \cos \phi.$$

and locus of R is the ellipse

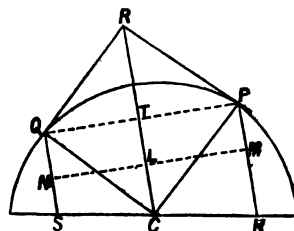
$$x^2/a^2 + y^2/b^2 = 2.$$

(2) Coordinates of M are

$$\frac{1}{2}(a \cos \phi + ac), \quad \frac{1}{2}b \sin \phi;$$

therefore locus of M is ellipse

$$\left(\frac{2x-ac}{a}\right)^2 + \left(\frac{2y}{b}\right)^2 = 1 \dots\dots\dots (A).$$



(3) Similarly locus of N is

$$\left(\frac{2x+ae}{a}\right)^2 + \left(\frac{2y}{b}\right)^2 = 1 \dots\dots\dots B$$

[The rest in Vol.

8842, 8500, 8884, & 12494. (D. EDWARDS.)—(8842.) Prove that

$$\int_0^1 \int_0^{\sqrt{1-k^2}} \frac{\log(1-k \sin^2 \phi)}{(1-k \sin^2 \phi)^{3/2}} dk d\phi = 4 \log 2 - 4.$$

(8500.) Prove that

$$\int_0^1 \int_0^{\sqrt{1-k}} \frac{\log(1-k)}{(1-k \sin^2 \phi)^{3/2}} dk d\phi = 8 \log 2 - 8.$$

(8884, 12494.) Prove that

$$\int_0^1 \int_0^{\sqrt{1-k}} \frac{\{\log(1-k)\}^2}{(1-k \sin^2 \phi)^{3/2}} dk d\phi = 16 - \frac{1}{3}\pi^2 + 32(\log_e \frac{1}{2}e)^2.$$

Solutions by Professor S. SIRCOM, M.A.

(8842.) Put $k = \sin^2 \theta$; then, by the method of Quest. 8465 (Vol. XLVI., p. 75), put $\cos \theta = \cos \mu \sin \omega$, $\cot \phi = \sin \mu \tan \omega$, and, the limits being $\frac{1}{2}\pi$ and 0 throughout, the integral becomes

$$4 \iint \cos \mu \sin \omega \log \sin \omega d\omega d\mu = 4 \int \sin \omega \log \sin \omega d\omega = 4 \log 2 - 4.$$

(8500.) Similarly, this integral becomes

$$4 \iint \sin \omega \sin \mu \log(\sin \omega \cos \mu) d\omega d\mu = 8 \int \sin \omega \log \sin \omega d\omega = 8 \log 2 - 8.$$

(8884.) This becomes

$$\begin{aligned} 8 \iint \sin \omega \cos \mu \{\log(\sin \omega \cos \mu)\}^2 d\omega d\mu \\ = 16 \int \sin \omega (\log \sin \omega)^2 d\omega + 16 \left(\int \sin \omega \log \sin \omega d\omega \right)^2 \\ = 16 \left\{ 1 - \frac{1}{3}\pi^2 + (\log 2 - 1)^2 \right\} + 16 (\log 2 - 1)^2 = \text{given result.} \end{aligned}$$

14035. (H. J. WOODALL, A.R.C.S.)—Is anything known about the theory of the following?—When is

$$a^p - 1 \equiv 0 \pmod{q^2},$$

it being given that a is not a power, and neither $a-1$ nor p divisible by q ? *E.g.*, $(50,000)^5 - 1 \equiv 0 \pmod{11^2}$.

Solutions (1) by Lt.-Col. ALLAN CUNNINGHAM, R.E.; (2) by C. E. BICKMORE, M.A.

(1) Much of the theory of this congruence has been already worked out; see MATHEWS'S *Theory of Numbers*, 1892, Part I., Art. 25-29, &c. Rewriting it $a^n - 1 \equiv 0$, or $a^n \equiv 1 \pmod{q^2}$, the following is a brief résumé:—There are three quantities a , n , q involved, and a prime to q ; two of these are supposed given, to find the third. Hence three problems arise.

Problem I.—Given a , q , to find n . First find ξ the least exponent satisfying $a^\xi \equiv 1 \pmod{q}$; then $a^{q\xi} \equiv 1 \pmod{q^2}$, and $n = q\xi$ is one value of n , sometimes the least value. In particular, if q be prime, then $n = q\xi$ is usually the least value of n ; if there be a less value, it is $n = \xi$. [*Ex.* $3^2 \equiv 1 \pmod{11}$, and $3^5 \equiv 1 \pmod{11^2}$]. But, if $q =$ product of primes $= q_1 q_2 q_3 \dots$, then $n = q\xi$, or some submultiple thereof (depending on the relation of a to q).

Problem II.—Given a , n to find q . A far more difficult problem, involving, in fact, the whole question of factorization. First find any factor q of $(a^n - 1)$, and then find the least exponent ξ which gives $a^\xi \equiv 1 \pmod{q}$. If $n = q\xi$, or if $n = mq\xi$, then $a^n \equiv 1 \pmod{q^2}$, as required. But, if $n \neq q\xi$, or $n \neq mq\xi$, then the question whether $a^n \equiv 1 \pmod{q^2}$ must be tested specially. In any case, if $a^n \equiv 1 \pmod{q^2}$, then q must be one of the quantities satisfying $a^n \equiv 1 \pmod{q}$.

Problem III.—Given n , q to find a . Note first that the number of distinct (incongruous) roots a each $< q^2$, each satisfying $a^n \equiv 1 \pmod{q^2}$ is $\phi(n)$ the totient of n . Next, if a be any one of such roots ($< q^2$), then the residues of the powers of a (i.e., of a^2, a^3, \dots) to modulus q^2 gives the complete set of $\phi(n)$ incongruous roots, each $< q^2$. If these be called a_1, a_2, \dots , then all quantities of type $(m_1 q^2 + a_1), (m_2 q^2 + a_2), \dots$, are also roots of the congruence. Hence, if any one of the roots $a_1, a_2, \dots, < q^2$ can be found, all the rest can be found. To find such a root, say a_1 , first find a root, say a , of the congruence $a^n \equiv 1 \pmod{q}$: any root will do. Then a_1 must be of form $m_1 q + a$, and may be shown to be given by solution of the linear congruence in m (as the unknown)

$$na^{n-1} \cdot m + (a^n - 1) + q \equiv 0 \pmod{q^2},$$

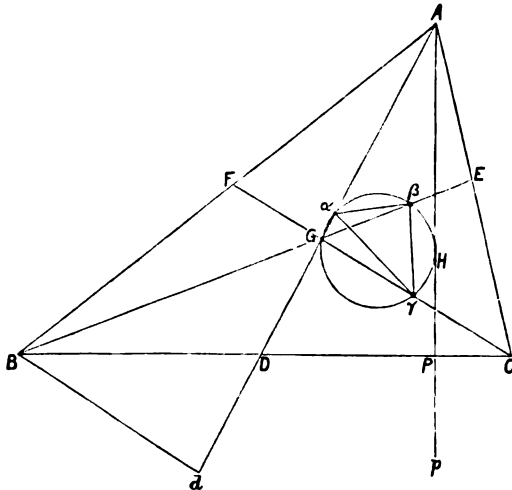
which is always possible.

[The rest in Vol.

13878. (R. F. DAVIS, M.A.)—AD, BE, CF are the medians of a triangle ABC co-intersecting in G, the centroid; and H is the orthocentre. Upon DA a point α is taken, so that DA · α = DB² = DC²; similarly for β, γ . Prove that the triangle $\alpha\beta\gamma$ has its sides proportional to the medians of ABC, and that GH is a diameter of its circumcircle.

Solution by W. J. DOBBS, M.A.; R. TUCKER, M.A.; and many others.

Let AH meet BC in P and the circumcircle in p, so that HP = Pp: and draw Bd parallel to FC to meet AD in d.



Then $A\alpha \cdot AD = AD^2 - DA \cdot Da = AP^2 + DP^2 - DC^2 = AP^2 - BP \cdot PC = AP^2 - AP \cdot Pp = AP^2 - AP \cdot PH = AP \cdot AH$;

therefore $H\alpha$ is perpendicular to AD.* therefore circle on GH as diameter passes through α , and similarly through β and γ . Whence it is easily proved that triangle $a\beta\gamma$ is similar to triangle BdG , i.e., to a triangle whose sides are respectively two-thirds of the medians of ABC.

* COR.—AA' is a chord of a circle bisecting another chord BC at D, and AP is perpendicular to BC. The segment BA'C is turned about BC through half a revolution, and in its new position cuts AD at D' and AP at P'. Then P'D' is perpendicular to AD.

[See CASEY'S Conics, second edition, page 436, in which the above is described as the ortho-centroidal circle.]

13892. (P. W. FLOOD.)—Inscribe a triangle in a given segment of a circle, having the sum of the perpendicular and segment of base a maximum.

Solution by H. W. CURJEL, M.A.

Let AKCB be the segment. Make angle $\angle ABK = \frac{1}{2}$ a right angle. Bisect arc KCB in C. Then ABC is the required triangle. Draw CD perpendicular to BA, cutting BK and BA in H and D.

Then $AD + DH = AB$, and CH is a maximum, since the distance from KB is a maximum.

$\therefore CD + AD$ is a maximum.

If BK does not cut the segment, then the sum of the perpendicular and segment of the base is greatest when C coincides with B.

13588. (H. W. CURJEL, M.A.)—Prove, by Euclid, Book I., that any triangle described on the hypotenuse of a right-angled triangle is equal to the sum of the triangles, equiangular to it, described on the other two sides.

Solution by the PROPOSER.

Lemma I.—A rhombus described on the hypotenuse of a right-angled triangle is equal to the sum of the rhombi equiangular to it described on the other two sides.

Let ABC be a triangle, right-angled at C, and let AE, AC; CD, CB; AF, AB be pairs of adjacent sides of the rhombi, containing equal angles, as in Fig. 1. Let EC meet BD in G. Then $\triangle AEF$ is clearly equal in all respects to $\triangle ACG$. Since the angles $\angle AEF, \angle ACB$ are right angles, the angles $\angle DCG, \angle CEF$ each $= \frac{1}{2} \angle CAE = \frac{1}{2} \angle DCB$; therefore $BG = GD$, and EF is equal and parallel to CD; therefore ECDF is a parallelogram, and is equal to the triangle FDB; therefore

$$\square ECDF + \triangle ABC = \triangle AEF + \triangle FDB.$$

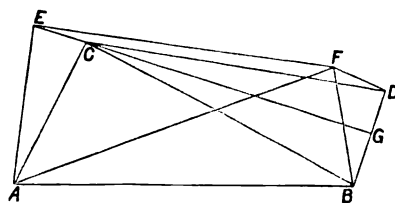


Fig. 1.

Taking each of these equals from the whole figure EFDDBA, $\triangle AEC + \triangle BCD = \triangle ABF$.

Hence Lemma I.

[The rest in Vol.

13751. (Professor SANJANA.)—The equation of the ellipse touching the sides of a triangle at the mid-points is $\Sigma \sqrt{(aa)} = 0$. Prove that the centre of this ellipse is at the centroid of the triangle, and that one focus of it is the symmedian point of its own pedal triangle with regard to the original triangle. [This seems the easiest way of obtaining the fundamental property of STEINER'S foci.]

Solution by the Rev. J. CULLEN.

The first result is obtained by solving for α, β, γ in

$$\frac{1}{a} \frac{df}{d\alpha} = \frac{1}{b} \frac{df}{d\beta} = \frac{1}{c} \frac{df}{d\gamma}.$$

The foci satisfy the system

$$\begin{aligned} \beta_1\gamma_2 + \beta_2\gamma_1 + 2k^2 \cos A &= 2U' \\ &= \gamma_1\alpha_2 + \gamma_2\alpha_1 + 2k^2 \cos B \\ &= \alpha_1\beta_2 + \alpha_2\beta_1 + 2k^2 \cos C &= 2W' \end{aligned}$$

(WHITWORTH'S Modern Geometry, p. 267), and, since they are isogonal points, we have $\alpha_1\alpha_2 = 1, \beta_1\beta_2 = 1, \gamma_1\gamma_2 = 1, k^2 = 1$, also $U' = 2a^2bc, V' = 2b^2ca, W' = 2c^2ab$.

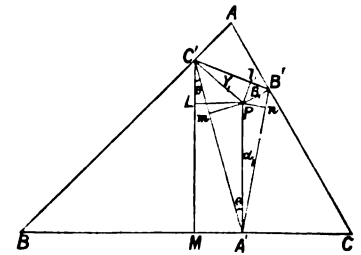
Now $Pm = \alpha_1 \sin \theta = \alpha_1 MA'/A'C' = \alpha_1 LP/A'C' = \alpha_1 \gamma_1 \sin B/A'C'$;

$$\therefore \frac{A'C'}{Pm} = \frac{\alpha_1^2 + \gamma_1^2 + 2\alpha_1\gamma_1 \cos B}{\alpha_1\gamma_1 \sin B},$$

and, if P is the symmedian point of $A'B'C'$, we have

$$\frac{A'B'}{Pn} = \frac{A'C'}{Pm} = \frac{B'C'}{Pl'}$$

which is easily seen to be the same as the system for the foci.



13678. (Rev. T. MITCHESON, B.A.)—In the triangle ABC, let AB be produced to F, CA to E, and BC to D; bisect the exterior angles by lines intersecting at α, β, γ , thus forming the triangles $a\beta\gamma, \beta aC, \alpha BC$, and $A\gamma B$. These triangles are equiangular, each angle being the arithmetical mean of the corresponding pair of the angles of ABC.

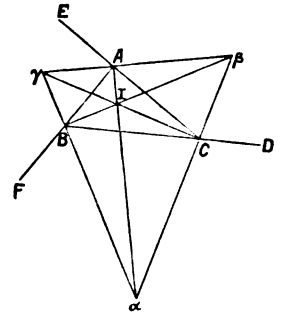
Solution by W. E. JEFFARES, B.A.; L. E. REAY, B.A.; and many others.

Bisect the external angles at A, B, C and α, β, γ . Where these lines meet are the centres of the escribed circles opposite A, B, C. Join $\alpha A, \beta B$, and γC ; these lines bisect the internal angles A, B, C, and meet in I, the centre of inscribed circles. Therefore $\triangle \alpha A C, \triangle \beta B A, \triangle \gamma C A$ are cyclic quadrilaterals;

therefore $\angle \alpha A \beta = \angle \angle C \beta$, and $\angle \angle \alpha C = \angle \angle B C$, and $\angle \angle \beta A C = \frac{1}{2} (B + C)$, $\angle \angle F B C = C + A$;

therefore $\angle \angle \alpha B C = \frac{1}{2} (C + A)$, $\angle \angle A C D = \angle \angle A + \angle \angle B$;

therefore $\angle \angle B C D = \frac{1}{2} (A + B)$. Hence the angles of triangle $\beta a C$ are $\frac{1}{2} (B + C), \frac{1}{2} (C + A)$, and $\frac{1}{2} (A + B)$. Similarly, the angles of the triangle $\beta C A$ are $\frac{1}{2} (C + A), \frac{1}{2} (A + B), \frac{1}{2} (B + C)$; and those of $\gamma A B = \frac{1}{2} (A + B), \frac{1}{2} (B + C), \frac{1}{2} (C + A)$ respectively; also those of $a\beta\gamma$ are $\frac{1}{2} (B + C), \frac{1}{2} (C + A), \frac{1}{2} (A + B)$. Hence the triangles are similar, and each of their angles is the arithmetical mean of the corresponding pair of the angles of ABC.



QUESTIONS FOR SOLUTION.

14104. (Professor ELLIOTT, F.R.S.)—X, Y, Z, O₁, O₂ are five points on any cubic; O₁X, O₁Y, O₁Z meet the cubic again in A, B, C respectively, and O₂X, O₂Y, O₂Z in A', B', C'. Prove that the points P, Q, R, where BC' and B'C, CA' and C'A, AB' and A'B respectively intersect, also lie on the cubic; and that PX, QY, RZ meet in a point on the cubic. Also prove conversely that, if O be a tenth point on any cubic of the pencil which passes through six points A, B, C, A', B', C' and through P, Q, R derived from the six as above, and if PO, QO, RO meet the cubic again in X, Y, Z respectively, then AX, BY, CZ meet in a point on the cubic, as also do A'X, B'Y, C'Z.

14105. (Professor CROFTON, F.R.S.)—If $u = x^2 + ax + b$, and we put for shortness the symbol $Du D = \omega$, then

$$D^n u^n D^n \equiv \omega (\omega - 1 \cdot 2) (\omega - 2 \cdot 3) \dots \{\omega - (n-1) \cdot n\}.$$

14106. (Professor G. B. MATHEWS, M.A.)—If the integers x, y are chosen at random, the chances are 31 to 18 in favour of $(x+y)^2 - x^2 - y^2$ being divisible by 49. What is the chance of divisibility by 343?

14107. (Professor NEUBERG.)—Résoudre le système
 $\tan(y+z) = a \tan x, \tan(z+x) = b \tan y, \tan(x+y) = c \tan z.$

14108. (Professor E. J. NANSON.)—If $Q(r, s)$ denote the per-symmetric determinant

$$\begin{vmatrix} c_r & c_{r+1} & \dots & c_{r+s} \\ \vdots & \vdots & & \vdots \\ c_{r+s} & c_{r+s+1} & \dots & c_{r+2s} \end{vmatrix}$$

and $Q(r, a+x) = 0$ ($x = 0, 1, \dots, b$), then $Q(r+\lambda, a+\mu) = 0$ where λ, μ are any positive integers whose sum does not exceed b .

14109. (Professor COCHEZ.)—On donne les deux paraboles $y^2 = 2py, x^2 = 2qy$. Lieu des points M tels que les tangentes issues de ces points à chaque parabole soient rectangulaires.

14110. (Professor SANJANA, M.A.)—In a triangle ABC, K is the symmedian point and O the circumcentre; on KA, KB, KC points A', B', C' are taken such that $KA' : KA = KB' : KB = KC' : KC = e$ (which may be positive or negative and less than unity or greater); through A', B', C' are drawn Y'A'Z, Z'B'X, X'C'Y anti-parallel to BC, CA, AB meeting these sides in X and X', Y and Y', Z and Z' respectively. Prove (1) that $YZ' = Z'X = X'Y = 2(1-e)abc/(a^2 + b^2 + c^2)$; (2) that YZ' is parallel to BC and $= a \{ (2e-1)a^2 + b^2 + c^2 \} / (a^2 + b^2 + c^2)$, with similar results for ZX' and XY' ; (3) that

$$XX' = a \{ a^2 + (b^2 + c^2)(2e-1) \} / (a^2 + b^2 + c^2),$$

with similar values for YY' and ZZ' ; (4) that the triangles XYZ, X'Y'Z' are equal to each other and similar to ABC; and that XYZ and ABC have the same positive BROCARD point, and X'Y'Z' and ABC the same negative one; (5) that

$$AZ : BX : CY = b/a : c/b : a/c, \text{ and } AY' : CX' : BZ' = b/c : c/a : a/b;$$

(6) that the points X, X', Y, Y', Z, Z' are situated on a circle whose centre lies on OK and coincides with the circumcentre of A'B'C'; (7) that the radius of this circle is $R \{ e^2 + (1-e)^2 \tan^2 \omega \}^{1/2}$; (8) that for values $1, \frac{1}{2}, 0$ of e the circle $XX'YY'ZZ'$ becomes respectively the circumcircle the triplicate-ratio circle, the cosine circle; (9) that when

$$e = -\cos A \cos B \cos C,$$

the circle becomes the TAYLOR circle, and its radius

$$= R(\sin^2 A \sin^2 B \sin^2 C + \cos^2 A \cos^2 B \cos^2 C)^{1/2};$$

(10) that when $e = \sin^2 \omega$, the centre of the circle bisects the line joining the BROCARD points, and its radius = $R \sin \omega$, which is the least value that the radius can ever have; and (11) that in a right-angled triangle the TAYLOR and cosine circles coincide. [All properties of TUCKER circles can thus be obtained by elementary trigonometry; the result in (11) is inaccurately given in MILNE'S Companion at p. 146.]

14111. (Professor A. DROZ-FARNY.)—Menons par l'orthocentre H d'un triangle ABC deux transversales Δ et Δ' perpendiculaires l'une sur l'autre. Il s'agit de démontrer que ces perpendiculaires déterminent sur chaque côté du triangle un segment dont les points milieux α, β, γ sont en ligne droite.

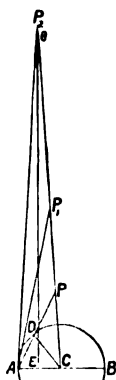
14112. (Professor UMES CHANDRA GHOSH.)—Find the altitude of the star η Tauri when it crossed the prime vertical of a place, whose latitude is 30° , in 3000 A.C., given that the longitude of the star was $39^\circ 8'$ in 560 A.D. and its latitude is $4^\circ 44'$.

14113. (D. BIDDLE.)—From one angle of a parallelogram draw a straight line to each of the opposite sides, such that, with the join of their distal extremities, three equal triangles may be cut off; and prove that the area of the remaining (central) triangle is to one of the former as $\sqrt{5} : 1$.

14114. (Rev. Dr. FREETH.)—AB is the diameter, and AC, the half of AB, the radius, of the generating circle ADB. Assume any chord AD. Join CD, producing AD to P so that DP is equal to radius CD. Thus P is a point in a trisectrix. Join CP, producing it to P_1 so that AP is equal to PP_1 . Join AP_1 . Hence P_1 is a point in a supertrisectrix. Produce CP_1 to P_2 so that AP_1 is equal to P_1P_2 . Join AP_2 . Thus P_2 is a point in a bisupertrisectrix. Bisect AC in E, and join P_2E . Let the angle $AP_2C = \theta, AC = r, CP_2 = R, AP_2 = R'$.

$$\text{Then } R = r \frac{\sin 11\theta}{\sin \theta}, R' = r \frac{12 \sin \theta}{\sin \theta}.$$

Show that (1), in the isosceles position, AP_2C is an isosceles triangle, having each base angle the undecuple of the vertical angle AP_2C ; (2) regarding the angle P_2AC , the curve is an undecasectrix; (3) adopting the angle P_2CB , the curve is a dodecasectrix; (4) on AC, in the isosceles position, by means of the isosceles triangle AP_2C , a regular icosatrigon is describable; (5) trace the curve; (6) find its area, tangent, and rectangular coordinates.

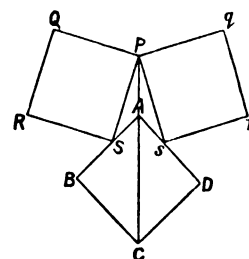


14115. (H. FORTY, M.A.)—A cheese is a cylinder of 2 feet in diameter, and is of variable quality, the part at the axis being worth 1s. 2d. per lb., and the quality deteriorating as the distance from the axis increases, so that at the circumference it is worth only 10d. per lb. An epicure buys a concentric cylindrical piece cut out of the centre and pays 4s. 11d. for it. What is the diameter of this piece? Given that the whole cheese is worth £1. 18s. 3d.

14116. (R. TUCKER, M.A.)—AD, BE, CF are the perpendiculars of a triangle and H is the orthocentre; a, b, c are the mid-points of BC, CA, AB respectively; aH, bH, cH produced meet EF, FD, DE in P, Q, R; prove that AP, BQ, CR meet in a point which is on the join of the symmedian point (K) and the orthocentre.

14117. (G. HALB PUCKLE, M.A.)—By the methods of Quest. 13535, No. 437, show that the equation to a conic, $\phi(xy) = 0$, is equivalent to $\rho^2 \{ a(ax+hy+g) + \beta(hx+by+f) + \Delta^2 \}^2 = (Cx-G-a\Delta^2)^2 + (Cy-F-\beta\Delta^2)^2$.

14118. (R. F. DAVIS, M.A.)—PQRS, Pqrs are two equal squares in contact at P whose corners S, s slide along the sides AB, AD of a third equal immovable square ABCD. Find the position of P in CA produced when the circle circumscribing CBRQPqrD shall be the least possible.



The loci of all the angular points of the moving squares are straight lines.

This is suggested by question: From a given circular sheet of paper show how to cut out three equal squares of maximum area.

14119. (Rev. W. ALLEN WHITWORTH, M.A.)—If out of m cards numbered 1, 2, 3 ... m we draw n cards at random, the expectation of the lowest drawn is $(m+1)/(n+1)$ and the expectation of the highest is $n(m+1)/(n+1)$.

[COROLLARY.—If n numbers be named at random the expectation of the highest is n times the expectation of the lowest.]

14120. (Rev. T. ROACH, M.A.)—Prove geometrically $\cot^{-1} 7 + \cot^{-1} 8 + \cot^{-1} 18 = \cot^{-1} 3$.

14121. (B. N. CAMA, M.A.)—If two parabolas touch at P, and their axes meet at O, then S, S', P, O are cyclic, S, S' being the foci. Hence, if S, S' be fixed points on fixed lines meeting at right angles in O, and two systems of parabolas be drawn having S, S' for their foci, and axes OS, OS', such that each parabola of one system touches the corresponding parabola in the other system, all the points of contact lie on a fixed circle. Generally, four parabolas of one system can be drawn to touch a given parabola of the other system. If the axes be parallel, show that the corresponding locus is a straight line.

14122. (The late "LEWIS CARROLL.")—It is given that (1), if C is true, then, if A is true, B is not true; and (2), if A is true, B is true. Can C be true? What difference in meaning, if any, exists between the following propositions?—(1) A, B, C cannot be all true at once; (2) if C and A are true, B is not true; (3) if C is true, then, if A is true, B is not true.

14123. (H. MACCOLL, B.A.)—Show that the two syllogistic canons of Quest. 14091 (with all valid syllogisms) are deducible from the formula

$$(A : B) (B : C) : (A : C),$$

which asserts that, if A implies B, and B implies C, then A implies C. The symbols A, B, C denote propositions.

14124. (G. H. HARDY.)—Prove that

$$\int_0^{\pi/12} \log \tan \phi \, d\phi = \frac{1}{3} \int_0^{\pi/9} \log \tan \phi \, d\phi = -4 \int_0^{\pi/6} \tanh^{-1} \tan \phi \, d\phi.$$

14125. (DISCIPULUS.)—If $(1+2x)^m/(1-x)$ be expanded in ascending powers of x , prove that the coefficient of any power of x greater than $m-1$ is 3^m , m being a positive integer.

14126. (Rev. J. CULLEN, B.A.)—A triangle $D_\mu E_\mu F_\mu$ is constructed homothetic with the triangle DEF of a TUCKER circle T_μ , Ω being the homothetic centre, and μ the modulus of similarity compared with DEF. In like manner $D'_\mu E'_\mu F'_\mu$ is obtained from D'E'F' and Ω' . Show that (1) the homologous sides of these triangles intersect those of ABC on another TUCKER circle T_μ , where

$$\tan \phi = \sin^2 \theta + (\mu-1) \sin^2 \omega / \sin \theta \cos \theta - (\mu-1) \sin \omega \cos \omega;$$

(2) T_μ is the common T_μ of $D_\mu E_\mu F_\mu$ and $D'_\mu E'_\mu F'_\mu$; (3) the circle concentric with T_μ and passing through Ω and Ω' also passes through the B-points of the DEF triangles of T_μ with respect to ABC, $D_\mu E_\mu F_\mu$, and $D'_\mu E'_\mu F'_\mu$, and through the centres of T_μ and $T_{\mu-\psi}$ ($2\psi = \phi - \omega$), and is coaxial with the circumcircle and $T_{\mu-\psi}$; (4) the condition for a common B-circle is $\phi = \theta + \omega$.

[In Quest. 13850, May 1898, $\mu = 2, \theta = \frac{1}{2}\pi, \phi = \frac{1}{3}\pi$. There is also another interesting case when $\mu = 2, \theta = \omega, \phi = \frac{1}{2}\pi$.]

14127. (REV. T. MITCHESON, B.A.)—Show that
 $(p+q)!/p!q! = 1 + pq + p(p-1)q(q-1)/(2!)^2$
 $+ p(p-1)(p-2)q(q-1)(q-2)/(3!)^2 + \&c.$

14128. (G. W. PRESTON, B.A.)—Show that

$$(i.) \frac{\sum (y-z)^2}{\sum (y-z)^2} - 4\pi (y-z)^2 = \{ \sum x^2 - \sum yz \}^2;$$

$$(ii.) \frac{\sum \frac{b+c+d}{abct(b-a)(c-a)(d-a)(x-a)}}{\sum \frac{a+b+c+d-x}{(x-a)(x-b)(x-c)(x-d)}}.$$

[See CHRYSTAL'S *Algebra*.]

14129. (R. KNOWLES, B.A.)—Prove that the $(r+1)$ th terms in the expansions of $(1+x)^{m+n}$ and $(1-x)^{m-n}$ are respectively

$$\frac{(m+n-nr)(m+2n-nr)(m+3n-nr) \dots \text{to } r \text{ terms}}{n! \cdot r!};$$

$$\frac{(n-m-nr)(2n-m-nr)(3n-m-nr) \dots \text{to } r \text{ terms}}{n! \cdot r!}.$$

14130. (J. J. BARNIVILLE, B.A.)—Having $u_{n-1} + u_{n+1} = 6u_n$, prove that

$$\frac{1}{1+1} + \frac{1}{5+1} + \frac{1}{29+1} + \frac{1}{169+1} + \dots = \frac{1}{\sqrt{2}}.$$

$$\frac{1}{5+7} + \frac{1}{13+7} + \frac{1}{73+7} + \frac{1}{425+7} + \dots = \frac{1}{9\sqrt{2}-6}.$$

$$\frac{1}{3+3} + \frac{1}{17-3} + \frac{1}{99+3} + \frac{1}{577-3} + \dots = \frac{1}{4}.$$

$$\frac{1}{17+3} + \frac{1}{99-3} + \frac{1}{577+3} + \frac{1}{3563-3} + \dots = \frac{1}{18}.$$

14131. (ROBERT W. D. CHRISTIE.)—Let a and b be the successive number of terms in a *Continuant*; then $a^2 + ab - b^2 = \pm 1$ alternately.

14132. (I. ARNOLD.)—Describe a square in a given sector having two angular points on the arc and the other two on the radii.

14133. (LT.-COL. ALLAN CUNNINGHAM, R.E.)—Find a sum of successive odd cubes equal to a square.

14134. (C. E. HILLYER, M.A.)—O is the circumcentre of the triangle ABC, and P, Q, R the images of O with respect to the sides; D, E, F are the feet of the perpendiculars, and abc the triangle formed by drawing tangents to the circumcircle at A, B, and C. Prove that PD, QE, RF are concurrent in the orthocentre of abc .

14135. (PROFESSOR THOMAS SAVAGE.)—For what positive integral value or values of n is $(n+1)^n - n^n$ divisible by $2mn+1$, where m is any positive integer?

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to

D. BIDDLE, Esq., Charlton Lodge, Kingston-on-Thames.

NOTICE.—Vol. LXIX. of the "*Mathematical Reprint*" is now ready, and may be had of the Publisher, FRANCIS HODGSON, 89 Farringdon Street, E.O. Price, to Subscribers, 5s.; to Non-Subscribers, 6s. 6d.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, January 12th, 1899.—Professor Elliott, V.P., F.R.S., and subsequently Lt.-Col. Cunningham, R.E., V.P., and Dr. Hobson, F.R.S., in the Chair. Present, fourteen members and a visitor.

Professor Elliott referred, in feeling terms, to the recent death of the Rev. B. Price, F.R.S., who was elected a member, June 26th, 1866.

Dr. Morrice read a paper on "Linear Transformation by Inversions."

Mr. H. M. Macdonald, M.A., spoke on the "Zeroes of the Bessel Functions" (in continuation of a former paper on the subject).

Lt.-Col. Cunningham communicated a short paper by Mr. Biddle, M.R.C.S., entitled "A Simple Method of Factorizing large Composite Numbers of any unknown form." Messrs. Lawrence and Western made a few remarks on this paper.

Dr. Hobson communicated the following papers, in abstract:—

"On a Determinant each of whose Elements is the Product of k Factors," Professor W. H. Metzler.

"Properties of Hyperspace, in relation to Systems of Forces, the Kinematics of Rigid Bodies, and Clifford's Parallels," Mr. A. N. Whitehead, M.A.

And "On the Reduction of a Linear Substitution to its Canonical Form," Professor W. Burnside, F.R.S.

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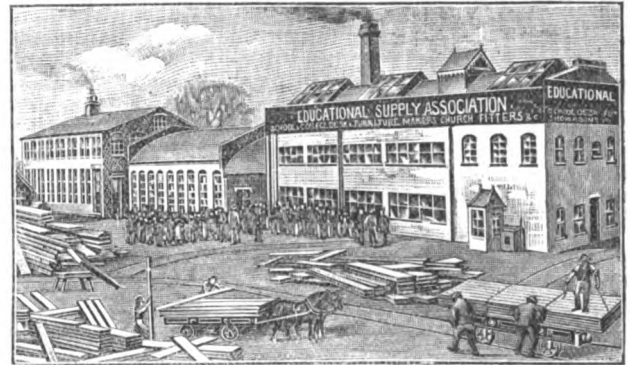
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Pearse, H.R. a. Hoe Gram. S., Plymouth
Phillips, D.J. 216 Herbert Rd., Woolwich
Rattenbury, S.F. Balham S.
Rivers, E.H. Private tuition
Rothwell, P. Castle C., Guildford
Schofield, W.A. Southport Modern S.
Scott, G.C. Oakes Inst., Walton, L'pool
Whalley, P. Silecot S., Winscombe

Bouchier, W.G. Dr. Morgan's S., Bridgwater
Brookleshy, G.H. a. Coll. S., Grimsby
Curry, A. Pen-y-Craig H., St. Helier's
Dale, B. Swindon High S.
Gardiner, A. a. Old Elvet S., Durham
Hammond, B.S. Archbishop Holgate's Gram. S., York

Hobbs, E. Maidenhead Coll.
Hooper, F.A. a. Hurstpierpoint Prep. S.
Horner, R.M. Manor H., Clapham
Jackson, W. Egerton Park Coll., Bexhill
Morse, P.L. Bourne C., Birmingham
Musson, J.E. Hadleigh H., Littlehampton
Northey, H.M. Hoe Gram. S., Plymouth
Perkins, L. Ascham H., Worthing
Pewsey, R.A. Polytechnic Inter. S., W.
Pond, E.B. Milton Abbas S., Blandford
Pratt, H.F. High S., Brentwood
Robbins, S.H. Cliftonville Coll., Margate
Sara, G. Hoe Gram. S., Plymouth
Strickland, W. Kendrick Boys' S., Reading
Sudlow, H. High S., Croydon
Tull, E.J. Trafalgar H., Lee-on-the-Solent
Williams, A.E. Lucton S., Herefordshire

Allen, L.J.S. Private tuition
Davis, H. Alcombe S., Dunster
Dorrell, J.H.W. Carshalton Coll.
Edwards, O.G. Highfield S., Chertsey
Elliott, H. Sandyford Acad., Newcastle-on-Tyne
Gray, S.E.G. Heath C., Hemel Hempstead
Harrison, L.K. Ashton Coll., St. Helier's
Jenkin, H. Hoe Gram. S., Plymouth
Lingner, G.A. Ealing Gram. S.
Loughborough, A.G.R. Gram. S., Shoreham
Miller, J.T. a. St. Aubyn's S., Woodford
Munden, J.M. Mary Street H., Taunton
Noppen, J.G. Wilslow Gram. S.
Sawtell, G.H. Gillingham Gram. S.
Sharples, H. Gram. S., Blackpool
Skelton, A. Private tuition
Stratford, A. Castle Coll., Guildford
Williams, A. Comm. S., Astley Bridge
Wright, J. Southport Modern S.

Alford, A.H. Dr. Morgan's S., Bridgwater
Bell, A.H. Woolston C., Southampton
Buckmaster, P.W. Anglesea H., St. Mary Cray
Butterworth, B.M.G. St. Helen's C., Southsea
Coles, G.W. Kineton Middle S., Warwick
Collins, G.H. Castle Coll., Guildford
Cross, F. Comm. S., Astley Bridge
Draffmyle, W. Oakes Inst., Walton, L'pool
Hill, J. Gram. S., Ledbury
Jenkins, A. Elmfield Coll., York
Johnson, H. Springfield Coll., Acton
Lambert-Shea, W.A. Private tuition
Miles, C.B. Felix C., Lavender Hill, S.W.
Mull, M.F.E. Malden Coll., New Malden
Mullin, H.G. Crossley & Porter S., Halifax
Poulton, F.C. Highbury Park S., N.
Pouncey, J.R. Handel C., Southampton
Rookledge, F.O. Easingwold Gram. S.
Sharman, R.P. Caversham H., Caversham
Shergold, P.F. Elmfield Coll., York
Smith, G.B. Malden Coll., New Malden

Arnold, C. West Bromwich Gram. S.
Betbeder, G.L. Selhurst Park Coll., S.E.
Britton, J. Private tuition
Britton, J. Wood Green Comm. S., N.
Chance, W. a. Holt H., Chesnut
Chivers, A.H. Maidenhead Coll.
Diplock, T.R. a. Trowbridge High S.
Doll, W.H. a. Gram. S., Shoreham
Edwards, F. Warwick H., Southsea
Enoch, J.C. St. John's Royal Latin S., Buckingham
Garwood, C.R. Selhurst Park Coll. S.E.
Gavaghan, E. St. Placid's, Ramsgate
Hagon, C.D. Dr. Morgan's S., Bridgwater
Harnum, H.W. St. Loe's S., Amberley
Higgs, W. Kendrick Boys' S., Reading
Merrill, E.A. Selhurst Park Coll., S.E.
Middleton, H.P. Manor H., Clapham

Richardson, D.S.P. Reading Coll. S.
Slann, R.H. Westbourne S., Bournemouth
White, S. West Cliff S., Ramsgate
Wilson, H. Int. Coll., Finchley Rd., N.W.

Anthony, P.M. St. James's Coll. S., Jersey
Bennett, R.D. Selhurst Park Coll., S.E.
Bywater, G.O. Scarborough Gram. S.
Caister, V.R. Colebrook H., Bognor
Clarke, H. Felix C., Lavender Hill, S.W.
Davis, H. Arlington Park, C., Chiswick
Denning, R.H. Chevely Hall, Plymouth
Edwards, J.W. Harleigh H., Bodmin
Grimes, P. Ashley H., Workson
Knight, H.S. East Cliff S., Bournemouth
Lawson, P. Pierremont C., Broadstairs
Martin, G.J.M. Boys' Coll. S., Aldershot
Naylor, E.P. Maidenhead Coll.
Pepe, G.A. Lewisham H., Weston-a-Mare
Rennon, G.A. Oxenford H., Jersey
Sutton, W.R. Gram. S., Ongar
Vincent, A.H. Stafford C., Forest Hill, S.E.
Wilding, H. Stroud Green Gram. S., N.

Agate, H.B. Gram. S., Eccles
Ashton, F.G. New Coll., Margate
Bailey, G.C. Stoke Newington Gram. S.
Barlow, H.T. West Cliff S., Ramsgate
Brace, G.B. Boys' High S., Shrewsbury
Clarke, F. Wellington Ter. S., Taunton
Cuddeford, H.G. Hurst Lodge, Putney
Hopkinson, W. Ashley H., Workson
Mabbott, L.C. Penzance Comm. S.
Nelson, V.W.G. Trowbridge High S.
Nelson, V.H.K. High S., S. Shore, Bl'pool
Taylor, G.S. Balham S.
Watson, C. Highbury H., St. Leonards
Whitley, P.H. St. James's Coll. S., Jersey
Worsley, H. Claremont Coll., Blackpool

Anderson, P. Archbp. Holgate's Gr. S., York
Batchelor, H.J. Handel C., Southampton
Craggs, J. Felix C., Lavender Hill, S.W.
Ginsberg, A.A. Henley H., Mortimer Rd., N.W.
Holden, J.B. Mount Radford S., Exeter
Johnson, C.E. a. Stoke Newington Gr. S.
Line, R. Taplow Gram. S.
Mason, H. Christ Church S., Southport
Ponsford, A.H.J. Highbury H., St. Leonards

Settle, F. Gram. S., Blackpool
Simpson, T.C. Private tuition
Strout, H.L. Gram. S., Camelford
Thompson, G.W. Herne H., Margate
Tilling, W.R. Cavendish Coll., Southampton

Applegate, S.W. a. Trowbridge High S.
Baker, L. St. Leonards Coll. S.
Beckett-Hope, P. Private tuition
Bellamy, A.W. a. Coll. S., Grimsby
Boardman, R.W. Christ's C., Blackheath
Ferber, W.M. Oakes Inst., Walton, L'pool
Goude, S. Raleigh Coll., Brixton
Holt, H.S. The Coll., Kenilworth
Robson, A.U. a. Tynemouth S.
Trant, R.B. Hoe Gram. S., Plymouth
Trotman, G. St. Loe's S., Amberley

Birtwistle, F. Claremont Coll., Blackpool
Bowerman, G.J. Dr. Morgan's S., Bridgwater
Cornish, J.W. Ashton Coll., St. Helier's
Manit Bradfield Coll., Berks
McCubbin, H.W. Grafton H., Manchester
Neal, J. Malden Coll., New Malden
Norris, F.G. Trowbridge High S.
Peeke, S.G. Chevely Hall, Plymouth
Renny, J.A. Grafton H., Manchester
Rogers, P.S. St. Helen's Coll., Southsea
Slater, J.E. Belgrave H., Littlehampton
Strange, E.E. Gram. S., Shoreham

GIRLS, THIRD CLASS—Continued.

Salmon, G.E. d. Birdhurst, S. Croydon
Small, J. a. Eastholme S., Lowestoft
Street, L. B. Margate Ladies' Coll.

Bray, C.E. a. Wellington C., Hastings
Cole, J.R. Camden S. for Girls, N.W.
Cullen, H.W. Fernbank, Wandsworth Com.

Markham, M.J. 43 Westbourne Ter., Lincoln
Mezey, G.F. College H., Newbury
Madd, M. Valley Dale H., Scarborough
Michell, M.A. Private tuition

Davies, A. a. The School, Wotton-u-Edge
Davies, K.A. Ely H., Wolverhampton
Dent, F. Brentwood, Southport
Dunlop, E.K. Salisbury H., Plymouth

GIRLS, THIRD CLASS—Continued.
Greenhalgh, A. a. Albert H., Harrogate
Harrison, L.G. a. Park St., H. Broughton
Holloway, H. Angela H., St. Mary Cray

Anderson, A. Wm. Gibbs S., Faversham
Astley, C.W.
Middle Class S., Wilson St., Derby

The School, Wotton-u-Edge
Forrest, A.G. o. Marlborough H., Clifton
Ferreux, E. Olive H., Brockley, S.E.
Heywood, E. St. Andrew's Hall S., St. Iphort

Addison, W.A. Wellington Coll., Hastings
Angold, M. Penrhos, Knighton
Arnold, H.M. Langton H., Bury St. Eds.

Winsley, St. Mildred's Rd., Lee, S.E.
Owen, E.M. o. St. David's Girls' S., Lampeter
Paranor, E.J. Addiscombe H., Margate

St. Leonard's Coll., Amhurst Park, N.
Jacobs, M. Queen's Coll., Acton
McCarthy, E. Mid. Cl.S., Wilson St., Derby

Brian Down H., Burnham, Som.
Stoneham, J.W.G.D. The Hollies, Yatton
Stovold, G. e. Myanza, Gomersbury

Ace, F.S. Royal Masonic Inst., S.W.
Bartney, R.M. Langley H., Ashbourne
Brown, J. o. Claremont C., Liverpool

Cambridge, K.M. Oakwood H., Brighton
Duff, B.A. a. Wandsworth High S.
Goldworthy, G.A.
Milford H., Newport, Mon.

Miller, M.L. Malvern H., Reading
Moyle, L.M. o. Private tuition
Pope, A.L. Burlington Mid. Class S., W.

Aveline, A.E. a.
Fair Bank, Fulwood, Preston
Baldock, I.S. Sittingbourne Coll.
Barker, H.M. Coll. S., Brentford

Anderson, K.L. Margate Ladies' Coll.
Anderson, K.M. Beauvoir H., Margate
Appleyard, M. Abbey H., Selby

Bebee, E.M. Sutherland H., Gt. Yarmouth
Boys, D.W. Ladies' C., Wellington, Salop
Brittain, M.R. Ladies' C., Wellington, Salop

Anderson, K.L. Margate Ladies' Coll.
Anderson, K.M. Beauvoir H., Margate
Appleyard, M. Abbey H., Selby

Barton, A.R. Moreton H., Dunstable
Bawn, G. George Green S., Poplar
Beards, F. a. The Cowley S., St. Helen's

Brown, M. Guildown Coll. S., Tunbridge Wells
Buekland, C. Clark's Coll. High S., W.
Candy, M. 2 Duke St., Bath

Bebee, E.M. Sutherland H., Gt. Yarmouth
Boys, D.W. Ladies' C., Wellington, Salop
Brittain, M.R. Ladies' C., Wellington, Salop

Applegate, H.F. e. Avon H., Bradford-o-A.
Bennett, L.M. a. Holmwood C., Southend

Bignold, M. 50 Heathfield Gardens, Chiswick
Blake, M.L. Sutherland H., Gt. Yarmouth
Blue, P. Woking High S.

Bebee, E.M. Sutherland H., Gt. Yarmouth
Boys, D.W. Ladies' C., Wellington, Salop
Brittain, M.R. Ladies' C., Wellington, Salop

Bebee, E.M. Sutherland H., Gt. Yarmouth
Boys, D.W. Ladies' C., Wellington, Salop
Brittain, M.R. Ladies' C., Wellington, Salop

Beebe, E.M. Sutherland H., Gt. Yarmouth
Boys, D.W. Ladies' C., Wellington, Salop
Brittain, M.R. Ladies' C., Wellington, Salop

Beebe, E.M. Sutherland H., Gt. Yarmouth
Boys, D.W. Ladies' C., Wellington, Salop
Brittain, M.R. Ladies' C., Wellington, Salop

Beebe, E.M. Sutherland H., Gt. Yarmouth
Boys, D.W. Ladies' C., Wellington, Salop
Brittain, M.R. Ladies' C., Wellington, Salop

Beebe, E.M. Sutherland H., Gt. Yarmouth
Boys, D.W. Ladies' C., Wellington, Salop
Brittain, M.R. Ladies' C., Wellington, Salop

Beebe, E.M. Sutherland H., Gt. Yarmouth
Boys, D.W. Ladies' C., Wellington, Salop
Brittain, M.R. Ladies' C., Wellington, Salop

Beebe, E.M. Sutherland H., Gt. Yarmouth
Boys, D.W. Ladies' C., Wellington, Salop
Brittain, M.R. Ladies' C., Wellington, Salop

Beebe, E.M. Sutherland H., Gt. Yarmouth
Boys, D.W. Ladies' C., Wellington, Salop
Brittain, M.R. Ladies' C., Wellington, Salop

Paine, A. St. Hilda's, Dover
Rawlins, E. Summerbrook, Reading
Rowen, V. St. Margaret's, Cardiff

Arkell, E.J. a. Clark's Coll. High S., W.
Atkins, W.N. Camden S. for Girls, N.W.
Baker, I.V.R. 2 Duke St., Bath

Blockley, E.E. Margate Ladies' Coll.
Bonner, C. Royal Masonic Inst., S.W.
Brown, W.M. St. Anne's Coll., St. Anne's

Blockley, E.E. Margate Ladies' Coll.
Bonner, C. Royal Masonic Inst., S.W.
Brown, W.M. St. Anne's Coll., St. Anne's

Blockley, E.E. Margate Ladies' Coll.
Bonner, C. Royal Masonic Inst., S.W.
Brown, W.M. St. Anne's Coll., St. Anne's

Blockley, E.E. Margate Ladies' Coll.
Bonner, C. Royal Masonic Inst., S.W.
Brown, W.M. St. Anne's Coll., St. Anne's

Blockley, E.E. Margate Ladies' Coll.
Bonner, C. Royal Masonic Inst., S.W.
Brown, W.M. St. Anne's Coll., St. Anne's

Blockley, E.E. Margate Ladies' Coll.
Bonner, C. Royal Masonic Inst., S.W.
Brown, W.M. St. Anne's Coll., St. Anne's

Blockley, E.E. Margate Ladies' Coll.
Bonner, C. Royal Masonic Inst., S.W.
Brown, W.M. St. Anne's Coll., St. Anne's

THIRD CLASS.—3RD DIVISION.

GIRLS, THIRD CLASS—Continued.
 Southgate, D.G. St. Anne's H., Wandsworth Common
 Quantrell, L. Holmwood Coll., Southend
 Robertson, A. Royal St. Inst., Kirkdale, Liverpool
 Williamson, C.D. Private tuition
 Adkins, G. Aintree High S., Liverpool
 Bear, N. f. Girls' High S., Sudbury
 Beercroft, J. Howard Coll., Bedford
 Billings, M. Stoke Newington High S., N.
 Bushell, E.M. Royal Masonic Inst., S.W.
 Buttanshaw, E. Sterndale S., Wallington
 Carter, F.E. a. Bromley Prep. S., Kent
 Culpin, E.E. Sterndale S., Wallington
 Gardiner, E. Girls' High S., Sudbury
 Gyatt, D.B. Stapleton Halls, Stroud Green
 Haly, D. Royal Masonic Inst., S.W.
 Hawkins, J. Hemdean H., Caversham
 Jeffery, E.L. Private tuition
 Newman, F.E. Bastion H., Gloucester
 Rayment, F. Ashley H., Worksop
 Robinson, I. Broad Green S., Wellingboro'
 Searle, E.E. Cricklewood Coll.
 Slipper, A.M. St. Leonard's Coll., Amhurst Park, N.
 Smith, L. a. Priory Farm S., Earls Colne
 Wallace, K. Ladies' Coll., Huddersfield
 Whitecombe, M. Royal Masonic Inst., S.W.
 White, A.M. Ellerker C., Richmond Hill
 Allen, W.M. a. Private tuition
 Edwards, E. Cumberland C., Acock's G'n.
 Greenwood, E. Hr. Grade Bd. S., Burnley
 Griffiths, N.M. Moseley High S. for Girls
 Hassock, A.M.M. Stamford H., Bourne, Lincs.
 Hawke, M.A. Home Park C., Stoke, Devonport
 Holmes, F. West Central Coll. S.
 Hopton, M. Penrhos, Knighton
 Lintott, K. Woking High S.
 Mason, M. Craigholm, Buxton
 Owen, D. Airedale, Streatam Common
 Rowlands, A. Sidcot S., Winscombe
 Smith, H. Haddo & Westwood Coll. S., Scarborough

Stanworth, M.E. Higher Grade Board S., Burnley
 Ticehurst, H.F. d. Royal Masonic Inst., S.W.
 Atkin, N.D. 26 Ashley Rd., Hornsey Rise
 Baker, L.H.G. a. St. Margaret's, Cardiff
 Brown, H.C. Balham S.
 Chapman, W.R. Private tuition
 Clarke, W. Huntingdon St. S., Nottingham
 Dufty, G.L. a. Girls' High S., Doncaster
 Evans, A. High S., Holyhead
 Exton, L.B. Forest View H., Clingford
 Gardner, M.G. Haddo & Westwood Coll. S., Scarborough
 Gray, E. Mecklenburg H., Putney
 King, E.L. Royal Masonic Inst., S.W.
 Nicklin, D.M. Clyde H., Tufnell Park Rd., N.
 Sibley, H.W. Prospect H., St. Neots
 Wileman, E.L. Queen's C. Wood Green, N.
 Wyard, F.S. Llandudno County S.
 Adie, D.M. Private tuition
 Baker, D. Conv.S., The Avenue, Southampton
 Barnes, V.B. Hammersmith High S.
 Collins, M.M. Wilton H., Reading
 Gornall, C. Fair Bank, Fulwood, Preston
 Grant, K.M. Clarendon H., Gosport
 Grey, M.M. Cliffe H., Gravesend
 Heap, A. Higher Grade Board S., Burnley
 Hewlett, I. a. Stoke S. for Girls, Devonport
 House, I.M. Brook Green Coll. W.
 Hurn, M.E. Down End, Clifton
 Jarvis, E. Stoke S., for Girls, Devonport
 Jones, H.R. Plas Madoc, Ruabon
 Mann, E.F. N. Kensington Coll. S., W.
 Newstead, A.L. The Gables, Harrogate
 Powell, O. Penrhos, Knighton
 Reddall, P.M. Dudley H., Stamford Hill, N.
 Rogers, E.M. Stapleton Hall S., Stroud Green
 Vosper, H.M. Private tuition
 Young, F.L. a. Guilddown Coll. S., Tunbridge Wells
 Anderson, H.M. South Hornsey High S., N.
 Dennis, N. Milford H., Newport, Mon.
 Harris, D. Old Grange S., Hampton-on-T.

Harrison, D. Lea Holm, Waterloo, L'pool
 Hitchcox, V.K. Milford H., Newport, Mon.
 Kendrick, M.N. Private tuition
 Lawden, E.K. Mecklenburg H., Putney
 Lyons, C.S. Rookwood, Great Malvern
 Mair, J. Buckingham H., Ravenscourt Pk., W.
 Paekham, B. Margate Ladies' Coll.
 Simmons, E.M.R. Private tuition
 Steele, A.M. Margate Ladies' Coll.
 Wheeler, K.G. Waverley Coll., Stroud Green
 Davies, E.M. Ystrad H., Newport, Mon.
 Earnshaw, E.A. Girls' High S., Cheadle
 Lloyd, M.G. Lee Coll., Eastbourne
 Porter, E. Gwynfa, Penmaenmawr, N. Wales
 Stewart, A.C. St. Catherine's S., Southampton
 Unwin, A. Hadley H., Addiscombe
 Apperley, R.E. Wintersdorf, Birkdale
 Barton, E.L. Albert Terrace S., Louth
 Beaumont, G. St. Hilda's, Littlehampton
 Clarke, M.A. Rougemont Ladies' S., Blackpool
 Hunter, E.E. Lune Hey, Farnworth, Widnes
 Owen, M. Plas Madoc, Ruabon
 Pollen, M. Royal Masonic Inst., S.W.
 Pride, V. St. Hilda's, Exeter
 Roberts, D.I. Private tuition
 Shepherd, M.D. Fern Bank, Harpurhey
 Turnham, E.M. Leybourne H., Aylesbury
 Waters, H.M. a. Roseberry Coll., Southsea
 Wintle, M.E. College H., Newbury
 Bridgland, N. Elm Lodge, Petersham
 Brook, M.C.E. Cheetham Coll. S., M'chester
 Browne, F.E. The Mount S., Banbury
 Cummings, G. 4 Trinity Terr., Cheltenham
 FitzHenry, N. St. John's Coll., Brixton
 Heap, E.O. Grosvenor Ladies' C., Egremont
 King, E.M. Clark's Coll. High S., W.
 Lawford, C.E.A. Lee Coll., Eastbourne
 Lock, D.M. Felix High S., Lavender Hill, S.W.
 Loveless, D. Fairhaven, Bathaston
 Mildren, M. Howard Coll., Bedford
 Nettleship, C. St. George's H., Doncaster
 Oliver, M.I. Prospect H., St. Neots

Sarsons, L. Moseley High S. for Girls
 Sprout, A. McI.N. Cavendish S., Matlock
 Tompkins, A. Coll. S., Waltham Cross
 Tricker, C. Langton H., Bury St. Edmunds
 Turner, B.M. Brighton H., Oldham
 Binney, L.M.M.D. Oakdene, King Henry's Rd., N.W.
 Catchpole, B.A. Fairlawn, Newmarket
 Laurie, M.G. Ellerker C., Richmond Hill
 Lister, G.J. Wellington Coll., Hastings
 Mayo, A. Fenwick Coll., E. Dulwich
 Oakey, E.J. The Mount S., Banbury
 Sankey, E.J. The Larches, Wolverhampton
 Snow, A. St. Hilda's, Exeter
 Wells, S.P. Private tuition
 Bullis, M.F. 28 Sydenham Road, Sydenham
 Burgess, D.H. Moreton H., Dunstable
 Carrott, M.L. Hammersmith High S.
 Dewhurst, E. Malvern H., Birkdale
 Henschel, I. Margate Ladies' Coll.
 Love, C. Hemdean H., Caversham
 Tanton, M.H. Brunswick H., Kingston Hill
 Turner, V.M. Wellington C., Hastings
 Wilkinson, G. Private tuition
 Clarke, H.M. Oxford H., Caterham
 McDougall, J.M. Bestreben High S., Brondesbury
 Roberts, C.M. High S., Holyhead
 Smith, E. 49 North St., Sudbury, Suffolk
 Williamson, N.G. Girls' High S., Swindon
 Ayres, M. Hemdean H., Caversham
 Beadell, D. Waverley Coll., Sydenham
 Curtis, M.O. 10 Laurel Road, Liverpool
 Dufton, D. 171 Bedford St., Liverpool
 Jennings, E.B. Balham S.
 Miller, A.M. Grange Park Hall S., Leyton
 Roughley, A. The Cowley S., St. Helen's
 Thomas, K. High S., Holyhead
 Thompson, N.M. Royal Masonic Inst., S.W.
 Walker, M.L. Mid. Cl. S., Wilson St., Derby
 Fletcher, E.M. Leigh Bank C., Leamington
 Hobson, A.J. Girls' High S., Cheadle
 Wright, W.M.W. Sutherland H., Gt. Yarmouth

NAMES OF CANDIDATES IN THE ABOVE LISTS WHO HAVE PASSED THE ORAL EXAMINATIONS IN FRENCH AND GERMAN.

f = French. g = German.

BOYS.

Andrews, W.J.R. f. St. James' Coll. S., Jersey	Duncan, N.A. g. Stoke Newington Gram. S.	Knight, R.C. f.g. Newcastle Modern S.	Plank, R.H. f.g. Stoke Newington Gram. S.
Arthur, J.D. f. Oxenford H., Jersey	Ereaut, H.P. f. Ashton Coll., St. Helier's	Le Brun, J.R. f. St. James' Coll. S., Jersey	Potter, A.J. f.g. Stoke Newington Gram. S.
Bentham, H.E. f. High S., Croydon	Ereaut, S.G. f. Ashton Coll., St. Helier's	Le Cornu, J.F. f. Oxenford H., Jersey	Reid, T. f.g. Stoke Newington Gram. S.
Blampied, J.W. f. Oxenford H., Jersey	Gillon, F.S. f. Paradise H., S. Newton, N.	Le Marquand, C.P. f. Oxenford H., Jersey	Richards, A.H. f.g. Stoke Newington Gram. S.
Bodmer, H.S. f.g. Alwyne Inst., Gower St., W.C.	Gonin, H.E.G. f.g. W. Leigh, Botley, Hants.	Le Quesne, H. f. St. James' Coll. S., Jersey	Scotland, W.R. f. Newcastle Modern S.
Bourne, E.H. f. Hillmartin C., Camden Rd., N.W.	Gunson, W.C. f. Catford Coll. S., Lewisham	Lower, R.A. f.g. Stoke Newington Gram. S.	Tickell, W.G. f. Private tuition
Colbeck, E. f. Private tuition	Harari, M.A. f. Private tuition	Luce, G.P. f. Oxenford H., Jersey	Touzel, P.W. f. Oxenford H., Jersey
Davies, A.L. f. High S., Croydon	Harrison, W.C. f.g. Ashton Coll., St. Helier's	Mauger, P.V. f. Oxenford H., Jersey	Vaudin, R.J. f. St. James' Coll. S., Jersey
Dinn, H.K. f. High S., Croydon	Heddon, H. f. High S., Croydon	Merton, H.M. g. Maida Vale S., W.	Walford, H.R.S. f. Private tuition
Donn, L.W. f. High S., Croydon	Hibberd, R.J. f.g. Stoke Newington Gram. S.	Nicholls, G.H. f.g. Stoke Newington Gram. S.	White, C.E.H. f. Maida Vale S., W.
Doumin, R. f. Stoke Newington Gram. S.	Hillman, H.M. f. High S., Croydon	Nicolle, W.W. f. Oxenford H., Jersey	Wilenski, R.H. g. Maida Vale S., W.
	Holzappel, J.G. f. High S., Croydon	Patterson, W. f. Newcastle Modern S.	Williams, H.W. f.g. Stoke Newington Gram. S.
	Irwin, V.I. f. High S., Croydon	Piquet, C.J. f. Oxenford H., Jersey	

GIRLS.

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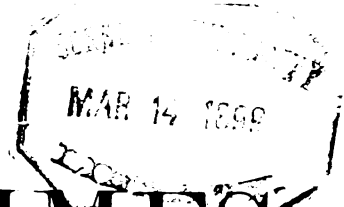
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The Educational Times.

Dismissal of Assistant-Masters. A CASE of wholesale dismissal of assistant-masters, which took place last Christmas at Grantham Grammar School, on the occasion of a change of headmasters, seems to us sufficiently important to be made a test case as to the legality of all similar dismissals in endowed secondary schools. No one will maintain the equity of the course which has been taken by the Governors of Grantham School; but legality and equity do not always run side by side. We can understand that a newly appointed headmaster may have some ground for desiring to select his own assistants; but it rarely happens that a strong headmaster insists on his right to do so. What we cannot for a moment admit is, that a body of local Governors has any justification whatever for making a clean sweep of assistant-masters without any assigned or reasonable cause.

From inquiries which we have made into this matter, it would appear that the Governors, or some of them, wished to have an entirely new staff in the school—a new headmaster, and a younger body of assistant-masters. They alleged no reason for getting rid of the old staff beyond the fact of their age; and it does not seem that the average age of the assistants was greater than that which one would expect to find in an endowed secondary school. Now the scheme of the Charity Commissioners under which Grantham Grammar School is governed makes the headmaster responsible for the appointing and dismissal of the assistant-masters, subject to an appeal to the Governors. Section 49 of this scheme runs as follows:—

Subject to the provisions herein contained relating to vested interests, the headmaster shall have the sole power of appointing, and, subject to an appeal to the Governors, of dismissing, all assistant-teachers; but he shall forthwith notify every appointment to the Governors. The headmaster shall also determine, subject to the approval of the Governors and to such provisions as aforesaid, in what proportion the sum assigned by the Governors for assistant-teachers and plant or apparatus shall be distributed among the various persons and objects for the aggregate of which it is assigned. The Governors shall pay the sum assigned, either through the hands of the headmaster or directly, as they think best.

In any case, it seems that the headmaster, under this section, would be acting virtually as the agent of the Governors; for (1) he has to notify every appointment, (2) the Governors approve the salary of each master, (3) assistants have a right of appeal to them against dismissal, (4) cheques for salary are signed by the Governors, and (5) the printed receipt-forms begin with the words, "Received from the Governors." Nevertheless, the initiation of appointment and dismissal is with the head-

ma-ter; and the Grantham Governors recognized this fact when they made it a condition with the new headmaster (or so it is stated) that he should not re-engage any member of the old staff.

That is briefly the case; and it is evidently a case for inquiry. We are glad to know that the Association of Headmasters, acting on behalf of the assistants, has invited the Charity Commissioners to investigate the matter, and this, we trust, will be done. The Grantham case, no doubt, is one of a considerable number, but the injustice which has been committed is particularly glaring. The Headmasters are rightly estimating the interests and feelings of the profession in the course which they are taking, and it is evident that their intervention may be more effectual than that of the Assistant-Masters' Association, because it is on the face of it more disinterested. The question of insecurity of tenure needs to be constantly discussed, and, on fitting occasion, to be fought out and determined. We repeat that the grievance which has arisen at Grantham seems worthy of being made a test-case. It is of wider and deeper interest to the whole teaching profession than the Governors of Grantham Grammar School appear to imagine.

NOTES.

THE London Statutory Commission makes no sign, but we suppose it is doing its best to overcome obstacles. On February 14 Mr. Chamberlain, in answer to a question in the House of Commons from Mr. Hogan, who was solicitous on behalf of Colonial subscribers to the Imperial Institute, said that a conference of representatives of the Government, the Institute, and the University would "shortly take place to consider whether a part of the Institute buildings could, with due regard to all existing interests, be made available for the accommodation of the University." Poor University, waiting for accommodation in "a part" of the Institute, with all the F.I.I.'s buzzing round in grudging indignation! We confess that we do not like this Institute scheme at all. If we cannot find a million for the metropolitan University, why have we troubled ourselves about a scheme in itself so inspiring and worthy? The present talk is too much like providing temporary lodging for a Board in a flat. As for Mr. Hogan's friends, considering all the pressure that was put upon them to subscribe to the Institute in the first instance, we do not wonder if they are now a little disconcerted.

CAMBRIDGE UNIVERSITY is commendably eager for new modes of useful educational activity; and we have no doubt that its

offer to inspect and examine secondary schools under Clause 2 of the Board of Education Bill is based on public grounds, as well as on a keen and healthy appetite for work. At the Cambridge Conference, referred to in our Summary of the Month, Mr. Jebb and Dr. Butler clearly indicated the reason for making this offer to the Government. Under the Board of Education Bill, certain functions of the Charity Commission are transferred to the new Board of Education. In regard to schools not subject to the Charitable Trusts Acts and the Endowed Schools Acts, and with which, therefore, the Charity Commission has nothing to do, the Bill refrains from making the examination or inspection obligatory; it makes it depend on the consent of the governing body of the school. Under this proviso a very large number of secondary schools will be exempt from the examination or inspection if their governing bodies refuse to consent to it. On that account it is the more desirable that the arrangements for examination and inspection under the new Education Board should be such as will command the confidence and goodwill of the schools. Nothing, as Mr. Jebb said, could give more confidence to the schools than if the agency of the Universities were accepted as an alternative for inspection and examination by the officers of the Board. "This would be a guarantee of the most satisfactory kind that the literary side of education should not be unduly neglected in comparison with the scientific and the technical. It would be a guarantee for the maintenance of the distinctly liberal studies, and of that liberal spirit in education generally which is the very breath of life to secondary schools." We quite agree; and it is a sign of the times that the old Universities should lose no opportunity of extending their usefulness beyond their own borders.

THOUGH the Drapers' Company (which is running the Clothworkers' hard) has reinforced the generosity of Sir Walter Gilbey, and Cambridge is soon to have her Professor of Agriculture, the new examination in Agricultural Science has not yet attracted a large number of candidates. Only one man was successful this year, making the twenty-first to obtain the diploma in about five years. It is stated in the report of the Syndicate that seven of the diploma holders are now engaged in teaching, and seven are acting as land agents or engaged in farming. But there is at least a good chance that a professor, an examination, a diploma, and a backing of public opinion, will do for agriculture at the Universities what these things have previously done for other lines of study.

THE conferring of the honorary degree of LL.D. on Mrs. Henry Fawcett by the new Lord Rector of St. Andrews University, to which we referred last month, has been the subject of favourable comment in the Press. Yet, whilst recollecting Mrs. Fawcett's devotion to her husband as his amanuensis and general helper, the writers have somewhat overlooked the fact that she has rendered considerable service to the cause of education, and is an author on her own account. With Mr. Henry Fawcett she is joint author of "Essays and Lectures, Social and Political," and on his suggestion she produced a lucid little book on "Political Economy for Beginners." She is also the author of "Some Eminent Women of our Time," "A Life of Queen Victoria," and a goodly number of magazine articles. Amidst the cordial demonstrations of St. Andrews on the graduation of Mr. Stuart's nominees, it was noteworthy that

Mrs. Fawcett was one of the few people with whose features they were familiar. Students were heard to suggest that some of the other recipients of degrees should have been labelled, or at least have worn scraps of coloured ribbon, by which, and with the help of the programme, they could have been identified.

WE learn with regret that the Hall of Residence for the women students of Liverpool University College, which was opened last October, has closed its doors until the beginning of the 1899-1900 session, having failed to receive an application from a single college student. It seems a little strange that a Committee of fifteen ladies, in addition to the officers, failed to gauge the need of such an institution. It now appears that in the course of nine years only four women students of University College have lived in lodgings, and of course there remains for consideration the fact that lodgings are often cheaper than a Hall of Residence. Twenty-five shillings weekly, and to share a bedroom with another student at this figure, cannot be reckoned cheap, and it is perhaps here that the Committee have made a mistake. They very wisely during the first term of the present session accepted technical and other students for brief periods, and thus minimized the loss, which, we are glad to learn, will not be great. It certainly seems a pity not to have counted the chickens before building their home.

WE find a difficulty in agreeing with the writer of "Questions for Women," in the *Queen*, when she tell us that the "chief moan of the bigger girls [in Board Schools] is that they are made to specialize too early in domestic economy." So far as our observation goes, the girls really like the lessons given in housewifery schools, cookery classes, and similar work, and the same remark is true of boys who have taken up manual work. Objections come neither from them nor from their parents, who in almost all cases would be hard put to it to define the relative and due proportions of general and technical training. The "moan" against sacrificing the former really comes from teachers and writers on education; up to the present, comparatively few moans have come from elementary teachers on the great waste of girls' time in giving too many hours to sewing—undoubtedly a technical subject. The writer of "Questions for Women" belabours examinations with hearty good-will. But, so long as examiners classify the results of examinations in such a way that their verdict, in the main, tallies with that of the teachers, just so long will examinations not die, but live. If the writer of the article in question had confined herself to the abuse of examinations by teachers and parents, there could still be spoken a useful, and perhaps a necessary, word on the subject. On examinations considered as tests of knowledge, especially when competition is natural and not exaggerated, there remains little to be said that is worth the saying or the reading. When all the advantages and all the drawbacks are summed up, and the lesser number deducted from the greater, the difference will be advantages.

SUMMARY.

THE MONTH.

A CONFERENCE was held at Cambridge on February 4, to consider the Government Education Bills. The chair was occupied by the Vice-Chancellor (Dr. Hill), and amongst those who attended were Prof. Jebb, M.P., the Right Hon. J. Bryce, M.P.,

the Masters of Trinity, St. John's, Christ's, Sidney, Clare, Emanuel, and Selwyn, the President of Queens', Professors Eason, Sir G. G. Stokes, Sir Robert Ball, Allbutt, J. A. Robinson, Forsyth, Waldstein, and Stanton; Drs. Sandys, Breul, Keynes, Chase, Campbell, Reid, Mayo, Besant, and MacAlister, with many others. The following resolutions were passed:—

(1) That this meeting welcomes the Board of Education Bill, introduced by the Duke of Devonshire in the House of Lords last August, as an important step towards the organization of secondary education in England. (2) That, in the opinion of this meeting, the Consultative Committee proposed in Clause 3 of the Bill should be made permanent, and should contain representatives of the Universities and of the teaching profession. (3) That, in the opinion of this meeting, it is desirable that a system of inspection and examination conducted by a University, and approved for the purpose by the Board of Education, should be accepted as adequate under Clause 2, Section 4, of the Bill. (4) That copies of Resolutions 1, 2, and 3 be forwarded to the Marquis of Salisbury, the Duke of Devonshire, Mr. Balfour, and Sir John Gorst.

Mr. Bryce referred to the Board of Education Bill as "a very imperfect and inadequate instalment of what we ought to have," and predicted that we should soon see another Bill to set up the Local Authorities. There ought not, he added, to be the least difficulty in passing the present Bill for a Central Authority, and it might very well be disposed of on the second reading and in Committee in two days.

On the first day of February an inquiry was held by the Science and Art Department at South Kensington with regard to the application made by the London County Council to be recognized under Clause 7 of the "Science and Art Directory" as the organization responsible for science and art instruction within the County of London. Sir John Donnelly presided. The delegates of the School Board included Mr. Lyulph Stanley, the Rev. Stewart Headlam, Mr. Graham Wallas, and Dr. Macnamara, and on the opposite side of the table sat Dr. Garnett, Mr. Bond, M.P., Chairman of the Technical Committee of the London County Council, Mr. Organ, and Sir Philip Magnus. Mr. Stanley first presented the case for the School Board. He was followed by Mr. Bond, who said the whole matter was one of "domestic legislation." Clause 7 would, if adopted, prevent overlapping. The School Board attitude was that of "a dog in the manger." Mr. Graham Wallas protested that the overlapping was not intentional. The extension of the evening classes was due to the increased number of applicants. Dr. Macnamara said Sir John Gorst was attempting to do by a departmental minute what he had failed to do in Parliament in 1896. Sir Philip Magnus, who represented the Polytechnic Council, said that that body were in favour of Clause 7 being applied. Sir John Donnelly asked Mr. Stanley what right the School Board had to spend money outside the regulations of the Code of the Education Department. Mr. Stanley complained of having to answer on the spur of the moment, but Sir John replied that the question was a fundamental one. Had the School Board the right to spend money out of the rates on higher education in day schools? The School Board has since discussed the matter, and appears to be fully resolved to maintain its position.

On February 16 Sir John Lubbock resigned the Principalship of the Working Men's College, Great Ormond Street, which he has held for fifteen years. Acknowledging a complimentary address, Sir John claimed that "the College had been the pioneer of similar institutions. It was gratifying that so many of the latter were now springing up in the metropolis. They had succeeded in combining instruction with good-fellowship, which was responsible for keeping many in touch with the College all their lives." He referred to his successor, Prof. Dicey, as a leader of thought, and considered that the College was fortunate in getting him to fill the post.

THE Annual Report of the Girls' Public Day School Company suggests that the time has come to revise the rate of interest paid to its subscribers. Resolutions will be submitted to the shareholders providing that in future the interest paid to the subscribers shall be that actually earned after deducting the cost of stamps and brokerage on investments. The bonuses contributed by the Company will continue as before, and the Company will still bear all the other expenses of the fund. In connexion with this recommendation, the contribution of the Company to the Teachers' Provident Fund includes £326 for deficiency of interest account. This sum, together with the augmentation, £519, added

to £71,265, the amount of teachers' salaries, makes a total sum of £72,110 paid during the year to teachers in the Company's service, an average of £10. 5s. 8d. per pupil. The profits of the Company are evidently going in the right direction.

ACCORDING to the new scheme of the Charity Commissioners for the government of the Haberdashers' Schools (Aske's Charity), the Governors are to consist of nineteen competent persons appointed as follows:—Nine (of whom two shall be women) by the Governors; one by the Lord Mayor and Aldermen of the City of London; one by the Common Council of the City of London; two (of whom one shall be a woman) by the London County Council; one by the County Council of Middlesex; three by the School Board for London; and one by the School Board of Acton; there shall be added to the School Governors such additional School Governors, if any, as may be appointed for the purpose of the Technical Instruction Act, 1889, by a Local Authority under that Act. The accounts shall be open yearly to public inspection. The Order also lays down that amongst other schools one shall be established at West Hampstead for about three hundred boys, to be called the Haberdashers' (Aske's) Boys' School, and that the cost of the site and buildings for the school are not to exceed £32,000.

THE trouble between St. Paul's School and the Charity Commissioners has ended in a compromise. Out of Dean Colet's rapidly increasing foundation fund, which is largely invested in town properties, St. Paul's is to receive annually not £8,000, or £9,000, or £11,000, as successively proposed by the Commissioners, but two-thirds of the total income, with the last-mentioned sum as a minimum. The *Manchester Guardian's* London correspondent says:

It seems impossible to record this settlement, which is the result of a compromise effected after friendly discussion, without saying that it is in great measure due to the energy and resource of the High Master during the past five or six years. He has fought the battle of the school with remarkable persistence and adroitness, and has always insisted on the equity of giving St. Paul's a proportional part of the endowment fund in place of a fixed annual grant. Other points in the compromise are more likely to be regarded with mixed feelings. St. Paul's is to be definitely a Church of England school, without a conscience clause. The London County Council is not to be represented on the Board of Governors, and, of course, the original desire of the Commissioners to set apart a number of the 153 free places for boys from the elementary schools has been finally disappointed.

IN the February session of Convocation for the Northern Province it was resolved to form a Council on Secondary Education, to represent Convocation and the House of Laymen, similar to that already constituted in the Province of Canterbury, and competent to act therewith. At the last meeting of the Southern Council, in January, the Archbishop of Canterbury made a statement of the proposed work of the Council, which was to include, first of all, legislation, and then general objects in connexion with secondary education. The Archbishop also expressed the opinion that the Church should forestall the proposals of the Government, because the Government would be more likely to do justice to religious education if they knew beforehand what the Church wanted in this respect.

THE Birmingham Teachers' Association met on Friday, February 17, 1899, when Dr. H. G. Fiedler, of Mason University College, read a paper on the "Training of Modern-Language Teachers." After having given a brief sketch of the training and social position of modern-language masters in France and Germany, the doctor maintained that the Government or Corporations ought to found travelling scholarships. An Englishman is to be preferred, as a teacher of modern languages, to a foreigner, but only when he has an undoubted command of the language. Even the candidates in the Cambridge Modern Language Tripos show absolutely insufficient conversational powers. They, too, would have to stay a year at least abroad to become fluent speakers of the language they profess to teach. Mason University College has a travelling scholarship, a lending library, named after the late Dr. Karl Dammann, and a German society of above two hundred members in which all discussion is carried on in German. Mr. Hart, M.A., Headmaster of the Handsworth Grammar School, regretted the absence of so many assistant-masters, who ought to have heard the capital paper, and proposed a vote of thanks. Mr. Barnes, H.M.L., said the United States did much more to promote the study of

than England. Dr. Tischbrock, Modern Language Teacher at Bourne College, Birmingham, seconded the vote of thanks proposed by Mr. Hart, and added that a modern-language teacher could not dispense with a sound knowledge of didactics and the special methods of language teaching. He found modern-language teachers hunting after the Parisian and Hanoverian accents (the latter is a bad one, too) instead of studying the experiences of great educationalists and language teachers. Prof. Sonnenschein put the vote to the meeting, and it was carried.

UNIVERSITIES.

(From our Correspondents.)

Oxford. The Universities of Oxford and Cambridge have made many successful grafts on their respective stocks by exchanging one good man against another, and a fresh instance of this transfusion of sap has just been given by the election of Mr. A. E. H. Love, Fellow of St. John's College, Cambridge, to the Sedleian Professorship of Natural Philosophy. The Chair was held by Dr. Bartholomew Price, the late Master of Pembroke, who succeeded in his Mastership by Bishop Mitchinson, and in his Professorship by Mr. Love. The two new men are exceptionally distinguished in their several lines. Mr. Love is a Fellow of the Royal Society.

A good deal of personal interest has been worked up over the election of a new Curator of the Bodleian Library. Mr. Nicholson, the Librarian, circulated a printed appeal to his friends, in which he accused Mr. Poole of having criticized his administration in an Oxford magazine of the year 1886, and asserted that Mr. Poole's nomination was "the culmination of a deliberate policy of personal persecution which may be traced in successive nominations of curators for the last ten years." The Librarian's letter was, as he himself admitted, "one of the most extraordinary documents that have been issued in the University"; and it resulted in the nomination, at the eleventh hour, of a rival candidate. Mr. C. Plummer, the candidate in question, had considerable claims, and he has been elected by a large majority. There is, no doubt, a good deal of friction between the Librarian and the Curators; but it is admitted that the ground of difference is one of policy rather than of persons.

Ruskin Hall is now established and at work; but it has a precarious foundation of a supply of cash for a two years' experiment. Many who have but little confidence in its permanence wish it well, though it has had to pass through a fire of criticism, not to say ridicule. Spontaneous and enthusiastic innovation must naturally expect to encounter this preliminary ordeal. Mr. and Mrs. Vrooman, the originators of the idea of a "Labour college" at Oxford, and their colleague Mr. Beard, are American admirers of Ruskin, and there are thus many grounds on which they appeal to our sympathies. The Hall was opened on Wednesday the 22nd, and three working-men trustees were nominated, namely, Messrs. C. W. Bowerman, of the London Society of Compositors; A. Sellicks, of the Amalgamated Society of Engineers; and Ben. Tillett, general secretary of the Dock Labourers' Union. Mr. Tillett said the task the founder had undertaken was heroic. There was in the mind of the working classes a desire to know more of the world, and he pointed out the advantage the Hall would confer in their being able to go to trained intellects for assistance. Those who were starting this institution said they were doing so devoid of creed and without any political fad, and he hoped they would bear that in mind, allowing persons to form opinions independently. At the public meeting which followed the opening ceremony, Prof. York Powell, who took the chair, said he was glad that the institution had been started in Oxford. Many ideas planted there had thriven, and they hoped and intended that this one should do so. It was their pride to think that Oxford, though she had not, of course, acted at every moment up to her ideals, had never been ungenerous to new ideas, but judged them by their outcome. The founders only wished for a fair judgment and a little sympathy, and those he was sure they would have in Oxford. Between seventy and eighty students have entered at the Hall.

The vexed question of the scholarship examinations, which is of vital importance to some of the Oxford colleges, has been under serious discussion this month, and resolutions have been passed at an influential meeting, presided over by the Vice-Chancellor, and forwarded to the Committee at Cambridge which has charge of the same question there, in the hope that the two Universities may be able to combine their efforts for a more reasonable scheme of examinations.

Cambridge. An important meeting was held at Trinity College Lodge on February 4, to consider the attitude of the University to prospective legislation during the present Session of Parliament. The resolutions passed unanimously by the meeting give a fairly good idea of the general tendency of the views expressed by the speakers, but it was felt on all sides that the vital points on which it was essential for the University to speak plainly were the maintenance of the cause of literary education and the recognition of existing examination agencies for the guidance and control of future developments.

By general consent the speech of the day was that delivered by Mr. R. D. Swallow, of Chigwell Grammar School. He ably brought to the notice of the meeting the difficulties which were met with by those concerned in the welfare of our smaller endowed schools; he pleaded earnestly for the consideration of the needs of those who of necessity were obliged to send their sons to local institutions—the professional men, the ordinary persons who are the backbone of English society and country life; he said it would be lamentable, nothing short of a national calamity, if schools meant for and attended by the children of the gentry were degraded by the introduction of the curriculum of the local apostle and dedicated to the propagation of the gospel of getting on; and he prayed that this great question of the organization of secondary education might not fall for solution into the hands of the party manager, the letter writer to the *Times*, the man in the street, and, he might have added, the conscientious objector.

The close connexion of the University with the educational section of the Government—our Chancellor as President of the Council being assisted by Sir John Gorst as Vice-President, while common rumour assigns to Professor Jebb an important position in reference to the work—renders the fact that all the resolutions were carried unanimously of some considerable importance.

The liberality of friends outside the University will soon render the formation of the new department of Agriculture an accomplished fact; the gift of £2,000 by Sir Walter Gilbey has been followed by the generous offer on the part of the Drapers' Company to give £800 a year for ten years to establish a Professorship in the Science of Agriculture; Sir Walter Gilbey withdrawing his condition that a Reader only should be appointed, and allowing his contribution to be merged in the general funds of the intended department. Of course, much will depend upon the actual choice of a Professor; statutory definition of duties is in itself an absolutely inefficient safeguard, and, if we get a man who does not do more than the statutory minimum, the munificence of our present benefactors will be thrown away. With examples such as Professors Thomson, Ewing, Humphry, Kanthack, Ward, and Hughes before him, the new Professor will, at any rate, know what is expected nowadays of the occupant of a professorial chair.

The Sedgwick Memorial Museum controversy is now happily a thing of the past. For twenty-six years this question has been before various committees and syndicates. The plain member of the Senate has been confused and bewildered by the intricacies of the question; but, once a plain issue was put before the University, an equally plain vote has settled the matter. Two plans, known as A and B respectively, were to be put before the Senate, the B plan being on a less parsimonious scale than the other. The Senate, by 96 votes to 58, decided to adopt the more generous proposal; and Prof. Hughes is to be congratulated on his success in overcoming the opposition which has presented itself at every stage of the proceedings.

The Council of the University have once more distinguished themselves by publishing an edict prohibiting bonfires in public places. On the occasion of the Sirdar's visit, it may be remembered, an enormous amount of damage was done by those who collected fuel for the bonfire in the market place; the danger to the buildings in the centre of the town was very considerable, and the police were absolutely powerless to stop or to control the mob. Fortunately, the town authorities acted with great wisdom and forbearance, so that no collision whatever arose between the crowd and the police. This edict, however, prohibits in the mildest manner what undoubtedly is a crime in the eyes of the law, and the Council may possibly give us their paraphrase of the eighth commandment with an intimation that it will be visited with the customary University censures.

A *propos* of discipline, an incident has occurred at Queens' College which has caused much comment and some indignation, both in the College and in the University. A man of unblemished reputation, for some acts of noisy horseplay rather

than rowdiness, has been sent down for a year, a proceeding which practically wrecks his career. The occasion of his departure was celebrated by a demonstration of a somewhat novel character. A funeral procession of nineteen cabs, containing a large proportion of the members of the College, escorted the victim to the station. Crape was much in evidence, and the "Dead March" in "Saul" was whistled at the station. The wisdom, courtesy, and fairness of the President of Queens' are known and recognized throughout the University; but the writer of these notes has not as yet heard anything but sympathy expressed on behalf of the promising undergraduate who has received so stern and exemplary a sentence.

The new Professorship of Ancient History has been filled up by the appointment of Dr. J. S. Reid, of Caius College, who thus sets the coping stone to an honourable and distinguished career of usefulness to his College and the University. It is to be hoped that the new Professor may live many years to enjoy the comparative ease of his new position.

That Cambridge is not behindhand in the practical work of physiological research is proved by the recent report issued by the Medical Officer of Health, Dr. Anningson, with regard to the spread of tuberculous disease by means of milk. Much valuable information is communicated, and it is hoped that Parliament will shortly do for mere humans what it long ago did for our four-footed friends, and protect us against diseases which modern science has shown to be, to a large extent, preventible. The researches of the late Prof. Kanthack on the subject of the dissemination of phthisis by milk were unfortunately brought to an end by the Professor's premature death; but Dr. St. Barbe Sladen, the Professor's colleague in his investigations, is now continuing the work, and has already been able to announce important results. Dr. Sladen has been appointed John Lucas Walker Student, so that the University has been able to stamp the work with the seal of official recognition.

THE last two or three months have not contributed much to the history of this University. The question of migrating to South Kensington stands pretty nearly as it stood three months ago. For some members of the Senate, and a good many graduates outside, regard the project as one for giving up house and going into apartments again; and a few of them are old enough to remember the inconveniences of former times, when the University had to share old Burlington House, and previously Marlborough House, with other public bodies. They apprehend interference of conflicting interests, confusion in the public mind, and derogation from academic dignity, by the entertainments in which the Imperial Institute has delighted. Such scruples are just, and should be removed. Certainly the University should be guarded against the immediate neighbourhood of a music-hall element; and it should be assured, to borrow the words of a Special Committee of Convocation, "that the exclusive and permanent control of the whole, or a distinct and sufficient portion [of the Institute's building], with an adequate entrance, and with security of tenure," is to be "vested in the University." But it seems that, as far back as the week before Christmas, the Vice-Chancellor had already addressed to the Treasury an exhaustive series of searching questions on every doubtful point that could be thought of. Sir Frank Mowatt's answer appears to remove all difficulties, and besides makes it clear that the Senate will pledge itself to nothing by appointing representatives to meet those of the Treasury and the Institute for preliminary conference. These communications were considered at a meeting on February 1, when the Senate, reserving its own freedom of ultimate action, appointed the Vice-Chancellor, Lord Kimberley, and Sir Joshua Fitch as a Special Committee to represent the Senate on the proposed Conference and to report the results thereof.

It does not seem that the counter-proposal of University College has met with approval in any quarter. It may have helped to retard the progress of the Statutory Commission; but, as the powers of the Commissioners are strictly defined, they may not be able seriously to consider it.

THE LAW AND THE SCHOOLMASTER.

III.

To the lasting profit of lawyers, most people deem themselves competent to make a will; and, similarly, the framing of a school prospectus is often undertaken with a light heart, in ignorance of the many legal pitfalls which its framer may thereby prepare

for himself. I shall endeavour to point out the most common—"A term's notice required prior to the removal of a pupil." The condition as to notice of removal is often found in this form; but is to be avoided, because, on the removal of a pupil without notice, only the actual damage which a master suffers thereby can be recovered. These were the terms in the prospectus in the case of *Denman v. Winstanley*, and, on the trial before the County Court judge, he held that the whole term's fees, amounting to £39, were recoverable. On appeal, however, to the High Court, it was held that the master was only entitled to recover his actual loss of profit, which was the above amount less the sum that it would cost the master to board and lodge the boy during a term. It will be observed that in this case there was no stipulation that a term's fees should be payable in lieu of notice. With such a condition, the case of *Lanssen v. Thornton* shows that the whole term's fees are payable without any diminution. In the last case, the judge of the Lord Mayor's Court gave judgment for only £5, the actual loss sustained; but, on appeal, the High Court reversed his decision, and gave judgment for the whole amount of a term's fees. The principle underlying these decisions is a clear one. In the ordinary case of a breach of contract, the damages recoverable are confined to the actual loss accruing from the defaulter's action; but, where the parties stipulate in the contract itself what sum shall be payable in case of non-performance, the whole of such sum is recoverable. In that case, the sum is payable, not strictly as damages, but as a liquidated amount payable under the terms of the original contract.

In the absence of a condition requiring notice before the removal of a pupil, the master seems to be without remedy when a boy is taken away without notice. Damages could only be recovered on the ground of custom, which could only be proved by actual evidence of a general practice to pay compensation to the master in such a case. One can hardly understand why such a custom, eminently reasonable as it would have been, should not have grown up within the wide embrace of the common law, which, for the most part, controls the relations of schoolmaster and parent; but there is no trace in the reports of any such custom having been established, although counsel for the plaintiff in the old case of *Collins v. Price*, decided in 1828, contended that it was "the usual course of dealing with schoolmasters" not to take a pupil away without a quarter's notice or a quarter's pay. The Court, however, did not decide the case on that ground. The facts were these: Four days after the beginning of term, the child was sent home by the schoolmistress because she was taken ill. The child was not sent back at all, and the schoolmistress sued to recover the fee for the whole term, and succeeded, judgment being given for the plaintiff on the ground that, as the charges had always been sent in and settled quarterly, there was evidence of an implied contract to pay from quarter to quarter. The fact that the pupil fell ill did not disentitle the plaintiff to the quarterly payment stipulated for, and the Court could give the plaintiff the relief sought without considering the matter from the point of view of the alleged custom. Even if at one time there had been such a custom, it is possible that it may have disappeared from the early and universal use of prospectuses, as express terms always oust the operation of a custom relating to the same subject-matter.

The word "request" should be avoided. In a recent case the condition was in these words: "A term's notice requested before the removal of a pupil." The judge, in spite of the compulsory character of the old "aids and requests," was somewhat inclined to think that the word only connotes a strong wish in these days. It was, indeed, only by showing from the correspondence which passed between the parent and schoolmaster that they, at any rate, understood the term in the sense of "require" that the difficulty was surmounted, and the master recovered judgment.

A condition in the prospectus stipulating that the fees are payable in advance entitles the master to the whole fees for the term even if the pupil is absent for the whole term. This was decided in the case of *Jones v. Turner* in the High Court, on appeal from a County Court. The school term commenced on April 24, on which day the boy's mother wrote saying that, on account of his father's illness, the boy could not be sent on that day, but would be sent on the following Monday. The boy, however, was not sent during that term, and, owing to a dispute as to fees, the headmaster refused to let him return the following term. No claim could, of course, be made here for a term's fees in lieu of notice, as the non-return of the boy at the beginning of the following term was due to the master's action. If the master had been willing to receive him and the boy were not sent, it

would appear from the judgment of Mr. Justice Wills in the case of *Price v. Williams* that the master would also have been entitled to another term's fees for the breach of the condition requiring a term's notice of removal. Even apart from authority it would be so; the conditions as to payment in advance, and as to notice of removal, being independent terms of the contract entitling the master to distinct and cumulative damages for their breach.

When, as is nearly always the case, school rules exist in addition to the provisions of the prospectus, a copy should always be sent to the parent with the prospectus. But, if, for some reason, this is inconvenient or thought inadvisable, there should be a note in the prospectus drawing attention to their existence and stating that they may be obtained if required. The prospectus should also state that pupils are expected to conform to such rules unless specially exempted. To be binding upon parents they must either impliedly or expressly have notice of their existence. In the case of *Price v. Williams*, decided in 1888, there was appended to the prospectus a list of "Rules and Regulations." One was: "No exeats allowed during Easter term." A pupil was allowed to go home for his sister's birthday, but, contrary to the master's wish, his father insisted upon keeping him for the night as well. Whereupon the master refused to have him back, and claimed the whole term's fees—being payable in advance—and succeeded. In giving judgment, Mr. Justice Wills said: "The parent certainly undertakes that the master shall, so far as he or his action is concerned, be at liberty to enforce with regard to his son the rules of the school or, to put it at the very lowest, at all events such rules as are known to him and assented to by him." The above, no doubt, suggests that there may be rules binding upon a parent although not brought to his knowledge. And it would be so as regards rules which are essential to the good government and discipline of a school, the knowledge of which would be presumed; but any rule peculiar to a particular school can only be enforced when notice of its existence has been expressly given to the parent. For the want of such notice a schoolmaster in a recent case had to pay damages for caning a boy for absenting himself from school without permission. The existence of a rule which had not been brought to the parent's notice could not be pleaded in justification when the parent himself had consented to his boy's absence.

There remains one matter which must never be overlooked, although possibly many schoolmasters will receive the suggestion with incredulity. Ought the contract which is made between master and parent, by means of the prospectus and letters, to be stamped? In certain cases, undoubtedly. The prospectus is not merely an advertisement circular, but the basis of the contractual relation between master and parent, and may be the actual contract itself. Now, an agreement between a schoolmaster and parent for the education of a boy, if contained *entirely* in writing, should, according to the provisions of the Stamp Act, be stamped with a sixpenny stamp. If not so stamped, the documents containing the agreement will not be accepted in court as evidence except on the payment of a penalty of £10. Such, to many a suitor's discomfort, is the rigid provision of the law. But the need of a stamp only arises where the agreement between the parties is *wholly* contained in writing, and not where the proposal is in writing and the acceptance oral or by conduct, or where certain terms of the agreement are arranged verbally and not reduced to writing. For want of such a stamp, the plaintiff in the old case of *Williams v. Stoughton*, in the year 1817, met with disaster. He sued for a year's board and tuition, and produced a copy of his printed prospectus stamped with an agreement stamp. It was objected, on behalf of the parent, that this could not be received in evidence, as it was not the identical prospectus which had been delivered to the defendant. Thereupon the plaintiff's counsel called upon the defendant to produce the original, which was then handed to him. If the original were not forthcoming, the copy might have been used. When the original was now tendered to the Court, objection was taken that it was unstamped, and the evidence was, consequently, rejected. The report of this case does not make it clear whether the agreement between the parties had been concluded entirely by correspondence. If so, the decision is right; but, if not, it must not be taken as overruled by the case of *Clay v. Crofts*, decided in 1851. There the plaintiff delivered a prospectus, in which it was stated that his terms were sixty guineas per annum, and that three months' notice, or payment, should be given before the removal of a pupil. The plaintiff agreed, *verbally*, that the defendant's two boys should be charged fifty guineas each as long as they remained together at the school.

The boys were taken away without the stipulated notice, and, at the trial, where the master sued for fees in lieu of notice, objection was taken that the agreement was not stamped. It was held, however, that the prospectus was a mere proposal, and that there was no concluded agreement wholly in writing to make a stamp necessary.

The common case, where a parent, having written for a prospectus, receives one by post, and then writes to say that he is going to send his boy next term, answered by the master who expresses his readiness to take the boy, is one where the agreement is wholly contained in writing; therefore the parent's last letter should be stamped within fourteen days of its date to avoid the penalty referred to above, in case the terms of the prospectus have to be relied upon in a court of law. It is sufficient if one letter is stamped, provided it is not a copy, but an actual letter or document which has passed between the parties and also directly concerned with the formation of the contract. Such is the strict letter of the law; but, in most cases, it is perhaps not difficult to discover that some slight variation in the original arrangement has been provided for verbally, or acquiesced in during the pupil's stay at the school, and so avoid the Stamp Act's operation.

ARTHUR E. HUGHES.

CORRESPONDENCE.

MODERN-LANGUAGE TEACHING.

To the Editor of the Educational Times.

DEAR SIR,—Rising late at the evening meeting on February 15 to second the vote of thanks to Mr. Campbell Brown for his excellent paper on "The Teaching of Modern Languages in German Schools," I felt I was trespassing upon the patience of the audience. I am afraid my remarks were consequently incomplete, and I should like to add thereto.

So much that is favourable has been said about teaching and the teachers of modern languages in Germany that I am afraid the English teacher may give up all hope of ever equalling what is being done in that country. As a rule, those who visit German schools visit only the best. They hear the best teachers—men and women whose energy, love of their work, and training as teachers have enabled them to add greatly to their obligatory qualifications, and brought them to a pitch of excellence very difficult of attainment. Yet I have no hesitation in saying that English teachers would be quite as successful as their German friends if only they could work under the same conditions.

In England teachers—teachers of modern languages especially so—are often hindered rather than helped by examinations. There is in the mind of English parents no fixed time at which children should commence their studies or leave school, and too often the number of years children spend at school is altogether too small. There is, moreover, a prejudice, which appears to be passing away, in favour of a foreign teacher for a foreign language. While there are many notable exceptions, the average foreign master is quite unable to manage English boys. Consequently the discipline of the school suffers, and lack of good discipline means absence of serious work.

My acquaintance with German schools and teachers began some twenty years ago. I had spent a long time in France studying the language, especially the pronunciation, and I took Gaillard's "French Orthoëpy" from England to help me, so that, on arriving in Germany, my mind was prepared to receive impressions. As member of several "circles" for the study of modern languages, I had opportunities of gauging the knowledge of the best educated teachers in the city in which I lived. More than one had English wives. Only a few had been in England or France. Some had one or two English or French boarders in the house, so that they had constant opportunity of speaking the languages they taught. Some spoke exceedingly well, but the majority of the teachers had learnt their French pronunciation from Floetz's books, which then held almost absolute sway, but have now been superseded by others; and it is, therefore, not surprising that I thought their pronunciation thoroughly bad.

What struck me most was the free way in which many used their bad pronunciation and their little vocabulary to the fullest extent, never worrying apparently about their inaccuracies; but, taking full credit for what they already knew, they seemed never to lose any opportunity of exercising their knowledge and of adding to it.

Much has recently been said about the advisability of exercising the pupil studying a modern language in free composition. English teachers of modern languages may wonder how their German *confrères* can manage to deal with the free compositions of their pupils. The fact is that there are in Germany comparatively few teachers of English and French who are able properly to correct free composition.

The head French master at one of the best *Gymnasien* in Germany is the author of a French course which has had a considerable sale. In my opinion he is an excellent teacher, and one would not think of

doubting his good knowledge of French; but that he would not be able properly to correct the free composition of his pupils is evident from a signed article in French contributed to the Yearly Report of his school. This article has many inaccuracies. Wrong prepositions are used, for example, and the sentences are German in construction.

A leader of the Reform Movement in Modern-Language Teaching has recently published a book dealing with the teaching of English. One might expect the English to be faultless; but this is by no means the case, and it would have been better if the proofs had been read by an Englishman.

From this it is evident that, even among the best teachers in Germany, the knowledge of the language they teach is far from sufficient to keep them from falling easily into error. The fact is that they claim credit for what they do know, and not for what they do not know, and they teach their pupils as much as they know, even if inaccuracies are frequent.

I do not write in favour of allowing badly qualified teachers to do our modern-language teaching. The German Government satisfies itself that German teachers have, at least, a fixed minimum knowledge of the language they teach; but I do want the English intending teacher of modern languages to understand that, if he waits until he can correct free composition, or until he speaks the language faultlessly, his teaching years will not be many, unless, indeed, he is a notable exception to the rule. In my opinion, one of the weak points of the new method is that the teacher often leads his pupils where he cannot properly control them, unless he is absolute master of the language he is teaching. At the same time, I should be sorry to say that successful work cannot be accomplished without a perfect knowledge of the language.

Teachers who visit the modern-language classes in Germany should make a point of seeing the ordinary teacher working by the new method; it is not quite the same in his hands.

If many classes are visited, it will be interesting to find how much these ordinary teachers know, and just as interesting will it be to find how confidently they teach in view of the much they do not know. This confidence seems to be a characteristic of the German teacher, and I should like it to take possession of all English modern-language teachers who are doing work fairly within their powers.

To teachers who are in doubt about the use of phonetics in teaching pronunciation, I would point out that the German Government has recently made a knowledge of phonetics obligatory upon future teachers of modern languages. That English teachers should know phonetics is not less necessary; but, if they cannot see their way to introducing the phonetic system, I should certainly recommend them to use Gaillard's "French Orthoëpy," and, perhaps, Lesaint's "Traité complet de la prononciation française," rather than follow the imitative method in teaching French. This last-named work does not seem to be known much in England.

In my opinion, too much attention cannot be given from the very first to pronunciation and division of words into syllables. The acquirement of new words becomes so much more easy.—I am, yours faithfully,
A. MILLAR INGLIS.

SIR EDWARD CLARKE ON SHORTHAND.

To the Editor of the Educational Times.

SIR,—In the interests of historical accuracy we should be glad if you would allow us to correct some mis-statements about the system of shorthand first published by Sir Isaac Pitman in 1837, which appear in a letter contributed by Mr. Percy E. Kingsford to your February number. The writer states that Pitman's shorthand was published as the Taylor system "further improved," the indebtedness of the author to Taylor and Harding being stated on the title-page. This is entirely wrong. There was no title-page to Isaac Pitman's first work, nor does any such statement appear in subsequent title-pages. Had it appeared, it would not have harmonized with the author's own statements in the body of the work of 1837, in which he shows that his system has a phonetic basis, while other methods, including Taylor's, have not. Isaac Pitman promised a more extended development of his principle of "writing by sound" subsequently, and this he gave to the world in 1840 and later years. Those who have had an opportunity of examining Sir Edward Clarke's copy of Taylor's alphabet can see for themselves how entirely dissimilar it is from Pitman's alphabet. We would further state that no such proposition as that mentioned by Mr. Kingsford in the following sentence was ever made: "It was suggested to young Mr. Pitman that he would do better commercially by altering it further (Taylor's copyright having expired), altering the name and calling it his own." The facts are that in 1837 Isaac Pitman suggested to Mr. Samuel Bagster, the Bible publisher, the advisability of issuing a popular edition of Taylor's system, which he had himself written for eight years. The publisher consulted a reporter, whose opinion was not favourable to the further issue of a system already in the market, and he added: "If he will compile a new system, I think he will be more likely to succeed in his object to popularize shorthand." This was the suggestion Isaac Pitman acted on, with results that are well known.

The most conclusive testimony to the dissimilarity of the two systems is to be found in the fact that, though a Taylor writer is able to read Isaac Pitman's shorthand MS. written in that system previously to 1837, he is quite unable to read the MS. written in the inventor's own system in 1837 and subsequent years.—Yours, &c.,
Phonetic Institute, Bath.

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A SCHOOLBOY'S VERSION.

To the Editor of the Educational Times.

DEAR SIR,—The following piece of versification seems to me so remarkable that I venture to send it to the Educational Times. It was written by a boy of fifteen, in school, in an hour, and is intended to be a translation of "Bion" l. 47 *et seq.* I have transcribed it without making any corrections. It is worth observing that the most obvious faults are in metre and rime. But, as every one knows, it is in technicalities of this sort that young writers always fail, even the most promising.

Φείρεις μακρόν, Ἄδωνι.

"Alas (qd. she) far, far away to hell
Art flown, Adonis, and dwell'st far from me,
Where Pluto grim and grisly king doth dwell;
But I a goddesso live in miserie,
And though immortal cannot follow thee.
My Paramoure keep safe, O Proserpone [!]
Of all fair things the fair epitome,
Better than I. Thou diest, thrice loved one;
My love hath flowne away and like a dream is gone.

"Widowed is Cytheris, the Loves grieve sore.
With thee my joy hath died: what fate thee led
In beauteous madness grapple with the boar?'
Thus Cypris wailed: the Loves thus answered:
'Alas for Venus, faire Adonis dead!'
As many goutts of blood as one could see
So many teares the Paphian maid did shed,
While flowres spring up in sweete varietie:
The blood doth beare the rose, the tears anemone."

—Your obedient servant, E. C. MARCHANT.

CIVIL SERVICE HANDWRITING.

To the Editor of the Educational Times.

SIR,—I am frequently asked by teachers and intending candidates for Civil Service appointments whether upright, or vertical, writing is accepted by the Commissioners. Will you allow me to state, for the benefit of your numerous readers, that, having written to the Department for information on the subject, I received a reply, in which the question was set at rest, once and for ever, by the official statement that: "The Commissioners have no preference for any particular style of writing. They lay stress chiefly on legibility."—Yours truly,
JOHN JACKSON.

The Hollies, West Norwood, S.E., February 13, 1899.

THE CENTRAL WELSH BOARD.

To the Editor of the Educational Times.

DEAR SIR,—The enclosed cutting may interest you. The County Councils have already complained about the extravagance of the Central Board and its morbid desire to examine everybody at every season. The chief examiner appointed by the Board is a man whose experience of schools was confined to Oswestry.—Yours, H.
February 4, 1899.

[We have no room for the cutting, which is from an article in the Cambrian News, complaining in somewhat heated language that "the attempt of the Central Welsh Board to establish an elaborate, costly, and quite unnecessary system of examinations to take the place of the Cambridge and Oxford Local Examinations, or, at any rate, which interfere with them, is a mistake in many ways, and betrays defects of educational insight which the members of the Central Board cannot realize too soon or too completely."—EDITOR.]

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held at the College, Bloomsbury Square, on February 18. Present—Dr. Wormell, Vice-President, in the Chair; Rev. J. O. Bevan, Mr. Bowen, Mr. Brown, Mr. Butler, Mr. Chettle, Miss Dawes, Miss Day, Mr. Eve, Mr. Harris, Rev. Dr. Hiron, Miss Jebb, Mr. Reynolds, Mr. Rule, Rev. Dr. Scott, Mr. Sergeant, Mr. Armitage Smith, Mr. Stewart, and Mr. Storr.

The minutes of the last meeting were read and confirmed.

The Report of the Finance Committee was adopted.

The Report of the Examination Committee, dealing with questions in relation to the recognition of the College Certificates by the General Medical Council, was adopted.

The representative of the Council on the Joint Agency Committee reported the satisfactory progress that had been made by the Agency. Mr. A. Millar Inglis, Maidenhead College, was elected a member of the Council to fill the vacancy caused by the death of Dr. Maxwell. The Moderators and Examiners for the year 1899 were appointed. The Very Rev. the Dean of Wells was elected President of the Council, and Dr. Wormell, Sir Philip Magnus, and the Rev. J. Stewart, were elected Vice-Presidents. Mr. H. W. Eve was elected Dean, and Mr. E. E. Pinches Treasurer of the College.

The following persons were elected members of the College:—

- Mr. H. Baker, M.A. Camb., New College, Margate.
- Miss A. Gibson, Holly Mount, Washington Road, South Woodford.
- Miss A. L. Hales, 8 Quadrant, Coventry.
- Miss M. Mawer, A.C.P., 101 Tredegar Road, Bow, E.
- Miss M. Paquier, A.C.P., 41 King Henry's Road, N.W.
- Mr. W. G. Rushbrooke, LL.M. Camb., 13 Cathcart Hill, N.
- Miss J. Woods, A.C.P., Gypeswyk Road, Ipswich.

The following books had been presented to the Library since the last meeting of the Council:—

- By Mr. J. F. MOON.—Stewart's Philosophical Essays.
- By the BUREAU OF EDUCATION, WASHINGTON, U.S.A.—Report of the Commissioner of Education, 1896-97 (2 vols.).
- By the VOLTA BUREAU, WASHINGTON, U.S.A.—International Reports of Schools for the Deaf, and other papers relating to the education of the deaf.
- By the AGENT-GENERAL FOR NEW SOUTH WALES.—Report of the Minister of Public Instruction for the Year 1897.
- By G. BELL & SONS.—Bell's Reading Books (The Swiss Family Robinson, and Early English History); Pencilbury and Beard's Shilling Arithmetic.
- By A. & C. BLACK.—Chrystal's Introduction to Algebra.
- By BLACKIE & SON.—The Newton Object-Lesson Handbook I.; Dillworth's New Sequel to Euclid, Parts II. and III.; Vere Foster's New Copy Books, Medium Series, Nos. 1-5 and 9.
- By C. J. CLAY & SONS.—Preliminary Local Examination Papers, December, 1898; Breen's The Teaching of Modern Foreign Languages; Edwards's Xenophon's Anabasis, Book IV., and Xenophon's Hellenica, Books I. and II.; Flather's Macaulay's Lays of Ancient Rome; Ropes' Dumas' La Fortune de D'Artagnan, and Saintine's Piccola; Shuckburgh's Caesar's Gallic War, Books III. and IV.; Sidgwick's Vergil's Æneid, Book XII.; Smith's Boileau's L'Art Poétique; Verity's Shakespeare's King Richard II.
- By W. B. CLIVE.—Matriculation Directory, January, 1899; Bailey's Advanced Inorganic Chemistry; Briggs and Bryan's Tutorial Dynamics; Lawson's Text-Book of Botany; Mills's Plato's Apology; Stout's Manual of Psychology, Vol. I.
- By MACMILLAN & CO.—Nesfield's Manual of English Grammar and Composition; Page's Virgil's Æneid XI.; Phillips' Pliny's Letters I.-XII.; Weiss's Fontane's Vor dem Sturm; Wilkinson's Cornelius Nepos, Vol. I.
- By WHITTAKER & CO.—Hutton & Bood's Elementary Mathematics. Calendar of the Pharmaceutical Society of Great Britain.

COLLEGE OF PRECEPTORS.—DIPLOMA EXAMINATION, JANUARY, 1899.

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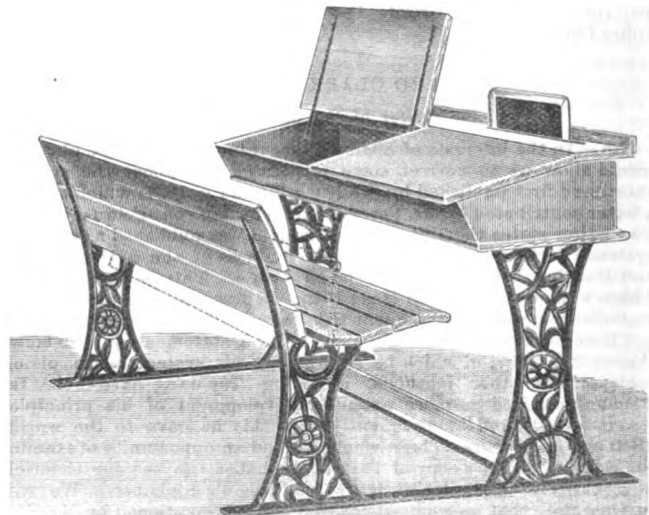
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FORECASTS AND COMMENTS.

March 1, 1899.

THE Public Distribution of Diplomas, Prizes, Fixtures, and Certificates awarded to candidates at the Christmas Examinations of the College of Preceptors will be held at the College this day at 3 p.m. The Rev. T. W. Sharpe, C.B., late H.M. Chief Inspector of Schools, will occupy the chair.

THE Professional Preliminary Examination of the College of Preceptors will begin on Tuesday next, March 7.

ON March 2 Sir Ernest Clarke will lecture at Cambridge on "Arthur Young and his Times," in conclusion of a short series of lectures on Agricultural History.

DR. A. S. MURRAY's course of lectures at the Royal Academy on "Greek Sculpture," the third of which was given on Monday last, will be continued on March 2, 6, and 9.

MIDDLESEX HOSPITAL opens its new Medical School buildings on March 15.

THERE will be a competition for a tenor Choral Scholarship at King's College, Cambridge, on March 16. The value is £60 per annum for three years.

THE National Society of French Masters in England have fixed March 18 for the distribution of prizes at the Mansion House.

THE Public Schools Sports Competition will take place at Aldershot on Friday, March 24—the University Boat-race on the following day.

THE following entrance scholarships will be offered for competition at an examination which will be held at Holloway College on July 4-8, 1899—viz.: Two of £75 a year, two of £60 a year, four of £50 a year, all for three years. The full value of the scholarships of £75 a year will only be awarded if candidates of high promise present themselves. A certain number of bursaries of £30 a year for three years will also be awarded to deserving candidates who fall below the scholarship standard, and who need help towards the expenses of their college course.

A COMBINED examination for scholarships and exhibitions at Lady Margaret Hall and St. Hugh's Hall will be held this month. Four scholarships, tenable for three years during residence, are offered at Lady Margaret Hall, one being given only to a candidate who can prove her need of pecuniary aid, and one at St. Hugh's Hall. Exhibitions of smaller value may also be awarded.

ENGLISH student-teachers in French training colleges pay 400 francs (£16) a year, and give a little assistance in the teaching of English in return for board and instruction in French. They must be over eighteen and under thirty years of

age. The next examination of candidates for vacancies that will occur in October will be held at Newnham College, Cambridge, during Easter week. Forms of application may be obtained of Miss Alice Gardner, Newnham College, Cambridge, or of the Secretary of the Franco-English Guild, 6 Rue de la Sorbonne, Paris.

* * *

A SCHOLARSHIP of the annual value of £40, tenable for three years at Newnham College, will be awarded to a woman candidate who obtains a place in the Honours Division of the Matriculation Examination of the University of London to be held in June, 1899, and one scholarship of £40, tenable for three years at the college, will be awarded on the results of the Oxford and Cambridge Higher Certificate Examination to be held in July, 1899.

Education Gossip. WE greatly regret that ill-health has compelled Miss E. P. Hughes, Principal of the Cambridge Training College for Secondary Teachers, and a member of the Council of the College of Preceptors, to suspend her work for a time. We trust that the interruption of Miss Hughes's many activities will not be of long duration.

* * *

THE Joint Agency Committee, we are glad to say, is able to make a very favourable report of the working of the Agency since the combination of forces effected last year.

* * *

At the last meeting of the College Council, Sir Philip Magnus was elected one of the Vice-Presidents of the College of Preceptors; and Mr. Millar Inglis, of Maidenhead College, was elected to fill a vacancy in the Council.

* * *

ST. ANDREWS confers the degree of M.A. on Mr. Edmund Gosse, and Glasgow the degree of LL.D. on Sir Henry Irving.

* * *

EDUCATION has another technically informed representative in the House of Commons since the election of Dr. C. Mackinnon Douglas, M.A., D.Sc., as member for North-West Lanark. Dr. Douglas was formerly Assistant-Professor in Moral Philosophy at Edinburgh, and was a candidate for the Professorship vacated by the death of Prof. Calderwood.

* * *

WE are glad to note that Mr. J. Nicol, the winner of the Matriculation scholarship at the University of London, was a pupil at Tollington Park College under Mr. A. E. Butler and Mr. W. C. Brown. We report this month Mr. Brown's paper on "Modern Language Teaching," read at the College of Preceptors on February 15. Mr. Nicol was second in the College examination at Midsummer, 1897.

* * *

IN connexion with the Cambridge meeting of the National Union of Teachers, the University has resolved to follow the precedent set by Oxford in the case of Mr. Ernest Gray, M.P., by conferring the honorary degree of M.A. upon Mr. Clancy, the President, and Mr. Yoxall, M.P., the General Secretary.

* * *

AN apparently gratuitous proposal is made to expand a Kentish "Association of the Managers and Governors of Schools for the Working Classes" into one for the United Kingdom as a whole. In connexion with this it is proposed to found a newspaper under the title of *The Imperialist*, with the prospective capital of £100,000.

* * *

WE are asked by Sir H. E. Roscoe to state that the National Association for the Promotion of Technical and Secondary Education has removed its offices from Dean's Yard to 10 Queen Anne's Gate, Westminster.

DURHAM men are naturally very unwilling to submit to the closing of Codrington College, which was affiliated to the University in 1875, and it is understood that they have subscribed a sum which will suffice to prolong the existence of the college for one year.

* * *

SOME months ago Sir Walter Besant proposed that, in recognition of Miss Charlotte Yonge's great services to the cause of religious and high-toned literature for young people, a University scholarship, bearing her name, should be founded at the Winchester High School, which receives girls from all parts of the kingdom. Miss Yonge has been connected with this school from its foundation in 1884 as one of the council of management, and there is no place outside her own village of Otterbourne more linked with her name than Winchester. Of the £6,000 required to found a scholarship of £50 to be given every year and held for three years, about one-third has been received from all parts of the United Kingdom, as well as the colonies and the United States, among the contributors being the Princess of Wales, the late American Ambassador, and the Archbishop of Canterbury. The hon. treasurer is the Rev. J. H. Merriott, Dormy Cottage, Winchester.

* * *

ON February 18, in the Great Hall of the University of Berlin, the degree of Doctor of Philosophy was conferred for the first time on a woman. The new doctor is a Jewess, Fräulein Elsa Neumann, who is twenty-seven years old. A correspondent says that the occasion was utilized by friends of the "Feminist" movement for a great demonstration. The hall was packed with their representatives, who greeted the young doctor with loud applause. Fräulein Neumann's speciality is electricity. She has also brought herself into note as an advocate of the teaching of logic in girls' schools.

* * *

THE success of the London School of Economics appears to be definitely assured. The number of students exceeds four hundred. Mr. Bryce recently expressed the opinion that the school was destined to become a faculty of practical Political Science in London University.

* * *

IT has been practically decided at Cambridge that advanced students may compete for the Tyson Medal and the Smith's Prizes. No wonder that Cambridge men are saying that all the principal emoluments and rewards will soon be at the mercy of minor who, after being educated elsewhere, take away prizes meant for Cambridge men. The tendency of modern developments is to revive the ancient practice of pot-hunters making the grand tour of the Universities, seeing what they can pick up in the way, not of knowledge, but of prizes.

* * *

TO CORRESPONDENTS.—*Pons Asinorum*. Congratulations. We should have hesitated to send in a verse for the "Extra Prize for January" in which "board," "lord," and "fraud" were made to "rime" together; but your boldness has succeeded, and you have deserved your guinea. You had the shrewdness to see that the vowel sound *aw* and the consonant *d* were the only essentials for that particular competitive rime: all else could be ignored (pr. "ignawd"). You have shown how easy it is to versify a guinea's-worth with these extended rime groups. For example: "board, lord, fraud, ignored, gawd, toward, forward, poured, floard."

THE Mastership of Pembroke College, Oxford, has been filled by the election of Bishop Appointments and Vacancies. Mitchinson. The new Master was born in 1833, and was Scholar and Fellow of the college; he took First Classes in Classical Moderations, *Litteræ Humaniores*, and Science, and subsequently graduated D.C.L. He was also President of the Union Society. He has been Headmaster of King's School, Canterbury, Bishop of Barbados,

and Archdeacon of Leicester. In 1884 he was made an Honorary Fellow of his college.

* * *

MR. G. S. WOODHEAD, M.D. Edin., has been elected Professor of Pathology at Cambridge. He was educated at Huddersfield College and Edinburgh University. Although the Chair of Pathology was founded as recently as 1884, Dr. Woodhead is the third Professor. The first, Mr. Roy, died in 1897, and his successor, the late Prof. Kanthack, occupied the position only one year. The Professor receives a stipend of £800 a year from the University, and is not allowed to practise his profession.

* * *

DR. JAMES SMITH REID, a Fellow and Tutor of Gonville and Caius College, has been elected to the newly created Chair of Ancient History at Cambridge University. Dr. Reid, who was born in Scotland in 1846, was educated at the City of London School, and had a brilliant career at Cambridge, where he was bracketed Senior Classic in 1869, being then a scholar of Christ's College.

* * *

MR. A. E. H. LOVE, M.A., F.R.S., University Lecturer in Mathematics at Cambridge, has been elected Sedlician Professor of Natural Philosophy at Oxford, in succession to the late Master of Pembroke.

* * *

THE Chair of Physiology in Edinburgh University is vacated by the death of Professor Rutherford.

* * *

THE Regius Professorship of Divinity at Cambridge will be vacated by the appointment of Prof. Armitage Robinson to succeed Canon Eyton at St. Margaret's, Westminster.

* * *

MR. GERRANS, Secretary to the Delegacy of Local Examinations at Oxford, has been elected by the Hebdomadal Council to be one of the Delegates.

* * *

WE regret to note the death of the Right Hon. Christopher Redington, Resident Commissioner of National Education in Ireland. He is succeeded by Mr. W. J. M. Starkie, President of Queen's College, Galway.

* * *

THE REV. F. W. TRACY, M.A., Headmaster of the South-Eastern College, Ramsgate, has been appointed Headmaster of the United Services College, Westward Ho, in succession to the Rev. Dr. Harris.

* * *

MR. M. J. RENDALL, M.A., has been appointed second master of Winchester College, in place of the Rev. G. Richardson, who retires at Midsummer.

* * *

MISS BROOKES, B.A., second mistress of the Holywell County School, has been appointed Headmistress of the same school.

* * *

Literary Gossip. WE receive from the United States Bureau of Education, in addition to their periodical and valuable Reports (to be precise, we receive in an official envelope of the Bureau) a weird little *brochure* on "Emile Zola, a Study of his Personality, with Illustrations," written by Mr. Arthur MacDonald, "Specialist in the U.S. Bureau of Education." It appears that M. Zola has been investigated, with his full consent, by a number of French specialists, and what Mr. MacDonald has done is to reproduce in his own words the substance of their conclusions.

* * *

THE tract has Mr. Zola's *imprimatur*; he says that the estimate made of him is authentic and true, and it must, therefore, be good and useful. "This study of me is about one who has given his life to work, and dedicated to this work all his

physical, mental, and moral forces." Mr. MacDonald says that "Zola does not have the religious sentiment"—which seems to imply that he could have it if he would. There are portraits of the novelist as boy and man; the anthropological measurements are minute; there are diagrams of his hands and his finger-tips; his abnormal tendencies are duly recorded. But yet, on the whole, this study is creditable, if not flattering; and we can imagine that a dozen similar studies of our own eminent writers would make a grimly attractive volume.

* * *

WE noticed some time ago a book by the Rev. Allen Whitworth, Vicar of All Saints, Margaret Street, of which the title was "DCC. Exercises on Chance." It is a subject which has always been a favourite one with Mr. Whitworth, and we are not altogether surprised that he should have preached a Lenten sermon at St. Paul's on gambling. While condemning as immoral betting founded on private information, and little better than blasphemous betting on one's luck—which, if it meant anything, was another word for Divine Providence—he said that he could not, with one bishop, condemn betting wholly as a sin when founded on scientific or technical knowledge. It stood logically in the same category as purchasing a commodity with the hope of its rising in value, entering into an athletic competition, or insuring one's house against fire. But what are the odds against Mr. Whitworth's having subsequently discussed his sermon with the Dean of St. Paul's?

* * *

IT seems that the Rector Magnificus of the University of Louvain is about to pay a brief visit to this country. Mgr. Hebbelynck hopes to spend a few days at Oxford collating some Coptic MSS. for a text he is shortly to edit. The *Tablet* is "not aware that a Rector Magnificus has ever visited England before, though Mgr. Abbelous, who lately retired from that office, was several times at both Oxford and London copying Syriac MSS. for his editions of Barhebraeus and other writers; but that was before his busy rectorship."

* * *

MR. E. B. NICHOLSON, Bodley's Librarian, has collected together three papers on "Mr. Gladstone and the Bodleian," "Oxford's Poverty," and "Bodley and the Bodleian." The little *brochure* is illustrated by photographs of Woolner's well known bust of Mr. Gladstone in the gallery, with its Homeric reliefs, and the traditional portrait of Bodley himself in 1598, from an unpublished miniature.

* * *

MESSRS. KEGAN PAUL & Co. have in hand a gazetteer of Greater Britain on a somewhat novel plan. The papers on the various sections will be written by men of special knowledge and authority on the countries which they treat. In the first volume, which will deal with India, the papers on the Madras and Bombay Presidencies will be written by Lord Wenlock and Lord Harris, who were former governors of the respective provinces. They will not be confined to physical, political, and commercial facts and statistics, but will set forth whatever is of interest in the habits and manners of the native races.

* * *

MR. F. E. HULME, F.L.S., F.S.A., has prepared forty new drawings of wild flowers for the serial issue of "Familiar Wild Flowers," which is to begin in March. This new edition will contain in all 240 plates in colours.

* * *

MESSRS. BLACKWOOD announce a series of monographs on English writers on similar lines to their Ancient, Foreign, and Philosophical Classics. The first volume will be on R. L. Stevenson, by Mr. Cope Cornford.

* * *

AMONGST forthcoming publications of the Clarendon Press we may mention the "Politics" of Aristotle, edited by W. L. Newman, M.A., Vols. III. and IV. (completing the work);

Homer, "Odyssey XIII.-XXIV.," edited by D. B. Monro, M.A.; Xenophon, "Hellenica," edited by G. E. Underhill, M.A.; "Hints for Greek Iambic Verse," by C. E. Laurence, M.A.; and in the Series of "Oxford Classical Texts," "Aeschylus," edited by A. Sidgwick, M.A., and "Thucydides," Vol. I., edited by H. Stuart Jones, M.A.; the "Complete Works of John Gower," edited by G. C. Macaulay, M.A., in 4 vols., 8vo; "The Plays and Poems of Robert Greene," edited by J. C. Collins, M.A.; "Milton's Poetical Works," edited by H. C. Beeching, M.A.; Bosworth's "Anglo-Saxon Dictionary," Supplement, by T. N. Toller, M.A.; "A New English Dictionary, founded mainly on the Materials collected by the Philological Society," edited by James A. H. Murray, M.A., LL.D., portions of G, by Henry Bradley, M.A., and of H, by Dr. Murray.

THE TEACHING OF MODERN LANGUAGES IN GERMAN SCHOOLS.

On February 15, at the Monthly Evening Meeting of the College of Preceptors, Mr. W. C. Brown, M.A., F.C.P., read a paper on the subject of "Modern Language Teaching in Germany," based upon "impressions derived from personal inspection of *Realschulen* in Berlin." The Chair was taken by Mr. Francis Storr, B.A.

The lecturer began with a short account of the organization and classification of Prussian schools. Of schools with a nine-years' course there were—the *Gymnasium* with its provision for the teaching of Greek, Latin, and French, with English as an optional subject; *Realgymnasium* with English in place of Greek; the *Oberrealschule* in which neither Latin nor Greek is taught, thus admitting of a much larger proportion of time being given to French and English. In the *Realschule* with its six-years' course the same subjects were taught as in the *Oberrealschule*. Time-tables of these different classes of schools had been printed and distributed among the audience. The lecturer proceeded as follows:—

Refinement in education can no more be got from a commercial, technical, or purely scientific training than can water be extracted from a stone. Our German contemporaries have recognized this, and have, in their modern schools, replaced the study of ancient languages and their classics by that of modern languages and their classics. While thus modernizing their education to suit the requirements of a large section of the people, German teachers have not thrown aside the splendid spirit of the older education, but have transfused it into new and fresh material. On this point I should like to quote from one of Mr. Sadler's reports: "Certainly the German *Realschulen* struck me as having more of the old educational tradition, writ anew in a different dialect and with an altered subject-matter, than have some of our modern secondary schools, established under the regulations of organized science schools."

In the time-tables of the different classes of schools we are at once struck with a marked difference, which at first sight apparently contravenes all pedagogical principles. In the *Oberrealschulen*, French is commenced in the very lowest class; thus a boy in one of these schools learns French for a period of nine years. In the *Realschulen*, however, it is not commenced till the fourth form (*Quarta*), so that a boy learns French only for four years. There is a corresponding difference, too, in the teaching of English, which is started a year later in the *Realschulen*. At first sight it appears very strange, if not absurd, that the commencement of French and English should be delayed in the schools with the shorter course. The reason for this peculiarity in the *Realschulen* is of very great importance, inasmuch as the need for it arises from the unique position these schools hold in the whole system of education. In origin higher-grade elementary schools, which have been raised to the position and dignity of secondary schools, the *Realschulen* stand at the boundary between elementary and secondary education, and serve as a connecting rung in the educational ladder from the elementary school to the University. Further, the *Realschule* has no *Vorschule*, or preparatory school, of its own, and has to draw the majority and the best of its pupils from the elementary school.

If now in the *Realschule* French were commenced in the *Sexta* (the bottom class), those boys coming from the elementary school would have to leave it early enough for them to commence at the bottom of the *Realschule*, because French is not taught in the *Volksschulen*. By thus withdrawing the boys at the age of nine or ten from the elementary schools, their upper classes would be robbed of their best pupils—their leaven, as it were—and their best work would be completely ruined. For this reason, therefore, the commencement of French is put off in the *Realschulen* to the *Quarta* to enable boys from the top classes of the elementary schools to enter this form. In an endeavour to avoid the overpressure that might result from this

delay, the commencement of English is also postponed to a year later. Thus, a *Realschüler* who does not pass on to the higher school only has two years' training in English and four years' in French.

Among German teachers much divergence of opinion is to be found on this subject. On the one side are those who consider that the French is, according to this system, started much too late, while there are to be found equally strong supporters of the opposite view who make a virtue of this necessity. The latter urge in favour of the system that those *Realschüler* who enter the *Oberrealschulen* generally come out well in their classes. A certain weight must be given to this argument; but it is only fair to point out, firstly, that only the best pupils of the *Realschulen* pass up into the higher school, where they join a class of boys, all of whom are not necessarily so capable, and, secondly, that more concentrated effort is put into the modern-language teaching in the shorter period of the *Realschule*. Several teachers who are doing this work in the *Realschulen* confessed to me that they had to push the boys hard in this direction; but they claimed at the same time that they got better results than were obtained in the corresponding classes of the higher school. To this point, however, I shall have to return when showing in what direction my own experience with these schools seemed to point.

Before passing on to an account of the actual teaching in these schools, the main object of this paper, I should like to answer a question which might be raised on this point of the relation of the secondary to the elementary schools.

Why should the higherschool have to bear all the brunt of the difficulty? That is to say, why should not French be taught in the top classes of the elementary school? Quite apart from the general question whether French ought to be taught at all in elementary schools, there are, in the special case of the Prussian system, two fundamental and insuperable obstacles. Firstly, one of the conditions under which the higher-grade schools (*höhere Bürgerschulen*) were raised to the rank of secondary schools was that it should cause no interference with the curriculum of the elementary schools; and, secondly, the introduction of French into the elementary schools would necessitate the supplying to them of a new body of teachers capable of doing the work.

I must now turn to the actual teaching of modern languages in these modern schools, and give you the result of my experience in them. A reference to the time-tables again will show that a large number of hours per week is given to each foreign language, especially during the first year in which the particular language is taught. For instance, in the *Oberrealschule* the lowest classes receive six hours' instruction per week in French, and the top classes four; and in the *Realschule*, because of the delay in starting French, eight hours per week are given to it for the first two years. This is the first factor in the success of the modern-language teaching in these schools, namely, the large share of the time-table devoted to it. Further, the experience of German teachers seems to prove that concentration of work and time in the teaching of either foreign language produces better results—i.e., that the larger number of hours a week spread over fewer years, as in the *Realschule*, is more effective than the smaller number of hours per week spread over more years, as in the *Oberrealschule*. My own experience, though it was only small, seemed to bear this out very strongly indeed. There are three reasons for this success. Firstly, in learning a modern language, where constant repetition and practice are of prime importance, the more frequent and continuous this practice is the better will be the result obtained. And to the particular methods used in these schools this applies even more strongly than usual. Secondly, the increase of time during the shorter period has the effect of giving to modern languages a more important position in the school work. This is no mean factor in obtaining a good result. Those subjects which come forward most frequently will be regarded by the pupils as most important, and treated accordingly. Thirdly, the postponement of the starting of the first foreign language gives more opportunity for thoroughly grounding the pupils in their own language first. It is true that with the newer methods of teaching, in which the older grammatical system is superseded, this cause has less effect. At the same time, I feel confident that some of the success of the shorter period is due to this factor. It is a mistake with any system of class teaching to commence a foreign language too soon. The quality of the result obtained in the modern-language training in these schools is far better than any increase of time could produce under the older method.

Before, however, any method of teaching can be fairly criticized, the aims which have determined the choice of the particular method must be clearly set forth. In this case the aim is twofold. The nearer and more immediate object is the acquirement of skill in the use of the language for reading, writing, and speaking, while the more remote is the cultivation of literary taste and style. To assist in realizing both parts of the aim, but particularly the latter, foreign languages are given a prominent position in the educational scheme, while to realize the former the methods of teaching have undergone complete change.

The less direct object is, at the same time, the less utilitarian, and consists in supplying the pupils in modern schools with that humanising part of education which in the past has been confined to a classical training; and this object is to be attained by introducing the pupil, through the medium of the languages, to the life and customs of the two foreign

nations. The first mentioned and more direct aim is, on the other hand, at the same time the more utilitarian: to enable those who have passed through the whole course to understand English and French authors, to be able to write in the languages, and to attain a certain conversational power, which, though limited in vocabulary, shall be fluent. The attainment of such excellent results is due to two main factors—efficiency of the teachers and excellence of the method.

Firstly, as regards efficiency of teachers, the following points must be noted:—No foreigners are allowed to teach in these schools; consequently all the French and English teaching is done by native teachers. This is a first and very important advance on the older method still pursued in England of having a Frenchman to teach French, and very often German too (or *vice versa*). It is only in very exceptional cases that a foreigner is able to obtain that discipline in class which is the first essential of school teaching. Moreover, a native teacher has a further great advantage over a foreigner, inasmuch as he has himself passed through the mill, and is, therefore, not only much more capable of showing others the way, but also far more appreciative of their difficulties. (2) The teachers are trained men, who have made a special study of the languages they teach. The reason for our falling back on foreigners for the work in England has been as much due to the want of such trained men as to any demand of the public for a foreign accent. It may be further noted that most of the men I met who were carrying on the modern language teaching had spent some time in either England or France.

In the *Realschulen* and *Oberrealschulen* of Prussia we find the so-called new method of teaching languages adopted to a varying extent. Pronunciation is made of great importance from the very first. This is done at the commencement by means of some preparatory (*propädeutische*) lessons, spread over several weeks. The methods that are used in these first lessons vary in the different schools, but in all the object aimed at is the same—the mastering of the pronunciation of the language, generally independently of words in so far as the words used to illustrate the pronunciation of the particular sounds are chosen without regard to their meaning. In all cases it comes to be a matter of constant repetition especially of those sounds which are peculiar to the language, such as the French nasal and the English *th*. At first sight such a course seemed to me rather opposed to what might be regarded as an inductive method of learning languages, but on closer acquaintance it turned out not to be so, for the aim of this earlier practice is not generally the formulation of a number of rules for pronunciation, but the acquirement of the power to pronounce certain sounds, and of the knowledge of how they are usually represented.

As the aim is thus mainly the acquirement of a certain skill, the quality of the visible result produced will give an accurate idea of the value of this preparatory training. Of the result, as far as my own experience of it went, I cannot but speak in terms of the greatest praise.

In one of the schools which I visited, the twelfth *Realschule*, the early training in pronunciation is given on the phonetic system; and, thanks to the kindness of the director, I was able, by personal examination of the classes, to judge fairly accurately of the result. I was struck everywhere with the correctness and ease with which the boys spoke—even those who had been learning only one term. It is difficult to estimate how much of this is due to some inherent quality of the method, and how much is really due to the mere fact of the care and attention that are bestowed on pronunciation generally. Not fully recognizing this, the supporters of early phonetic training, naturally enough, ascribe all the credit of their success to the peculiar excellence of their system. Now, I claim that the want of success in this direction in English schools is not so much due to a wrong method of teaching pronunciation as to the complete neglect of it. I do not say this with any intention of detracting from the value of such an excellent method, but rather with a desire of giving a warning to English teachers on the subject. A teacher's method must always be his servant, and not he its slave. The means to the end must not become an end in itself. This early method of training must not be pushed too far and too late into the language teaching. After a certain stage the phonetic skill acquired by the pupil must be for purposes of reference only.

I should like to have taken the various arguments both for and against phonetic training and compared them one by one with the results of experience, but I must content myself with these few general remarks and trust that their incompleteness will only the more provoke discussion. Before leaving this very important branch of the subject, I must touch on one more point in connexion with it—the value of phonetic training to the teacher. To me this seems to be one of the strongest arguments in favour of the method. It serves as a standard of accurate pronunciation to every teacher, even to one who has been educated abroad, and more especially to such a one who has not enjoyed the opportunity of foreign travel. In no other way could the latter ever hope to reach and maintain a high standard of efficiency. It is of greatest service to the less—I will not say least—efficient teacher.

I will now pass on from this preparatory training to the later and real language teaching. Though the actual carrying out of the method

may again vary very much according to the relative prominence given to one or other of the underlying principles, the following are the main characteristics:—(1) From the very first the language is attacked as a whole. The teaching is analytic and not synthetic. The reading of a connected piece instead of the learning of isolated words is commenced at once. (2) There is a great deal of conversation and oral work, partly based on the reading and partly with a view to practising special forms and idioms. (3) The mother tongue is used as little as possible, and is gradually superseded altogether. There is little or no translation into the mother tongue—only so far as is necessary occasionally for explanation. (4) There is a continually decreasing quantity of translation into the foreign tongue. It is replaced at first by questions set and answered in the foreign tongue, and finally by free compositions. The object of thus avoiding the use of the mother tongue is that the pupils may readily acquire a certain amount of *Sprachgefühl*, which is quite impossible if they always regard the foreign expressions and idioms as merely representing native ideas and idioms. (5) Grammar is taught inductively. Its rules are formulated from the reading and conversation matter. (6) Objects and pictures are extensively used. In many schools Hölzel's *Wandtafeln* are used, and the conversation is centred round them. (7) A proper environment is further created for the learning of the language by bringing into prominence, in the material for reading, the customs, institutions, history, and geography of the country concerned—in fact, all that is included under the term *Realien*.

It must be clearly understood that these are only generalizations. Every teacher does not attach the same relative importance to each. At the same time I shall be best able to show their practical value to you by describing in detail the English work in the twelfth *Realschule*, some mention of which I have already made. No better example could be taken as an exponent of the system as a whole than the teaching in this school. Prof. Hausknecht, the director, is a perfect English scholar and conversationalist, who has travelled a great deal in England, and is thoroughly acquainted with all that is typically English. This wide experience has enabled him to compile the excellent book which is used as the basis of the English teaching in the school. It is called "The English Student"—note the absence of the word grammar in the title—and on the outside is stamped in black a representation of an English schoolboy in college cap and Eton jacket—an object of interest, mingled with curiosity, to the German boy.

After the preliminary lessons in pronunciation the pupil is at once transported to England and introduced to English schoolboy life at Charterhouse. The first part of the book is divided into sketches in the form of dialogues, and many of them are accompanied by woodcuts illustrative of English life.

These sketches, fifteen in number, form the basis of the teaching; that is to say, they supply the material upon which the teacher founds all his lessons. They are wonderfully varied in subject-matter, thus widening the interest at the same time as increasing the vocabulary. For instance, on one occasion the boys come up to London for a day, and thus an opportunity is given for a description of the capital of the kingdom. The teacher at this stage shows some pictures and a map of London, and works up a small conversation on them.

Each sketch is followed by a narrative describing the subject of the dialogue in short, simple sentences, gradually increasing in difficulty. These are first used as oral exercises after the reading of the sketch itself. Then, and not till then, they may be copied out or dictated. We next find corresponding to each sketch a number of questions in English, the answers to which are to be given by the pupils, and can be mostly obtained from the narrative; e.g.: "Where are Bob and Tim?" "Who rings the bell every morning?" In the same way, as with the narrative, these questions and variations on them are repeated until they are thoroughly mastered, and then the pupils may be asked to write out answers to questions dictated to them.

And now for the first time some grammar is introduced into the lesson, beginning with the conjugation of the present tenses of verbs, and turning them into the interrogative with "do." No verb is ever conjugated alone, but always as part of a sentence, e.g.: "I do not talk while the master speaks." "You do not talk while the master speaks." "He does not talk while the master speaks." I was specially struck with the methods pursued in the teaching of the verbs, and I will, therefore, dwell on them in greater detail. The master calls to one of the class to stand up. The latter at once does so, saying at the same time, "I stand up." One or more of his companions (as may have been arranged) turn to him and say, "You stand up," or "You are standing up." A third boy, or set of boys, then turns to the master and says, "He stands up." Thus the lesson goes on. Master: "Come out of your place." Boy (doing so): "I come out of my place." Others: "You come out of your place." Others still: "He comes out of his place," &c. Then two boys will be ordered to do the same things together, so that the plural forms may be similarly practised. Finally, all the class will be told to sit down, which they do, saying at the same time, in a very solemn tone, "We sit down."

You will thus see what a large amount of time is given to a very thoroughly carried out scheme of oral work. This is supplemented by an equally carefully arranged plan of written work, beginning at the first with simple translation into the foreign language. This is almost

at once replaced by the writing of English answers to English questions, and leads eventually to English composition, at first built up on a skeleton given, and afterwards perfectly free. The learning of poetry and proverbs is considered of great importance, and the boys are taught to recite the poems, and not merely to repeat them in a parrot-like fashion. I heard one boy, who had been learning two years, give a very creditable rendering of "The Charge of the Light Brigade."

All points of grammar are carefully explained as they arise. Reference is made to a summary of grammatical rules at the end of the book, and it is not till a comparatively advanced stage is reached that these rules are expected to be known by themselves, at a time when, after such constant practice and reference to them, they hardly require much learning. I had it from several of the teachers that the grammar, the stumbling block in the teaching of foreign languages in English schools, gives them comparatively little trouble.

Up to the present I have only spoken of that part of the work which aims at the acquirement of skill in the use of the language, and in the short period of the *Realschule*, especially in the English teaching, this is the main object of the work. If, however, we compare the work of the top form of the *Oberrealschule*, the pupils of which have been learning French for nine years and English for five, we find that quite a different class of work is being carried on. The object of the work is literary in character—to give the pupils a thorough survey of English and French literature. This is done by taking the pupils through a number of chosen works, generally abridged, to give them some idea of the different writers and their styles. Shakespeare, Macaulay, Scott, Dickens, are favourite English authors; while Molière, Racine, Erckmann-Chatrian, Daudet are frequently chosen in the French classes.

In giving you my personal experience of this higher teaching, I must first state that I only had time to actually visit the classes of one *Oberrealschule*; and therefore it would not be fair to draw any general conclusions from such narrow experience. On the other hand, however, I had opportunity of discussing the points with several other teachers, and I inferred from what they said that my conclusions could be fairly generally applied.

I was, as a matter of fact, somewhat disappointed with this higher teaching, but not on the score of the literary training; that was certainly good, though in the top class preparing for examination I had rather a strong suspicion that there was a good deal of "craming of details." But, even with the most sensible form of examination in view, a certain amount of cram is inevitable. The fault that I found with these classes was that the boys did not seem to have sufficiently progressed in the mere acquirement of linguistic skill.

With the time devoted to modern languages in these top classes, it certainly seems a pity and quite unnecessary that all the earlier training should simply be made subservient to the later, and not pursued for its own sake. The lessons, it is true, are all supposed to be given in the foreign tongue, but the cause, I think, is to be found in the teachers. Some of the teachers doing this higher work have not anything like the skill in the use of the foreign languages that is possessed by their colleagues doing junior work, though they may and do excel in literary culture.

And now, having given you a bare outline of some of the distinguishing features of the work that is being done by our Continental colleagues, I should like, in conclusion, to just indicate some of the lessons that we can learn from investigation and experience of their system and methods. I fear I have already trespassed too much on your time, and therefore I shall content myself with selecting just one or two salient points out of the almost innumerable considerations that naturally arise out of our subject. While considering these, we must bear two things in mind. Firstly, it is neither advisable nor possible that the German system and methods generally should be introduced wholesale into English education. The very style and character of the German system would destroy that which is best in our own educational ideals. German educationists themselves recognize that their fault lies in the over-development of mere intellectual training, just as we must realize that ours lies in its insufficient development. Secondly, the German method of teaching languages is not necessarily the true and only one. I say this really as a warning, for teachers, as a class, are very prone to extremes.

Comparing, then, the successes and failures of modern language teaching at home and abroad, we see very clearly four directions in which we need reform in England.

1. We need to have modern schools in which the modern languages are given a prominent position in the curriculum. Physical and chemical sciences are not suited to form the basis of a liberal modern education. A place in the curriculum they certainly should have, but not the only place. Are our organized science schools a success? Certainly not from the point of view of "general education"; and even when regarded as schools for specialized instruction, there is some doubt on the matter.

2. Having arranged for more time to be given to the teaching of French and German, we need to improve our methods. A certain amount of agreement among teachers is necessary as to the general direction of these improvements; but the actual carrying out must and ought to depend very largely on the teacher himself. All

teachers of modern languages who really think over their subject will agree on the following improvements: (a) Greater care of pronunciation, (b) considerably increased oral practice, (c) learning of grammar inductively, at least at first, (d) less translation and more direct use of the language. If all are agreed on those points, why do they not at once set to work and carry them out? The answer to this question comes under the next heading.

3. We need to have a great alteration in our methods of examination. The examinations have the greatest power in England in directing the methods of teaching. From our examining bodies, therefore, should come the first step towards progress. Unfortunately, however, they stand to the teacher in a relation similar to that in which the teacher stands to them, inasmuch as the position of neither is strong enough to insist on change. Nevertheless, a great deal can be done by example. The College of Preceptors has already taken a step in this direction by instituting voluntary *viva voce* examinations in French and German; but more is wanted than this. The examination papers set for written work not only do not stimulate any movement in the new direction of teaching, but even encourage the continuation of the old. A boy in his examination paper is still expected to show a knowledge of grammar far beyond what his acquaintance with the language warrants. We must have alternative papers on new lines if the newer teaching is to be encouraged. Having done this, however, where are the teachers to carry on this newer work? This brings us to our last, but not by any means least, point, namely—

4. The need for trained native teachers. The problem of how to supply this want is indeed a difficult one to solve, and one that I cannot pretend to discuss within the narrow limits of this paper. I would, however, point out that, though this is the most important direction in which reform must be made, it is not the first in which it will have to be made. I urge two reasons for this:—(a) There are, at the present, in English schools a number of English teachers who are both willing and capable of carrying out this kind of modern-language teaching if only the opportunity is given them. Either they themselves or their headmasters are afraid of weak examination results if they change their system of teaching. For this reason I think that the change in the examination should come first. (b) In those schools where this work would then be done the modern languages would be given a better position in the curriculum. In this way the status of the modern-language teacher in the schools would be raised. Therefore the recognition of a better position for modern languages in the curriculum must be obtained before men will be found who are willing to go through the long training which is proposed for them. I have purposely left to the last the very debatable question as to whether Latin should be excluded from a modern curriculum in English schools. Because it has been successfully done away with in certain types of German schools, it does not follow that in England the same result would be obtained. On the other hand, the only essential difference on this point between the two countries is the different position that Latin holds with regard to the native tongue. The retention of Latin in the curriculum of a modern school will not depend on any claim for mental training or literary cultivation. It can serve neither of those purposes unless a great deal of time is devoted to it; and in a modern curriculum that will never be so, nor, in fact, ought it to be so. It all hangs, then, on the question, whether a knowledge of Latin is essential to a full appreciation of and power to use the native tongue.

In any case, whether all the boys of a school, or only those who are entering professions, are to take Latin, I think it should be the last language to be taught, after the initial difficulties of both French and German have been overcome. If French were started at, say, ten years of age, German at twelve, and Latin at fourteen, in each case with a concentrated effort at the first; the average boy at sixteen would know as much Latin as, and more French and German than, do the majority of boys in those schools at the present day where all three languages are taught, but in an almost reverse order.

All these are questions which I must leave open, and which I have put forward in this tentative manner in the hope that they may on that account be all the more freely discussed.

The CHAIRMAN said that in the school with which he was connected boys until recently began French with one hour per week. Now they had three hours a week; but it must be acknowledged that this was not sufficient for beginning a language, and, if they could get half an hour each day, better progress would be made. They were now in the transition stage, and modern languages were only just beginning to get their proper recognition. When University men were asked why they did not give scholarships for modern languages and require modern languages for their entrance examinations, they said that scholarships would come fast enough if candidates worthy of them presented themselves; and at present he was free to confess that there were very few from the public schools who would deserve a scholarship for modern languages. He thought that what they learned from Germany was that modern-language teachers must insist upon more hours being given to them before they could have a proper chance. If properly qualified English teachers of foreign languages could be got, they were certainly better; but when it was a choice—as it so often

was still with English schools—whether they were to have a Frenchman who knew English pretty well, or an Englishman who knew French very indifferently, it was an open question. As to the dialogue quoted by the lecturer from Dr. Hausknecht's book, he thought that it bore but slight resemblance to what actually was heard in an English public-school dormitory, and that a much more accurate impression would be derived by reading such a book as "Tom Brown's Schooldays." As to the teaching of grammar in sentences—the inductive method of teaching grammar—they would all be agreed. He thought there was something in the learning of languages which answered to the learning of the multiplication table in mathematics; and he was in favour of learning by heart the simplest forms of the declensions and verbs. He was glad to hear they learned poetry by heart in German schools, and that in the highest forms the object of language teaching was literary, though the lecturer's impression appeared to be that the results of the literary teaching compared unfavourably with the other. He (the chairman) would, however, be disposed to maintain that the ultimate goal of language teaching must be literature. He quite agreed that in the earlier stages the more they had of purely oral teaching the better; but he thought that this early stage ought to have been passed by the time a boy entered a public school. The opportunities an ordinary Englishman had of carrying on a conversation with an educated Frenchman or German must necessarily be rare; whereas French and German literature was open to all, and his idea, as a schoolmaster, was to give his pupils such linguistic power as to enable them to read with ease an ordinary French or German author, and to kindle such a love of French and German literature that they would continue to read French and German classics after they had left school.

Mr. KIRKMAN said that, with regard to attempting to familiarize schoolboys with the foreign life, it seemed to him undesirable to do this at too early a stage. He agreed with the lecturer that they must have trained teachers, but, with regard to the efficacy of agitation on the part of teachers, he believed there was little to be done until the Universities moved in the matter. With regard to phonetics, in the actual learning of the foreign sound, the phonetic symbol played no part whatever. The pupil could only learn the sound by hearing it, and the phonetic symbol could not help him to reproduce it. It was, no doubt, very important to pay attention to the proper use of the vocal organs, and in that particular the advocates of phonetics had done good service.

Mr. FABIAN WARE said there were one or two points in which his experience of German schools differed from that of the lecturer. In the first place, he stated that all the time-tables in Prussia were absolutely the same. It was important at the present time to remember that, although a certain curriculum was laid down by the State, a good deal of freedom was allowed in regard to details. For instance, the Frankfort teachers were allowed to adopt time-tables which differed fundamentally from those of Berlin. As to the system of teaching sounds independently of words, he must say he thought it absolutely bad. He agreed with the last speaker except when he made it an objection to the use of phonetics that it only postponed the difficulty. That was, he thought, the greatest argument in its favour. The pupil was older and better able to understand its use.

Prof. SPIERS considered that, in learning a foreign language, it was most important to learn a great deal by heart. In this way the pupil not only acquired vocabulary, but learned grammar in its practical forms. In the elementary stage the less grammar the pupil had to learn the better, and for mere beginners he would even advocate the use of no grammar at all, except for the verbs. There was one point about examinations and examiners on which he felt very strongly. When an examiner was setting a paper he must take care to be understood by the candidates, and unless he followed the methods and terminology of the grammars they used he would not be understood.

Miss BREBNER said they were too apt as teachers to think that everything rested with the Universities and the examiners. She agreed that it was impossible to do any good with less than four hours a week; but, apart from the small number of hours, teachers in England had just now abundant opportunity of bringing new methods to bear on their work. She was in sympathy with all that the lecturer had said, and, while she would like to support those who advocated new methods, it would, she thought, be a pity if they in any way exaggerated their case, and did not avail themselves of what was serviceable in the old. She agreed that the early teaching should largely assume a concrete form; but there should also be a good deal, at any rate, of verb drill. The last speaker referred to the importance of much learning by heart; and the reformer believed in that, especially in committing to memory songs and poems. The conversation of the reading-book, which formed a prominent feature of the teaching described, was good, but would not do alone. One part of the old method she would like to retain—viz., dictation, which was one of the most useful things a teacher could do with his pupils; and she thought that this test at least might be employed in examinations in foreign languages.

Mr. THORNTON said he had recently visited Scandinavian countries, and was much struck with the number of travelling scholarships offered there, especially for the study of languages. Mr. Kirkman had, he thought, exaggerated the difficulty of moving the Universities to reform.

It was only necessary to state distinctly what reform was needed, and the thing would eventually be done.

Mr. MILLAR INGLIS observed that the military system in Germany had much to do with the regulation of the teaching; and the passing of the necessary leaving examination was a most important matter. If one compared the French teaching with the English teaching in the *Gymnasien*, one found a great deal of difference. Some time ago he visited a *Gymnasium* in Germany for the purpose of seeing how the teaching of English was carried out. He found that in the timetable two hours a week were put down, but on inquiry he discovered that the teacher found it convenient to give the two lessons together. It was an optional subject, and half the class were playing during the time the lesson was given.

Mr. HOWARD SWAN considered that children should have more practice in intonation and in the variation of the vowel sounds. In commencing the study of a foreign language, it would be found of great service to devote some time to studying the nursery rhymes of the country.

Mr. BROWN having briefly replied to the remarks of the various speakers, a vote of thanks to the lecturer concluded the proceedings.

REVIEWS.

NEW HISTORIES.

- (1) "Cambridge Historical Series." Edited by G. W. Prothero, Litt.D.—*Spain: its Greatness and Decay (1479–1788)*. By Martin A. S. Hume. With an Introduction by Edward Armstrong. (Cambridge University Press.)
- (2) *The Colonization of Africa by Alien Races*. By Sir Harry H. Johnston, K.C.B. (Cambridge University Press.)
- (3) "Story of the Nations."—*Austria*. By Sidney Whitman, M.A., and J. R. McIlwraith. (Fisher Unwin and G. P. Putnam's Sons.)

Mr. Hume has fully established his right to a hearing on matters relating to the history of Spain, and this record of three hundred years of rapid development and almost unresisted decay will be welcome to all who are attracted by the story of the Iberian peninsula. There is colour in Mr. Hume's text, and, on the whole, both soundness of view and accuracy of statement. He works historically on the rational theory that nations, as aggregates of men, show the characteristic strength or weakness, virtues or vices, of individuals, and that, by a natural consequence, they enjoy or suffer the fruits of their qualities. Spain is somewhat of a *vile corpus* amongst nations; fortune has experimented with her, and we who live to-day can point the moral of her history without any difficulty. Mr. Hume is justified in enforcing the lessons—

that unsupported pride and unwarranted ambition are as disastrous to nations as to men; that riches gained without labour produce no extended or lasting prosperity; that the true basis of wealth is industrial production; that beneficent ends cannot be obtained by means which disregard human sufferings or trample on human rights, and, above all, that the hereditary transmission of unrestrained power from father to son is certain to end in disaster, because, sooner or later, it must descend to an individual too weak or too vicious to exercise it worthily.

What strikes Mr. Hume "above all" is not what we should regard as the most important lesson of Spanish history. The power of the monarchs of Spain was never absolutely unrestrained. There were always the grantees to consider; and the power of superstition, vested in the hands of the Pope and the Roman ecclesiastics, was more unrestrained than the authority of Ferdinand or Philip—more responsible, perhaps, for the downfall of Spain than her weakest and most vicious kings. Pride unsupported by moral vigour, ambition unwarranted by strength, luxury unearned by labour, expansion not founded on commerce or confirmed by good administration—these have been the fatal defects of the Spanish character and position. The latest and conclusive evidence of the fact has been afforded within the past twelve months; for the loss of her colonies is due entirely to the incompetence of Spain to govern subject races. It is unfortunate that Mr. Armstrong's introduction to this volume should speak of Cuba and the Philippines as still representing the colonial empire of Spain in the West and East Indies. Mr. Hume, on the other hand, leaves the whole question of Spanish colonies severely alone. Neither in the index nor elsewhere have we found any but the most casual reference to the possessions of Spain beyond the seas.

The European chapters of Spanish history are well and impartially told, from the union of Castile and Aragon, and the reconquest of Granada, until near the close of the last century.

As the idea of the series to which this volume belongs was stated in Mr. Prothero's general preface to be "to sketch the history of Modern Europe, with that of its chief colonies and conquests, from about the end of the fifteenth century down to the present time," it seems unfortunate that the history of Spain should be broken off before the Napoleonic period, and that we should be told so little about her colonial empire, which was at one time the greatest and richest the world has ever seen, our own Empire excepted. We must therefore limit ourselves to saying that Mr. Hume has made a very interesting book within the somewhat narrow bounds which he has seen fit to trace for himself.

(2) Sir Harry Johnston admits that we have already three or four admirable histories of Africa, and especially of South Africa, and he has specialized his aim so as to summarize and review in a single volume the general history of the attempts of Asia and Europe to colonize Africa during the historical period. He begins, accordingly, with the earlier records of Phœnician, Persian, Roman, Teutonic, Byzantine, and Mohamedan invasion in the north, the Malay settlement in Madagascar, and the Arab descents on the eastern shores. Then he takes up the Portuguese, Spanish, and Dutch invasions, devotes a chapter to the African slave trade, and so comes to the British traders and explorers, and our acquisitions by settlement, missionary civilization, and conquest. Finally, he deals in a few short chapters with Belgian, Italian, German, and French Africa. Needless to say, the story is one of constant and varied interest, and it is one which Sir Harry Johnston was exceptionally competent to write. His conclusion is that the whole of Africa "healthy," "yellow," and "black" Africa—will become subject to European government:—

As the white population increases from thousands to millions, it will tend to reserve to itself all the healthy country in the extreme south of Africa, and inland along the great central plateau which stretches up to the Zambezi, and the black man will be pushed by degrees into the low-lying, unhealthy coast regions of the south-east, or into the rich, but fever-stricken, countries in the Zambezi valley, which must, for an indefinite period, be regarded as a Black Man's Reserve.

The book is provided with eight excellent maps, which add very largely to its interest and usefulness.

(3) Mr. Whitman and his collaborator confine themselves to German Austria—a rather odd limitation, which ignores much of what is most characteristic in the story of the eastern Empire. It would, we think, have been more serviceable and more satisfactory to divide the records of this composite realm into chronological periods, and to maintain a comprehensive survey of the vicissitudes throughout. Only in that way is it possible to understand the complexities of Austrian history. Within their assigned limits, the authors have done all that could be done to make an intelligible and attractive story. Some of the pictures are taken from the Archduke Rudolf's "Austro-Hungarian Monarchy," and have much to recommend them.

ETHICS IN EDUCATION.

Kant on Education. Translated by Annette Churton.
(Kegan Paul.)

A great man, and, *a fortiori*, a philosopher, who presumably sees life as a whole more clearly than the average teacher, is in a far better position to decide the right *aims* of education than one who is in the midst of the work and its discouraging realities, "smelling of the machinery," as Thuring used to say of himself; and nothing can be more illogical than to refuse to consider the ideals of a man on the ground of his inexperience. When, too, he frankly admits that he has failed to apply his own principles in any specific case among his pupils, it is a proof that he still considers his principles worth giving to the world, and worth striving after. It is a mark of the slow progress of educational science that Kant's "Thoughts on Education," published in Germany nearly a hundred years ago, should only now be rendered into English. Like Locke's work with the same modest title, it consists of desultory notes with no imposing theories or metaphysical abstractions, but written with the simplicity that only a philosopher possesses. Quite a large portion of the short treatise is devoted to the management of babies. It seemed to the bachelor lecturer of Königsberg a good plan to keep a baby in a large wooden box, from which he was never to be taken. Many of these remarks are more curious than instructive, but, as might be expected, there are gems of thought even here. The most valuable suggestions, however, are contained in Kant's introductory chapter on the general lines of education, and in his characteristic treatment of moral training. He calls upon teachers

to draw a clear distinction between sins against discipline and sins against eternal moral laws. The latter must never be punished. "Morality is something so sacred and sublime that we must not degrade it by placing it in the same rank as discipline." But he adds: "No infringement of school discipline must be allowed to go unpunished." Here is food enough for reflection, and room for school organization of no easy kind. The formation of character is above every other aim, and definite instruction, even a catechism of ethics, is to be given to pupils who are old enough to exercise moral judgment. His remarks on the duty of benevolence are particularly suggestive.

The Introduction to the present translation, by Mrs. Rhys Davids, is just what is needed to put the reader in the right attitude for getting the most from these slight notes. She shows how Kant stands in the stream of educational theory, and especially his indebtedness to Rousseau. With regard to his relation to modern thought, she points out that many problems of to-day, such as heredity, and the fetters of our civilization and social environment, were unknown to him. Possibly such a problem as heredity might have modified Kant's ideals; but certainly the overcrowding of professions would not have affected his views of humanity. It is exactly the "quiet hazy horizon" of a thinker which is of supreme value, and Kant's crowning principle, that the good of the individual is secondary to that of the race, is for all time and every country. For this reason he approved scholastic experiments—almost fads (for Basedow's "Philanthropinum" was little more). He certainly would encourage every new departure in school management or method, and the utmost freedom for teachers, while anything like a rigid State-organized system of instruction would appear to him to endanger the progress of the science. Mrs. Davids seems also a little beside the mark in raising the Woman question. Of course, Rousseau had committed himself in his "Sophie"; but there is surely no word of Kant's that does not apply to the education of a girl as well as to that of a boy, for the vexed question of curricula is barely touched on, the book dealing almost entirely with broad principles of physical, intellectual, and moral training.

Miss Churton's work of translation leaves nothing to be desired, unless perhaps it be in the use of the word "maxim," which suggests to the ordinary reader an inelastic rule, the very antithesis to what Kant intended, namely, a principle of action to be freshly applied in every case of moral difficulty.

The book will meet a definite want, for the "Thoughts" have been set for the London University Teachers' Examination, and hitherto have been only procurable in a French rendering.

A BUILDER OF INDIA.

"Builders of Greater Britain." Edited by H. F. Wilson, M.A.—
Lord Clive; the Foundation of British Rule in India. By
Sir A. J. Arbuthnot, K.C.S.I. (Fisher Unwin.)

If Clive had not been, we should doubtless have had a great dependency in India, but we should scarcely have had an Indian Empire in its present well controlled and consolidated form. And Clive was little better than a young English wasterl when he took service under the East India Company, by whom, in less than six years, he was recognized as a born soldier and administrator. His remarkable career affords a familiar parallel with that of his successor Warren Hastings, even down to the persecution at home by which his latter days were embittered. James Mill, the historian of India, speaks of Robert Clive as "artful," "tricky," and "quarrelsome," but, when he comes to consider the Parliamentary proceedings against him, he denounces them as manifestly unfair. As our author says:

When we reflect upon his death at the early age of forty-nine, after a persecution which, whatever may have been his errors, it is difficult to read of without shame, we can hardly avoid the conclusion that, of the many sad and discreditable incidents which, in this and other countries, disfigured the latter part of the eighteenth century, one of the not least deplorable was the attack made by his countrymen upon the founder of our Indian Empire.

Clive's life was full of romance, from his childhood upwards. He began fighting hard at the age of seven; his schoolmasters alternately rated him and prophesied his future greatness. He was wild without being vicious; at one time damming a gutter in order to flood the shop of a hostile tradesman, at another climbing a church steeple and sitting astride of the finial. Quill-driving in India so disgusted him that he tried to shoot himself, when his pistol twice missed fire. His pistol missed fire again in his duel with an officer whom he had accused of cheating at

cards; and when his enemy demanded a retraction, pointing his weapon at Clive's temple, the latter said: "Fire and be d—d; I said you cheated, and I say so still." Clive had a charmed life. During the defence of Arcot,

Lieutenant Trenwith, perceiving a sepoy from a window taking aim at Captain Clive, pulled him on one side, upon which the sepoy, changing his aim, shot Trenwith through the body.

At Samiavaram, in a fight with the French, Clive was wounded.

At daybreak the commanding officer of the French, seeing the danger of his situation, made a sally at the head of his men, who received so heavy a fire that he himself and twelve others who first came out of the gateway were killed by the volley, on which the rest ran back into the pagoda. Captain Clive then advanced into the porch of the gate to parley with the enemy, and, being weak with loss of blood and fatigue, stood with his back to the wall of the porch, and leaned, stooping forward, on the shoulders of two sergeants. An Irish officer in charge of the English deserters presented himself with great insolence, and telling Clive, with abusive language, that he would shoot him, fired his musket. The ball missed Clive, but went through the bodies of both the sergeants.

This is Orme's account, and Sir Alexander Arbuthnot adds that the French officer in command was so indignant at the conduct of the Irishman that he at once surrendered with his whole force.

From the defence of Arcot to the great victory at Plassey, from the first shrewd and practical counsels which brought the young "writer" into notice to the strong and daring administration of the Governor of Bengal, the story of Clive is brightly and concisely retold. It may be thought that we had already as many lives as were necessary of Lord Clive of Plassey; but so long as publishers and editors will devise new series—and they have every encouragement to do so—the re-writing of old stories will become more and more inevitable. Clive certainly could not be omitted amongst the "Builders of Greater Britain."

A NEW LATIN GRAMMAR.

A Latin Grammar. By G. M. Lane, Professor Emeritus in Harvard University. (Harper & Bros.)

Prof. Lane died, greatly lamented in America and respected throughout the world of scholarship, in June, 1897. His Latin Grammar had long been expected; but his manifold engagements left him scant leisure for the work, which he had, nevertheless, pursued at intervals for nearly thirty years. After his death the book was completed by Prof. Morris Morgan, whose work is well known in this country.

The author, far from being a mere compiler, left no detail of Latin unexplored. He challenged everything that has been written on the subject, and, of course, collected an entirely new set of examples for all the principles that he enunciated. Thus the results of a vast amount of research may be traced in the list of irregular verbs. No "part" is given that does not actually occur. The fictions of grammarians with regard to supines disappear, and for the supine the perfect participle passive is substituted as a "principal part." The rules of syntax are admirably expressed, the definitions being wholly free from the subtlety that disfigures the grammatical work of some of the most distinguished American scholars. In all cases in which we are competent to test the work, we find the same thoroughness and the same soundness of doctrine. Thus the laws of the *Sequence of Tenses* are stated with precision and accuracy. Two rules here that we especially like, and which are almost invariably ignored in elementary English books on Latin, are the following:—"A final subjunctive subordinate to a perfect definite [*i.e.*, primary perfect indicative] sometimes has the primary sequence, but more commonly the secondary"; and, "in subordinate sentences, the perfect subjunctive has . . . the secondary sequence when it represents the indicative historical perfect or the imperfect." The second of these two rules may be proved from almost any page of Cicero, and yet young pupils in England are habitually taught sentences like "*Qua re acciderit ut id suspicatus sis quod scribis nescio*" for "How it came to pass that you suspected what you write, I can't imagine." Of course, *suspicatus sis* ought to be *suspiscarere*.

Under the rules for prohibitions—which are, of course, free from the errors to which Madvig gave currency—it might have been well to mention the relative frequency of the two constructions *noli* and infinitive and *ne* with perfect subjunctive. Prof. Lane merely says that both ways are right.

Equally as a matter of course, the rules formulated by Mad-

vig for the construction of questions in *oratio obliqua* are corrected. The author points out what is new to us: that the accusative with infinitive to express obliquely "rhetorical questions" is not found before Livy, with the exception of one or two cases in Cicero's letters and a few instances in Caesar.

These scanty remarks suffice to show that we have no hesitation in pronouncing the work one of extreme value. It marks a great advance in the scientific study of Latin, and it is to be hoped that the book will find its way into the hands of English students. We could wish that the type were rather larger. The book compares unfavourably with Gildersleeve and Lodge in this important matter.

PHONETIC READING.

On the Teaching of English Reading. By N. Dale. (Dent.)

Miss Dale, who has formed a high opinion of the reasonableness and accuracy of the childish mind, determined to devise a system which should avoid some of the inconsistencies of the usual method of teaching the art of reading. On her plan, children are not taught the names of the letters, and then made to learn the look and sound of each new word practically by heart, discouraged at every turn by the small relation which the names of the letters bear to the sounds as found in words. This method gives the child but a frail staff on which to lean, and leaves him after all, in face of a new and difficult word, with no resource but that of an appeal to the teacher. Miss Dale, therefore, aims at placing in the child's hands tools which will enable him to deal with each new word unassisted by the master. To this end she has developed, on scientific lines, the method already more or less widely used, of teaching the child the sounds, instead of the name, belonging to each symbol. Thus *p*, the children learn, is the sound produced by pressing the lips together and letting the breath suddenly escape through them. This voiceless (or "sister") stop they distinguish from its "brother" (voiced stop) *b* by a simple experiment of placing their hands over their ears and trying which letter has voice, which not. Each fresh letter is put through this test, and coloured blue or black according to the result. A "home" for each letter is found on a tabulating frame kept for the purpose, and thus children learn to distinguish between stops, dentals, continuants, &c. They are not, of course, troubled with these long words. Having mastered the stops and the short sound *a*, they proceed to the building of words, and begin to make use of the Readers so charmingly illustrated by Walter Crane. As described, this system seems but a thorny path to the goal of English reading, but it is possible that, with a bright and ingenious teacher, the child will tread it willingly; and it cannot fail to cultivate the logical faculty, which is undoubtedly a prominent feature in most young minds. It is a case of the longer way round being the shorter way home, and the gain in accuracy and resource will more than compensate for the possible loss of speed in gaining the power of reading easy words of one or two syllables. The system is incomplete, for in the present series of Readers the children are not carried beyond the short vowel sounds.

GENERAL NOTICES.

CLASSICS.

Elementary History of Greece, by C. W. C. Oman (Rivingtons), is a book for which there is, no doubt, room, in spite of the excellence of Mr. Robinson's little "Greek History." It is related of a candidate for a Bible clerkship at Mr. Oman's famous college that he remarked in one of his answers that the style of Herodotus "reminded him of Oman's style." The qualities common to these two distinguished historians render one of them at least well suited to be the guide of the young in the tortuous paths of Greek history.

Hercules Furens, from Euripides, by A. F. Hort (Rivingtons), is an addition to the series of "Middle Form Classics." It appears to us to be well done and likely to be of use. It would, however, be an advantage if the editors of these scraps of tragedy would frankly warn the unsuspecting pupil that they have intentionally murdered the play. This warning is especially called for in the case of Euripides, whose best work is in his lyrics.

Caesar, De Bello Gallico III. and IV. (two vols.), by E. S. Shuckburgh; *Virgil, Aeneid XII.*, by A. Sidgwick; *Xenophon, Anabasis IV.*, by G. M. Edwards, are the new volumes in the "Cambridge Series for Schools and Training Colleges." All of them, except the last mentioned, can be unreservedly recommended. Mr. Edwards seems to us to have been rather too ambitious, and he has vitiated his notes by including

too many parallel passages. Most of these passages are quite useless to junior students, such as will use a book with a vocabulary; and some of them are not even to the purpose. Thus on the words *εις ην αφικοντο κωμην μεγαλη ην*—a form of attraction constantly found in Greek—the editor says: “cf. Lysias, xix. 49, *την οδων ην κατέλειπε ού πλείονος αξια εστιν.* and Virg., ‘Aen.’ I. 573, ‘urbem quam statuo vestra est.’” Both of these are, of course, instances of a different and rather rare form of attraction due to mere change of purpose—examples, in fact, of an *anacoluthon*, which one finds now and again in Thucydides, in tragedy, and elsewhere in the Greek authors. Again, on *εν χωραις*, “at their posts,” the editor says: ‘Aesch. ‘Agam.’ 78, ‘*Αρης ουκ ενι χωρα.*’” But Mr. Edwards must know that the latter passage is disputed, and that critics are not agreed as to the propriety of the reading. Once again, we have what is called “an admirable illustration” from the “Agamemnon,” 1,031 (page 72); but, even if the reading is accepted there, the passage is not parallel: for the use of the participles in the two sentences compared together is different; and the participles are all important in the matter dealt with.

Virgil, Aeneid XI., by T. E. Page (Macmillan), belongs to the “Elementary Classics.” It is a first-rate book for young students, and will doubtless obtain the wide circulation that it merits. Mr. Page’s references to the Bible and to English literature are admirable.

Latin Exercises, Part III., by A. J. Church (Seeley), is a continuation of Mr. Church’s cheap Latin exercise books. There are a few miscellaneous hints, a series of upwards of a hundred short passages, and a set of vocabularies by another hand. The exercises and vocabularies can also be had separately. It is one of those school books that one learned to loathe so when a boy—and it can be flung on the fire when done with. Indeed, the compiler of the vocabularies, with amusing candour, suggests that his work should be doubled back when being used in class!

Plato, Apology of Socrates, by T. R. Mills (Clive), is a scholarly book, and seems to us to have a value independent of its immediate purpose. Every difficulty is explained in a short and business-like manner, and the introduction supplies a useful conspectus of the main facts bearing on the life and death of Socrates.

From Messrs. Harper & Brothers we have the first volume (prose) of a collection of passages from post-Augustan authors, *Latin Literature of the Empire*, by Mr. A. Gudeman, of Pennsylvania. The writers of this age here placed under contribution are Seneca Rhetor, Velleius Paterculus, Curtius Rufus, Petronius Arbiter, Annaeus Seneca, the philosopher (son of the rhetorician), Pliny the Elder, Quintilian, Tacitus, Pliny the Younger, Suetonius, Justinus, Apuleius, Minucius, Marcellinus, and Boethius. The editor adds brief biographical introductions and a slight critical appendix. The two volumes are calculated to be very serviceable for the study of post-classical Latin literature, and to stimulate the taste of many readers for Latinity of the silver age. As Tacitus says, “non omnia apud priores meliora, sed nostra quoque aetas multa laudis et artium imitanda posteris tulit.”

MATHEMATICS.

There is no evidence of a check in the notably accelerated production of mathematical text-books. Something like a score have accumulated on our table during the past two or three months, and we can do little more than draw attention to their character and quality. Mr. Glanville Taylor, of Nottingham University College, publishes, through Messrs. Longmans, *An Introduction to the Differential and Integral Calculus and Differential Equations*. He adopts the older-fashioned arrangement, keeping differentiation and integration separate, but advises the student to read the two sections of his volume alternately. Practical applications and elementary curve tracing are introduced at an early stage. The work is clear and novel, being indebted to, and yet advancing in method and scope upon, the treatises of Todhunter, Williamson, De Morgan, Boole, Greenhill, and others.—Messrs. Macmillan introduce us to three American works on the higher calculi: the first of them, an *Introduction to the Theory of Analytic Functions*, being English in the sense that its authors, Prof. Harkness, of Bryn Mawr, and Prof. Morley, of Haverford, are both old Cambridge men. This is an excellent treatment of series, limits, and various analytic functions, properly based on an elementary account of fundamental concepts and processes. The authors are well known by their previous work on the theory of functions; but the new volume stands on its own foundation, and is not a mere abbreviation. They have preferred to follow the methods of Weierstrass rather than those of Cauchy, though a chapter is devoted to Cauchy’s definitions and theorem.—Prof. W. B. Smith, of Tulane University, publishes the first volume of *Infinitesimal Analysis* (Macmillan), dealing with real variables, and, in the author’s own words, excluding “Weierstrassian rigor.” “No attempt has been made to deal with series, unless the most familiar, or to follow in the wake of the masters of ϵ -methods.”—An elementary work for technical schools and colleges on *Differential and Integral Calculus* (Macmillan), by Mr. P. A. Lambert, of Lehigh University, is a clear and practical introduction.

Mr. J. Gill, Headmaster of the Liverpool Corporation Nautical College, designs for officers of the merchant service, candidates for

Board of Trade certificates, and other students, his *Text-book on Navigation and Nautical Astronomy* (Longmans). His position and experience have qualified him for the efficient performance of his task and the book seems to be thoroughly adapted for its purpose.

Mathematical and Physical Tables for the Use of Students in Technical Schools and Colleges (Macmillan), by J. P. Wrapson and W. W. H. Gee, are exceptionally comprehensive, clearly exposed, and carefully stated. They cover practically the whole field of mathematics, physics, and engineering. An appendix contains, amongst other promiscuous information, tables of velocities, the dimensions of the coinage, the Morse code, and even the Greek alphabet!

Dr. Routh has devoted his leisure (if he will allow us to use such a term) to writing an elaborate and very interesting treatise on *Dynamics of a Particle* (Cambridge University Press)—marked for first and second reading, and supplied with numerous examples. It is an exhaustive work, and, at the same time, distinctly lucid. This is how Dr. Routh takes hold of his reader in the first words of his preface: “So many questions which necessarily excite our interest and curiosity are discussed in the dynamics of a particle that the subject has always been a favourite one with students. How, for example, is it that by observing the motion of a pendulum we can tell the time of the rotation of the earth; or, knowing this, how is it that we can deduce the latitude of the place? Why does our earth travel round the sun in an ellipse, and what would be the path if the law of gravitation were different? Would any other law give a closed orbit so that our planet might (if undisturbed) repeat the same path continually? Is there a resisting medium which is slowly, but continually, bringing our orbit nearer to the sun? What would be the path of a particle in a system of two centres of force? When a comet passes close to a planet, does it carry with it in its new orbit some token to prove its identity?”

Prof. Tarleton, of Dublin, in his *Introduction to the Mathematical Theory of Attraction* (Longmans), makes a brave effort to simplify for students the general theory of attraction, which he describes as “the portal to most of the higher departments of mathematical physics.” No doubt the theory of fluid motion carries with it much of the theory of the universe, and its dependent problems are mathematically the same as the problems of attraction. Dr. Tarleton’s method is well conceived and worked out with much precision. If attraction should be taken as a defined subject rather early in the student’s course, on which we do not here offer a decided opinion, this volume is very suitable to the need.

Spherical Trigonometry, Theoretical and Practical (Macmillan), by W. W. Lane, Naval Instructor, H.M.S. “Britannia,” is adapted for the use of students preparing for examinations, and is, on the whole, simply expressed and instructively arranged.—*Elementary Hydrostatics* (Rivingtons), by Charles Morgan, Instructor at the Royal Naval College, Greenwich, is a concise little work of pass-matriculation standard, with abundance of examples, “not specially adapted to those reading the subject without tutorial aid, whom, the author takes it, are few.”

In the “University Tutorial Series,” Mr. Briggs and Dr. Bryan produce the second part of *The Tutorial Algebra* (Clive), based on Radhakrishnan, and suited to the standard of the London Intermediate and B.A. examinations. As we have said before, and, as the authors point out, Prof. Radhakrishnan owes much to De Morgan, Clifford, and Chrystal, and it is only necessary to add that this advanced algebra is a well digested summary and development of the best writers. Admirable clearness is a marked characteristic of this book.—*A Text-Book of Algebra, with Exercises, for Secondary Schools and Colleges, Part I.*, by Dr. Fisher and Dr. Schwart, of Pennsylvania (published by the authors), is too elaborate for a first part. It extends to progressions and the binomial theorem, and occupies 683 pages.—*A New Sequel to Euclid, Parts II. and III.* (Blackie), by Prof. W. J. Dilworth, is a useful collection of riders on the first six books.

In the “Organized Science Series,” we have *Second Stage Mathematics* (Clive), edited by William Briggs, M.A., including Euclid II.—IV., algebra to quadratics, and trigonometry, with the Science and Art papers from 1893 to 1897, and complete solutions.—*Elementary Mathematics, including Arithmetic, Euclid, and Algebra* (Whittaker), by J. L. S. Hatton and George Boole, is intended for those who have some knowledge of arithmetic, but are not acquainted with Euclid or algebra, and the authors assure us, “with the object of assisting beginners, the subject has been as fully explained as the size of the book would permit.” The size is moderate. This is a first-stage mathematics, the Euclid being limited to the first book, and the algebra extending to simultaneous simple equations.

Our long list comes to an end with *A Shilling Arithmetic* (Bell & Sons), by Charles Pendlebury and W. S. Beard, with numerous worked examples and exercises; and *Warren’s Table and Formula Book* (Dublin: Hodges, Figgis, & Co.)—a handy little book, combining explanatory text with the tables.

FRENCH.

Méthode Naturelle pour apprendre le Français. By George Hugben, M.A. (Nelson & Sons.)

We are glad to see another book on the lines of the “New Method,”

as it shows that publishers are not shrinking from what would a few years ago have appeared a risky enterprise. The advocates of the "New Method" have recently worked to good purpose, and the prospect is distinctly encouraging. With most of the opinions expressed in Mr. Hogben's preface we agree. The foreign language should be used as much as possible, and translation should come later than it usually does. There is an allusion to a "Teacher's Book," which we have, however, not received. The book before us is evidently the outcome of considerable experience, and is far ahead of those books, generally used in England, which are based on the grammatical method. Still, there are some defects which, in our opinion, impair the value of the book. There is no adequate provision for teaching the pronunciation. Perhaps this is given in the "Teacher's Book." The lessons start well enough with discussion of things in the class-room; but then we pass on to knife and fork, the spider, lighting a candle, &c. There is an obvious lack of connexion. Greater care should have been taken to associate new ideas with old ones; but what seems to us the greatest mistake—indeed, almost fatal in a book based on the "New Method"—is the addition of a French-English vocabulary. What should have been given is, at most, a glossary, in which the words are explained in French, after the manner of Larousse's useful little work. If Mr Hogben will make this change in the second edition, his work will really be very valuable. No teacher can fail to appreciate the bright telling of the stories and the careful selection of poems. There are also a large number of pictures, which add materially to the attractiveness of the book.

Saintine: Picciola. Edited by Arthur R. Ropes, M.A. (Cambridge University Press.)

An edition which we can recommend. Mr. Ropes has edited a number of French texts for the "Pitt Press Series," and has come to know just what to say and what to leave unsaid. He has supplied a pleasant introduction and suitable notes, which give much interesting information, and leave little to find fault with. In the notes on page 2, line 25, read *poète* and *in Ravme*. The German substantives quoted should throughout be written with capital letters. In the note on page 13, line 25, the rule about *tout* is incomplete. Page 21, line 22, read *très bien* (the hyphen is no longer printed); also on page 117, line 28. The translations are, in almost every case, excellent; but for *on eût dit*, "he looked like," "he suggested," would be better than "you would have said he was" which smacks of translation. One point in which this volume compares favourably with other editions of texts by the same hand is in the restraint shown in the use of grammatical terms. We are particularly pleased to see *apodosis* and *protasis* obtruding themselves less frequently.

"Siepmann's French Series."—*Word- and Phrase-Books for L'Abbé Daniel, Saes et Parchemins, L'Anneau d'Argent, La Première Croisade; and Keys to the Appendices of the same Books.* (Macmillan.)

In the "Word- and Phrase-Books" we have the English and French (in parallel columns) of the words and phrases for *viva voce* drill which form the first appendix to certain texts in this French series. In the "Keys" there are, besides, renderings of the "sentences on syntax and idioms" and of the "passages for translation into French." They appear to have been prepared with care, and should prove useful to teachers who are reading these texts with their classes.

Boileau: L'Art Poétique. Edited, with Introduction and Notes, by D. Nichol Smith, M.A. (Cambridge University Press.)

We are not aware that a critical edition of "L'Art Poétique" has hitherto been published in English. Mr. Nichol Smith hopes that his little book will be useful to students of English literature as well as to students of French, and, no doubt, it will be so. The editor has had the efficient aid of Dr. Henry Jackson, and we cannot but give this work a warm welcome and commendation.

MISCELLANEOUS.

The Fifteen Decisive Battles of the World, from Marathon to Waterloo. By Sir Edward Creasy, M.A. (Macmillan.) *The Ingolishby Legends; or, Mirth and Marvels.* By R. H. Barham. (Bentley & Son.) *Typee: a Romance of the South Seas.* By Herman Melville. (Blackie & Son.) *Selections from Addison's "Spectator."* &c. With Introduction by Mrs. Barbauld. Edited by Mrs. Herbert Martin. (Blackie & Son.) *The Swiss Family Robinson.* By J. R. Wyss. (Bell & Sons.)

Here is a quintet of reprints, all worthy of reproduction, and likely to hold their own against many a modern competitor. They are not school-books, except in the sense that they provide good reading, more or less appropriate for boys and girls who have begun to discriminate good writers from bad ones, and to prefer the former. If Melville is a trifle insipid, and Barham rather boisterous, and Creasy just a little prosy, at any rate they all contain very much that is admirable.

English Prose for Junior and Senior Classes By J. Logie Robertson, M.A. Part I. (Blackwood & Sons.)

Mr. Robertson has selected well, and on literary lines, as we said when noticing the first part of his "English Prose." He has taken attractive pieces from Scott, Southey, Lamb, Landor, De Quincey, Carlyle, Macaulay, Kinglake, Thackeray, Tyndall, Stevenson, and

others, adding a few helpful notes to each piece. The two volumes make an excellent prose Reader.

Modern Business Methods: Import and Export Trade. By F. Hooper and J. Graham. (Macmillan.)

A practical reference- and text-book, with examples of the customary forms and correspondence; a companion to the "Home Trade" of the same authors, which we noticed some time ago.

A History of France from 1180 to 1314 A.D.—The Growth of the Feudal Absolute Monarchy. (2) *Synopsis of French History.* By Agnes F. Dodd. (University Examination Postal Institution.)

This is a concise and fairly accurate summary of the main facts which ought to be known on the subject. The text is illustrated by four maps, and the synopsis is carefully and systematically arranged.

Economics. By E. T. Devine, Ph.D. (Macmillan.)

We do not find these reprinted University Extension lectures sufficiently definite, and, perhaps, that is the reason why they appear to be even more dry than the subject warrants. At all events, they are not adapted for use in English schools.

Cassell's Popular Educator. Cheap Edition. Vol. I. (Cassell.)

This new edition of a well known work is unabridged, and has the same coloured plates and maps which appeared in the more high-priced editions. The "Educator" will be completed in eight volumes, published at intervals of a fortnight.

Selected Examples of Decorative Art. Edited by F. E. Witthaus. (Longmans.)

The first two numbers of this new monthly publication, each being a portfolio of twelve photographic reproductions of objects of art in the South Kensington Museum, leave really nothing to be desired—unless it be the succeeding numbers. The selection of objects is made by, or submitted to, the Directors of the Museum, and the reproductions are submitted to them before printing, so that, in a sense, this publication combines official sanction with private and personal initiative. Not only are the selected objects exquisite in point of art but the plates as produced are admirably artistic as pictures. The series will contain examples of sculpture in marble and stone; carved woodwork and furniture, gesso work, bronzes, hammered and cast iron, brass, copper, and lead work; silversmith's work, glass vessels, leather work, textile fabrics and embroidery, and lace; and it is intended to add various subjects, according to the needs of students. We welcome this work with high appreciation.

The Englishwoman's Year-Book and Directory, 1899. Edited by Emily James. (A. and C. Black.)

This is the first Year-Book of a new series. The value of the publication has greatly increased since its origination nineteen years ago, and if all its readers would utilize the blank pages, as the editor requests, for the purpose of making suggestions, it would soon approximate to something like completeness.

Messrs. Nelson & Sons send us two of their *Royal Portfolios of Pictures and Diagrams*, each a series of large sheets mounted on rollers, and printed boldly in colours on strong Manila paper. The design is to illustrate object lessons for classes, and to meet the requirements of the Code (or rather of Circular 369) in that respect. They are excellent for the purpose. The samples before us are the first and fifth series of "Plant Life," drawn from specimens by Dr. M. C. Cooke. The size is 34 by 30.5 inches. A handbook for teachers accompanies each series.

From Messrs. W. & A. K. Johnston we have a number of *Familiar Scenes for Object Lessons*, printed in colours from original oil paintings and illustrating town and country life, land and sea, the farmyard and the street. Each is separately mounted on a roller, the size being 34 by 28 inches. With them comes an *Object Lesson Handbook of Natural History*, which is intended for use with the same publishers' natural history plates, already noticed in these pages.

Amongst Messrs. Bacon's recent publications are *Bacon's New Drawing Charts, Freehand, Part IV.*, a series of twenty-four sheets, printed with soft grey outlines, and presenting in each case a reduction of the larger design. These admirable class-copies are by Frank Steeley and Bernhard H. Trotman. From Messrs. Bacon we also have a number of mounted and glazed sheets on rollers—*Poisonous Plants and Flags and Emblems of the United Kingdom*—effectively coloured and decidedly attractive.

Messrs. Philip & Son send us a box of *Studies for Blackboard Drawing*, by Helen Phillips, with accompanying *Hints* by Katharine Phillips. Both are of high value, and nothing could be better as a practical initiation for students working on the blackboard with an absolutely free hand. The studies are outlines in white printed on "blackboard paper"—the actual old greasy painted "board" being quite superseded by such paper surfaces as this.—From the same publishers we have a *Special Map of Africa*, showing the treaty and other boundaries, clearly distinguished, the British sphere, the pioneers' routes, &c., &c.

Mr. Edward Arnold publishes an excellent set of twenty *Scale Drawing Sheets*, examples to be studied and copied by the student. We should have been saved much labour and perplexity if we had had these sheets in our boyhood. The scales are all intended for construction with two set-squares, or one square and a flat rule, together with a pair of compasses in each case.

WE HAVE ALSO RECEIVED the following publications and new editions:—

Calendar, History, and General Summary of Regulations of the Department of Science and Art, 1899 (Her Majesty's Stationery Office).

Matriculation Directory, January, 1899 (University Correspondence College).

Education in the Country Districts: An Inquiry into the Condition and Needs of Rural Elementary Schools (Manchester: Taylor, Garnett, & Co.).

Catrina, by R. L. Stevenson (Cassell & Co.)—a sixpenny reprint. *Scenes from "Little Women" and "The Last of the Mohicans"* (Edward Arnold).

Work (Cassell & Co.)—the annual volume of this wonderfully practical paper.

Illustrated Universal History (Cassell & Co.)—Part I. of a new and cheaper edition.

Berry's Guide to the 1899 Queen's Scholarship (Simpkin, Marshall, & Co.).

Manual Instruction in France and Switzerland, by William Lewis, B.A. (Aberystwyth: Gibson)—a Gilchrist report to the University of Wales.

The Children's Labour Question (Daily News office)—a reprint of articles which attracted much attention in the columns of our contemporary.

The Temple Reader, edited by E. G. Speight, B.A. (Horace Marshall & Son)—a new edition of the Prose Reader, revised, enlarged, and illustrated.

Stories for Standard II. (Chambers's "Story Readers").

The Student's Queen Elizabeth, by T. W. Berry and T. P. Marshall. (Simpkin, Marshall, & Co.)

La Fortune de D'Artagnan, with vocabulary, edited by A. R. Ropes, M.A. (Cambridge: Pitt Press)—a stereotyped edition of a work which we have highly commended.

Otto's German Dialogues, revised by H. Runge (Heidelberg: Groos)—a fourth edition.

COLLEGE OF PRECEPTORS.

CERTIFICATE EXAMINATION.

CHRISTMAS, 1898.

List of the successful candidates at the Colonial Centres—Batticaloa, British Guiana, Grenada, Kingston (Jamaica), Lagos, Nassau (Bahamas), Stewart Town (Jamaica), and Trinidad.

N.B.—The small italic letters denote that the candidate to whose name they are attached was distinguished in the following subjects respectively:—

- a* = Arithmetic, *g* = Geography,
- al* = Algebra, *h* = History,
- d* = Drawing, *ph* = Physiology,
- e* = English, *s* = Scripture.
- f* = French.

The small figures ¹ and ² prefixed to names in the Second and Third Class Lists denote that the candidates were entered for the First and Second Classes respectively.

BOYS.

- FIRST CLASS.—PASS DIVISION.**
 Algernon, H. Middle School, St. Barnabas, British Guiana.
 Bruce, F. V. A. Wesleyan Boys' High School, Lagos.
- SECOND CLASS.—2ND DIVISION.**
¹Richards, F. O. Middle School, St. Barnabas, British Guiana.
 Canagaratnam, S. O. Wesleyan Central Institution, Batticaloa.
- SECOND CLASS.—3RD DIVISION.**
 Nelson, I. B. Wesleyan Boys' High School, Lagos.
 Coker, V. L. " " " " "
 Bannerman, H. S. " " " " "
 Glasgow, F. W. C. Middle School, St. Barnabas, British Guiana.
 Allegacone, W. C. R. Wesleyan Central Institution, Batticaloa.
- THIRD CLASS.—1ST DIVISION.**
¹Chase, L. R. *a*. Private tuition.
²Vyramuthu, D. P. Wesleyan Central Institution, Batticaloa.
 Cook, W. P. *e. al.* Middle School, St. Barnabas, British Guiana.
²Isaacs, J. T. Wesleyan Boys' High School, Lagos.
²Thompson, A. W. " " " " "
²Koranteng, J. B. *a*. Private tuition " " "
 Redhead, T. C. " " " " "
 Abraham, G. M. *e. a.* Wesleyan Boys' High School, Lagos.
 Lapite, D. J. Middle School, St. Barnabas, British Guiana.
 Brown, H. F. " " " " "
- THIRD CLASS.—2ND DIVISION.**
 Canagasabai, E. G. *a*. Private tuition.
²Boyce, T. A. " " " " "
 Edward, L. C. " " " " "
 Moseley, D. *a. al.* Queen's College, Nassau, Bahamas.
 Roberts, E. *a*. Private tuition.
²Nicholas, G. G. *d.* Wesleyan Central Institution, Batticaloa.
¹Rae, S. *d.* Queen's College, Nassau, Bahamas.
¹Evanson, A. *a*. Private tuition.
¹Joseph, A. " " " " "
¹Lucas, J. G. M. *e. a.* " " " " "
 William, J. M. Wesleyan Boys' High School, Lagos.
 Levine, J. S. *e. a.* Middle School, St. Barnabas, British Guiana.
 Loko, D. H. Wesleyan Boys' High School, Lagos.
 Johnson, O. C. Private tuition.
 Cruteck-shank, G. M. *e. a.* Middle School, St. Barnabas, British Guiana.
 Reindorf, C. E. Private tuition.
 Johnson, E. L. *a*. Middle School, St. Barnabas, British Guiana.

- THIRD CLASS.—3RD DIVISION.**
¹Johnson, A. Queen's College, Nassau, Bahamas.
¹Allegacone, S. A. Wesleyan Central Institution, Batticaloa.
¹Pritchard, R. Queen's College, Nassau, Bahamas.
¹Sykes, J. A. H. Middle School, St. Barnabas, British Guiana.
¹Hinds, E. G. D. " " " " "
¹Pritchard, W. Queen's College, Nassau, Bahamas.
¹Kanagasaurian, T. Wesleyan Central Institution, Batticaloa.
¹Dada, E. K. Wesleyan Boys' High School, Lagos.
¹Stoner, L. R. Wesleyan Central Institution, Batticaloa.

GIRLS.

- FIRST CLASS.—PASS DIVISION.**
 Prendergast, A. M. *s.* Barbican High School, Kingston, Jamaica.
- SECOND CLASS.—1ST DIVISION.**
¹Facey, Y. O. *ph.* Barbican High School, Kingston, Jamaica.
 Cipriani, A. M. *f.* St. Joseph's Convent, Port of Spain, Trinidad.
- SECOND CLASS.—2ND DIVISION.**
 McLaughlin, F. A. Barbican High School, Kingston, Jamaica.
 Dias, M. C. St. Joseph's Convent, Port of Spain, Trinidad.
 Selhor, S. " " " " "
 Guiseppi, L. " " " " "
 Schenlt, C. " " " " "
- SECOND CLASS.—3RD DIVISION.**
 Riley, N. St. Joseph's Convent, Port of Spain, Trinidad.
 Henderson, A. G. Private tuition.
 Kernahan, B. St. Joseph's Convent, Port of Spain, Trinidad.
- THIRD CLASS.—1ST DIVISION.**
²Palazzi, A. *f.* St. Joseph's Convent, Port of Spain, Trinidad.
¹Cover, S. L. Westwood High School, Stewart Town, Jamaica.
 Taylor, E. T. *s. e. h. a. f.* Girls' High School, St. George's, Grenada.
²Maillard, N. St. Joseph's Convent, Port of Spain, Trinidad.
²Anduze, J. " " " " "
 Hughes, W. E. *h. g. a. d.* Girls' High School, St. George's, Grenada.
 Reynolds, J. M. Barbican High School, Kingston, Jamaica.
 Corea, R. *e. a. f.* St. Joseph's Convent, Port of Spain, Trinidad.
 Grant, M. I. *d.* Barbican High School, Kingston, Jamaica.
 Grant, M. L. *d.* " " " " "
 Steele, A. M. *e. a. f.* Girls' High School, St. George's, Grenada.
 Gray, E. L. Barbican High School, Kingston, Jamaica.
 Hobson, M. J. L. *e. a.* Girls' High School, St. George's, Grenada.
 Wuppermann, M. M. *f.* St. Joseph's Convent, Port of Spain, Trinidad.

THIRD CLASS.—2ND DIVISION.

- ¹Crosbie, F. St. Joseph's Convent, Port of Spain, Trinidad.
¹Winter, F. A. *e. a.* Private tuition.
 Grant, A. I. Girls' High School, St. George's, Grenada.
 Schenlt, R. M. *e. f.* St. Joseph's Convent, Port of Spain, Trinidad.
 De Verteuil, V. *f.* Westwood High School, Stewart Town, Jamaica.
²Elliott, M. A. St. Joseph's Convent, Port of Spain, Trinidad.
²Herrera, H. " " " " "
²Collins, W. " " " " "
 Carraciolo, B. " " " " "
 Antoine, A. *e.* Private tuition.
 Stone, E. St. Joseph's Convent, Port of Spain, Trinidad.

THIRD CLASS.—3RD DIVISION.

- Savary, E. *f.* St. Joseph's Convent, Port of Spain, Trinidad.
 Botancourt, E. " " " " "
 Prada, E. L. Westwood High School, Stewart Town, Jamaica.
 Brala, V. St. Joseph's Convent, Port of Spain, Trinidad.
 Clarke, L. E. Westwood High School, Stewart Town, Jamaica.
 Grant, I. A. " " " " "

JUNIOR FORMS EXAMINATION.

BOYS.

- Bailey, A. Queen's College, Nassau, Bahamas.
 Brown, E. A. Middle School, St. Barnabas, British Guiana.
 Canagasabai, A. E. Wesleyan Central Institution, Batticaloa.
 King, A. E. A. Middle School, St. Barnabas, British Guiana.
 Krishna Pillai, S. C. Wesleyan Central Institution, Batticaloa.
 Krishna Pillai, V. R. " " " " "
 Madhoo, J. Vern Grammar School, Georgetown, Demerara
 Piggott, J. N. Middle School, St. Barnabas, British Guiana.
 Suppurumaniam, M. Wesleyan Central Institution, Batticaloa.
 Suppurumaniam, V. S. Private tuition.
 Tambi Pillai, K. Wesleyan Central Institution, Batticaloa.
 Vallipuram, W. H. J. " " " " "

GIRLS.

- St. Joseph's Convent, Port of Spain, Trinidad.
 Queen's College, Nassau, Bahamas.
 St. Joseph's Convent, Port of Spain, Trinidad.
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 Queen's College, Nassau, Bahamas.
 St. Joseph's Convent, Port of Spain, Trinidad.
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 Queen's College, Nassau, Bahamas.
 St. Joseph's Convent, Port of Spain, Trinidad.
 Pullantive Girls' School, Batticaloa.
 " " " " "
 St. Joseph's Convent, Port of Spain, Trinidad.
 Private tuition.
 " " " " "

MATHEMATICS.

14100. (Professor ELLIOTT, F.R.S.)—ABC, A'B'C' are two triangles inscribed in a conic, and PQR is the PASCAL line of the hexagon AB'CA'BC'. P being the intersection of B'C and BC', Q of C'A and CA', and R of A'B and AB'. Prove that, if XYZ be an inscribed triangle which is copolar both with ABC and A'B'C', with vertices homologous in the order named, then XP, YQ, ZR intersect on the conic, and the two poles lie on the line PQR. Prove also that all inscribed triangles XYZ which are copolar both with ABC and A'B'C' can be constructed by joining P, Q, R to any the same point of the conic, and taking for vertices the second intersections of the conic with the joining lines.

Solution by Professor A. DROZ-FAENY.

Soient ω le centre d'homologie des triangles ABC et XYZ, et ω' celui des triangles A'B'C' et XYZ. Les hexagones inscrits BYB'CA', AXA'ZC', AXA'BYB' admettant respectivement les Pascals, $\omega\omega'P$, $\omega\omega'Q$, $\omega\omega'R$, il en résulte que les cinq points $\omega\omega'PQR$ sont en ligne droite. Tirons les droites XP, YQ, ZR et supposons que XP et YQ se coupent en a ; XP et ZR se coupent en a' .

Or dans l'hexagone XaY'BC'A, Xa et B'C se coupent en P, aY et CA se coupent en Q, YB' et A'X se coupent en ω' ; ces trois points étant en ligne droite a appartient à la conique XYB'CA'. De même dans l'hexagone Xa'ZC'BA', Xa' et C'B se coupent en P, a'Z et BA' se coupent en R, ZC' et A'X se coupent en ω' , et comme ces trois points sont en ligne droite a' appartient à la même conique. Or les deux points a et a' doivent coïncider comme constituant les deux la même seconde intersection du rayon XP avec la conique. La proposition réciproque se démontre d'une manière analogue. [The rest in Volume.

13829. (R. CHARTRES.)—If from the vertex A of a triangle there be drawn to the base the altitude AD, the bisector of the angle AE, and the median AF, then, if DE = 3EF, the sides of the triangle will be in arithmetical progression.

Solution by C. JOSS, M.A.; Prof. T. SAVAGE; and many others.

Draw BGH perpendicular to AE. Then GF is parallel to, and half of HC, the difference of the sides; therefore

$$EGF = \frac{1}{2}A,$$

and, because ABDG is concyclic,

$$GDE = \frac{1}{2}A;$$

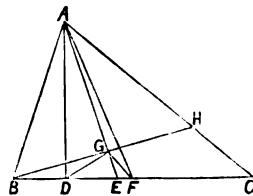
therefore FG is tangent to circumcircle of GDE; therefore

$$DF \cdot FE = GF^2;$$

therefore $2EF = GF$,

$$\text{and } \frac{BE}{EC} = \frac{BA}{AC}; \therefore \frac{BE+EC}{BE-EC} = \frac{BA+AC}{BA-AC};$$

$$\therefore \frac{BC}{2EF} = \frac{BA+AC}{2GF}; \therefore 2BC = BA+AC.$$



14042. (Prof. G. B. MATHEWS, M.A.)—Prove that

$$a(b-c)^{6n+1} + b(c-a)^{6n+1} + c(a-b)^{6n+1}$$

is divisible by $(b-c)(c-a)(a-b)(a^2+b^2+c^2-bc-ca-ab)$ for all positive integral values of n . Thus, when $n = 1$, the quotient is $(a+b+c)(a^2+b^2+c^2+bc+ca+ab) - 18abc$.

Is there any convenient way of finding the quotients for higher values of n ?

Solution by J. O. WATTS; L. E. REAY, B.A.; and others.

$$a(b-c)^{6n+1} + b(c-a)^{6n+1} + c(a-b)^{6n+1}$$

is clearly divisible by $(a-b)$, $(b-c)$, $(c-a)$, for it vanishes when $a = b$, $b = c$, $c = a$.

$$\text{Put } a = -\omega b - \omega^2 c - \omega(b + \omega c)(b-c)^{6n+1} + b(c + \omega b + \omega^2 c)^{6n+1} + c(-\omega b - \omega^2 c - b)^{6n+1}$$

$$= -\omega(b + \omega c)(b-c)^{6n+1} + \omega b(b-c)^{6n+1} + \omega^2 c(b-c)^{6n+1} = 0.$$

Therefore $a + \omega b + \omega^2 c$ is a factor. Similarly $a + \omega^2 b + \omega c$ is a factor.

Therefore $a^2 + b^2 + c^2 - ab - bc - ca$ is a factor.

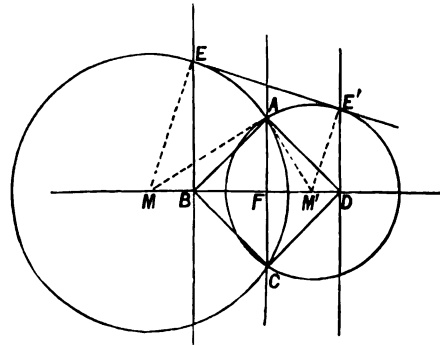
13950. (ERNEST P. BARRETT, B.A.)—If O be the point from which two common tangents are drawn to two orthogonal circles, whose points, A and C, of intersection are fixed, prove that, if the intersections of the polars of O with respect to the circles with the join of O to the centres are B and D, ABCD is a square.

Solution by Professor A. DROZ-FARNY; H. W. CURJEL, M.A.; the PROPOSER; and F. H. PEACHELL, B.A.

Soient M et M' les centres des deux circonférences de rayons R et R', E et E' les points de contact d'une des tangentes communes, d la distance MM' des centres et F le point milieu de AC. On a :

$$(MA)^2 = MF \cdot MM' \text{ et } (M'A)^2 = M'F \cdot MM';$$

$$\text{donc } R^2 R_1^2 = MF \cdot M'F \cdot d^2 = (AF)^2 d^2, \text{ et par conséquent } 2RR' = d \cdot AC.$$



On trouve aisément que

$$d \cdot BD = (EE')^2 = d^2 - (R-R')^2 = R^2 + R_1^2 - (R-R_1)^2 = d \cdot AC, \text{ d'où } BD = AC.$$

Mais l'axe radical des deux circonférences divise EE', donc aussi BD, en parties égales, et par conséquent BF = FD = FA = FC. ABCD est un carré.

13879. (J. BRILL, M.A.)—Verify that the six quantities $x, y, z, \xi, \eta, \zeta$ can be eliminated from the six equations

$$\begin{aligned} a + dx + e\xi &= 0, & b + dy + e\eta &= 0, & c + dz + e\zeta &= 0, \\ f_1 + g_1x - g_2y - h_2\xi + h_3\eta + k(y\xi - z\eta) &= 0, \\ f_2 + g_2x - g_1y - h_2\xi + h_1\zeta + k(z\xi - x\zeta) &= 0, \\ f_3 + g_3y - g_2x - h_1\eta + h_2\xi + k(x\eta - y\xi) &= 0, \end{aligned}$$

and obtain the result of elimination.

Solution by H. W. CURJEL, M.A.; and the PROPOSER.

Substituting in the last three equations for ξ, η, ζ from the first three, we get

$$F_1 + yG_3 - zG_2 = 0, \quad F_2 - G_2x + G_1z = 0, \quad F_3 + G_2x - G_1y = 0 \quad (1, 2, 3),$$

$$\begin{aligned} \text{where } F_1 &= -f_1 - \frac{h_2c}{e} + \frac{h_2b}{e}, & G_1 &= g_1 + \frac{h_1d + ka}{e}, \\ F_2 &= -f_2 + \frac{h_1c - h_3a}{e}, & G_2 &= g_2 + \frac{h_2d + kb}{e}, \\ F_3 &= -f_3 + \frac{h_2a - h_1b}{e}, & G_3 &= g_3 + \frac{h_3d + kc}{e}. \end{aligned}$$

Multiplying (1) by G_1 , (2) by G_2 , (3) by G_3 and adding, we get

$$\begin{aligned} F_1G_1 + F_2G_2 + F_3G_3 &= 0; \\ \text{i.e., } e(f_1g_1 + f_2g_2 + f_3g_3) + d(f_1h_1 + f_2h_2 + f_3h_3) + ka(f_1 + f_2 + f_3) & \\ &= a(g_3h_2 - g_2h_3) + b(g_1h_3 - g_3h_1) + c(g_2h_1 - g_1h_2) \\ &= \begin{vmatrix} a, & h_1, & g_1 \\ b, & h_2, & g_2 \\ c, & h_3, & g_3 \end{vmatrix} \end{aligned}$$

13939. (C. E. HILLYER, M.A.)—AOB is the diameter of a circle of radius R; circles are described on OA and OB as diameters; a circle O_1 is then described, touching the last two externally and the original circle internally; a second circle O_2 touches O_1 and the circle on OA externally, and the original circle internally; and so on. Show that the angles $AOO_2, AOO_3, AOO_4, \dots$ are successive acute angles in descending order which have all their trigonometrical ratios rational, and the radius

of the n th circle O_n is $\frac{R}{n^2 + 2}$. Also, if O be not the centre, but $OA = a$ and $OB = b$, then the diameter of the n th circle, similarly constructed, is $\frac{ab(a+b)}{n^2b^2 + a(a+b)}$. [See, regarding the second part, Quest. 7905, by R. LACHLAN, B.A., Vol. LXI., p. 94.]

Solution by the PROPOSER and Professor SANJANA, M.A.

If r_n, θ_n are the polar coordinates of the centre of O_n , and a_n the radius of the n th circle, we have $r_n + a_n = R$ (1),

$$\text{and } \sqrt{(r_n^2 + \frac{1}{2}R^2 - r_n R \cos \theta_n)} - a_n = \frac{1}{2}R; \text{ therefore } r_n + \sqrt{(r_n^2 + \frac{1}{2}R^2 - r_n R \cos \theta_n)} = \frac{3}{2}R, \text{ whence } \cos \theta_n = 3 - 2(R/r_n) \text{ (2).}$$

Since $\theta_1 = 90^\circ$, we have $R/r_1 = \frac{3}{2}$. Now, if we form the equation for r_2 from the condition that the circle O_2 touches the three circles O_1 , that on OA_1 , and that on AB , we shall obtain a quadratic of which $\frac{1}{2}R$ is one root, since the circle on OB also satisfies the condition [as a matter of fact

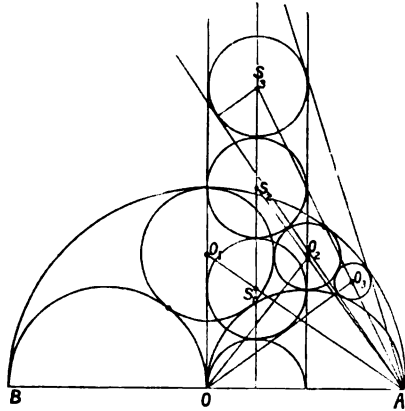
the equation is $12r^2 - 16Rr + 5R^2 = 0$ or $(2r - R)(6r - 5R) = 0$; therefore R/r_2 is rational. Similarly, since R/r_1 is rational, it follows that R/r_3 is so also, and so on, and therefore, from (2), $\cos \theta_n$ is always rational, and, from (1), R/a_n is always rational. Now, from the triangle $O_{n-1}O_n$, we have

$$\cos(\theta_{n-1} - \theta_n) = \frac{r_n^2 + r_{n-1}^2 - a_n + a_{n-1}}{2r_n r_{n-1}} = \frac{-2R^2 + 2Rr_n + 2Rr_{n-1}}{r_n r_{n-1}}$$

which is rational; and, therefore,

$\sin \theta_n \sin \theta_{n-1}$ is rational, but $\sin \theta_1 = 1$; therefore $\sin \theta_2$ is rational; therefore $\sin \theta_3$ is rational, and so on.

Thus $\theta_1, \theta_2, \theta_3, \&c.$, are successive angles having both sine and cosine rational. [The rest in Volume.



13979. (R. CHARTRES.)—Show that

$$\int_0^1 \frac{x^{k-1} \cdot dx}{1+x} = \frac{\pi}{\sin k\pi}$$

without DEMOIVRE'S theorem or imaginaries ($k < 1$); evaluate

$$\int_0^{\infty} \frac{\log x \cdot dx}{1+x^3}$$

and sum the series $\frac{1}{1^2 \cdot 2^2} - \frac{3}{4^2 \cdot 5^2} + \frac{5}{7^2 \cdot 8^2} - \&c., ad\ infinitum.$

Solution by Professor NANSON, G. H. HARDY, and the PROPOSER.

$$(1) \int_0^{\infty} \frac{x^k}{1+x} dx = \int_0^1 \frac{x^{k-1} + x^{-k}}{1+x} dx = \pi \operatorname{cosec} k\pi,$$

on expanding $(1-x)^{-1}$ in a G.P., integrating each term separately, and summing by the known formula

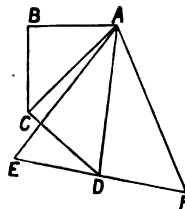
$$\pi \operatorname{cosec} k\pi = \frac{1}{k} + \sum_{r=1}^{\infty} \left(\frac{1}{k+r} + \frac{1}{k-r} \right) (-1)^r$$

which can be proved without using DEMOIVRE'S theorem, or imaginary quantities. [The rest in Volume.

14020. (SALUTATION.)—From a given point as vertex construct an equilateral triangle without describing any arc, but having a flat ruler with two of its edges at right angles and half the length of the required side set off on one of them, measured from their point of junction. [Not only is the ordinary joining of points postulated, but the apposition of either of the two specified points on the ruler to a point in the figure, as it grows, and of one of the edges to any line already drawn; also the drawing of a new line along the other edge, whilst the position of the ruler is maintained.]

Solution by G. W. PRESTON.

Let A be the given vertex. Place the corner of the ruler at A, and draw a line from A equal to the half-side. Place the corner of the ruler at B, the other extremity of this line, and in such a way that the unmarked edge coincides with the line AB in direction. Draw BC along the other edge equal to the half-side. Join AC. Place the ruler again at C, and so that the unmarked edge coincides with CA, and draw CD along the other edge equal to the half-side.



Then $AD^2 = 3a^2$, where $2a$ is the given side. Repeat the same process on each side of AD, then drawing DE, DF each equal to the half-side. Join AE, AF. Then AEF is the equilateral triangle required.

For $AF^2 = AD^2 + DF^2 = 3a^2 + a^2 = 4a^2$. Therefore $AF = 2a$. Similarly, $AE = 2a$, and EF also equals $2a$.

13927. (Professor SANJANA.)—Prove the identity

$$\frac{(x^{2n+1} - y^{2n+1})}{(x-y)} = (x^n + x^{n-1}y + \dots + y^n)^2 - xy(x^{n-1} + x^{n-2}y + \dots + y^{n-1})^2;$$

and show how it may be employed to obtain factors of large numbers of the form $x^{4n+2} - 1$.

Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.; and H. W. CURJEL, M.A.

Let $P = (x^n + x^{n-1}y + \dots + y^n)$, $Q = (x^{n-1} + x^{n-2}y + \dots + y^{n-1})$.

Then $P = \frac{x^{n+1} - y^{n+1}}{x-y}$, $Q = \frac{x^n - y^n}{x-y}$;

$$\begin{aligned} \therefore P^2 - xy \cdot Q^2 &= \frac{(x^{2n+2} - 2x^{n+1}y^{n+1} + y^{2n+2}) - xy(x^{2n} - 2x^n y^n + y^{2n})}{(x-y)^2} \\ &= \frac{x^{2n+2} - 2x^{n+1}y - xy^{2n+1} + y^{2n+2}}{(x-y)^2} \\ &= \frac{x^{2n+1}(x-y) - y^{2n+1}(x-y)}{(x-y)^2} = \frac{x^{2n+1} - y^{2n+1}}{x-y}. \end{aligned}$$

[This is a known theorem. It is given in Mr. BICKMORE'S paper "On the Numerical Factors of $(a^n - 1)$," in *Messenger of Mathematics*, Vol. xxviii., Art. 8.]

Next, let $x = \xi^2$, $y = 1$. Then

$$\frac{\xi^{4n+2} - 1}{\xi^2 - 1} = P^2 - \xi^2 \cdot Q^2 = (P - \xi Q)(P + \xi Q),$$

thus giving two factors of $(\xi^{4n+2} - 1)$, apparently new. But, on substituting for P, Q in terms of ξ , it will be found that

$$P - \xi Q = \frac{\xi^{2n+1} - 1}{\xi - 1}, \quad P + \xi Q = \frac{\xi^{2n+1} + 1}{\xi + 1};$$

so that the factors $(P \mp \xi Q)$ are simply the well known algebraic factors $(\xi^{2n+1} \mp 1) / (\xi \mp 1)$.

13973. (R. KNOWLES, B.A.)— $y^2 = 4ax$ is the equation to a parabola vertex A; on the tangent at A, AT is taken = $4a$; from T, TP is drawn to touch the curve in P; the chord AQ is drawn at right angles to AP; the lines joining the pole of AP to Q and that of AQ to P intersect in O. Prove (1) that the equation to the polar of O is $21x + 6y + 16a = 0$; (2) PQ meets this polar on AT.

Solutions by F. H. PEACHELL, B.A.; G. W. PRESTON, B.A.; and others.

(1) Coordinates of P are $16a, 8a$.

Equation of AP is

$$y/8a = x/16a, \text{ or } 2y - x = 0.$$

Therefore equation of AQ is

$$2x + y = 0$$

from which we get coordinates of Q, $a, 2a$.

Tangent at Q is

$$-2ay = 2a(x+a);$$

where this cuts $x = 0$, $y = -a$.

Therefore F is point $0, -a$.

Equation of TQ is

$$6x + y - 4a = 0;$$

FP is $9x - 16y - 16a = 0$.

Therefore coordinates of O are $\frac{1}{21}4a, -\frac{1}{21}7a$. Therefore polar of O is

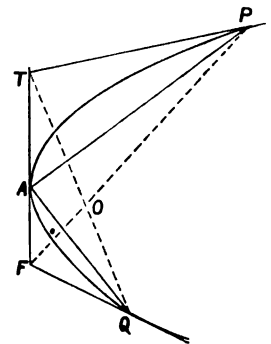
$$(-y \cdot 12a)/21 = 2a(x + \frac{1}{3}4a), \text{ or } 21x + 6y + 16a = 0.$$

(2) Equation of PQ is $3y - 2x + 8a = 0$;

polar of O is

$$21x + 6y + 16a = 0.$$

These evidently meet on $x = 0$, that is, on AT.



QUESTIONS FOR SOLUTION.

14136. (Professor P. G. TAIT, M.A.)—We are told in *The Wars of the Jews* (cap. viii., § 7) that JOSEPHUS managed to save himself and a companion out of a total of 41 men, the majority of whom had resolved on self-extirmination (to avoid falling into the hands of VESPASIAN), provided their leader died with them. Since the man on whom the first lot fell was to be killed by him on whom fell the second, and so on, BACHER supposes that they stood in a ring, and that each third man became the victim in turn, the ring being instantly closed as the doomed withdrew. (1) Find, on this supposition, the original positions of the final survivor and of the last but one; and (2) generalize for any n men, when every m th is selected in succession. [For a Question somewhat similar, see Vol. LIX., p. 29.]

14137. (Professor CROFTON, F.R.S.)—Prove that $(3n)^{4n} - 1$ is divisible by $24n + 1$, if the latter is a prime number.

14138. (Professor G. B. MATHEWS, M.A.)—The conic $S' + kS'' = 0$

meets the fixed conic $S = 0$ in the points A, B, C, D; prove that, as varies, the six sides of the quadrangle ABCD envelope one and the same curve of the third class, which is in general of the sixth order. Discuss the exceptional cases, and, in particular, that in which the envelope degenerates into a point and a conic.

14139. (Professor NEUBERG.)—Eliminer x, y, z entre des équations
 $\cos x \sin y \sin z = a,$ $\cos y \sin z \sin x = b,$
 $\cos z \sin x \sin y = c,$ $\cos x \cos y \cos z = d.$

14140. (Professor E. J. NANSON.)—Defining a proper recurring series as a r-curring series whose generating function is a proper fraction, show that, if the first $2r$ terms are given, a proper recurring series S_r of order r is in general determined; and, denoting the persymmetric determinant or catalytic whose elements are the first $2k-1$ terms by P_k , prove that, if $P_r = 0, P_{r-1} = 0, \dots, P_{s+1} = 0, P_s \neq 0$, where $s < r$, then (1) the first $2s$ terms determine a proper recurring series S_s of order s which contains the next $r-s$ of the given terms; (2) the continuation of the given series as a proper recurring series of order r is not possible unless S_s contains the remaining $r-s$ given terms; (3) when S_s contains the whole of the given terms, the continuation of the given series as a proper recurring series of order r is uniquely possible, and the continuation coincides with S_s ; (4) the scale of the given series is indeterminate, and is the product of the scale of S_s and of the scale of an arbitrary recurring series of order $r-s$.

14141. (Professor COCHEZ.)—Etudier la courbe $x^2y^2 - x^2y^3 + 1 = 0$.

14142. (Professor SANJANA, M.A.)—Let O be the circumcentre of a triangle ABC, and let the tangents to the circumcircle at B and C meet in k_1 (an ex-symmedian point). (1) Draw antiparallels through k_1 to each side to meet the remaining sides; the six points thus obtained lie on a circle. Two of these points coincide at B and two at C. (2) Draw parallels through k_1 to the sides, and let perpendiculars from O meet these in A_1, B_1, C_1 ; the seven points O, k_1, A_1, B_1, C_1, B, C lie on a circle. Two of these points coincide at k_1 , and B_1 and C_1 lie on AB and AC. [The circles in (1) and (2) are respectively analogous to the cosine and BROCARD circles.]

14143. (Professor UMES CHANDRA GHOSH.)—Prove that

$$\int_0^\infty \frac{\cot x - 2^a \cot 2^a x}{x} dx = \frac{1}{2} \pi (2^a - 1),$$

where a is any positive integer.

14144. (D. BIDDLE.)—The sum to infinity of the reciprocals of triangular numbers being 2, find the value of a constant, x , to be added to each triangular, such that the sum of the reciprocals shall be $4\pi - 1/x$.

14145. (R. TUCKER, M.A.)—The equations to AP and EF are

$$a \cos A (c \cos B - b \cos C) + \beta b \cos B \cos C - \gamma c \cos B \cos C = 0,$$

$$-a \cos A + \beta \cos B + \gamma \cos C = 0.$$

Eliminating a , the equation to AP is

$$(\beta \cos^2 B)/b = (\gamma \cos^2 C)/c;$$

hence the point is $(a \sec^2 A, b \sec^2 B, c \sec^2 C)$, which evidently lies on $\Sigma bc \cos^2 A (b^2 - c^2) \alpha = 0$, the join of K and H.

14146. (R. F. DAVIS, M.A.)—If OP, OP' are tangents from an external point O to a given circle, and any point T is taken upon the line joining their middle points R, R' from which tangents are drawn whose chord of contact intersects RR' in U, prove that OT, OU are at right angles.

14147. (Rev. W. ALLEN WHITWORTH, M.A.)—If three square numbers (not having a common factor) be in arithmetical progression, the middle one divided by 120 will leave a remainder 1 or 25 or 49, and each of the others divided by 240 will leave a remainder 1 or 49. For example: 49, 289, 529; 289, 625, 961; 961, 1681, 2401.

14148. (Rev. T. ROACH, M.A.)—Sum to infinity the series

$$\frac{1}{3} - \frac{1}{11} + \frac{1}{15} - \frac{1}{23} + \dots$$

14149. (B. N. CAMA, M.A.)—A map consists of $p+1$ groups of land to be coloured, consisting, respectively, of 1, 2, 3, ..., $(p+1)$ countries meeting at a point, the extreme countries in each group not having a common boundary. Show that the total number of ways of painting the map by $k+1$ colours, when no two adjacent countries in any of the groups are to have the same colour, is $(k^{p+1} - 1)(k+1)/(k-1)$. Further, show that, if v_r denote the number of ways of painting a group of n countries in this manner,
 $v_{r+1}/v_r = k^r.$

14150. (R. KNOWLES, B.A.)—The expression $(1 - 10x + 5x^2) + (1 + x)^5$ when expanded becomes the series

$$1 - \frac{5 \cdot 6}{1 \cdot 2} x + \dots + (-1)^r \frac{5 \cdot 6 \dots (2r+3)(2r+4)}{1 \cdot 2 \dots (2r-1) 2r} x^r, \text{ ad infinitum.}$$

It is required to deduce the expression from the series.

14151. (J. J. BARNVILLE, B.A.)—Prove that

$$\log 2 = \left(\frac{1}{2}\right)^2 + 3 \left(\frac{1}{2}\right)^3 + 4 \left(\frac{1}{2}\right)^4 + 7 \left(\frac{1}{2}\right)^5 + 11 \left(\frac{1}{2}\right)^6 + \dots;$$

$$4 \log \frac{3}{2} = \left(\frac{1}{3}\right) + \frac{3^2}{2} \left(\frac{1}{3}\right)^2 + \frac{4^2}{3} \left(\frac{1}{3}\right)^3 + \frac{7^2}{4} \left(\frac{1}{3}\right)^4 + \dots;$$

$$\log 5 = \left(\frac{2}{5}\right) + \frac{3}{2} \left(\frac{2}{5}\right)^2 + \frac{7}{3} \left(\frac{2}{5}\right)^3 + \frac{17}{4} \left(\frac{2}{5}\right)^4 + \frac{41}{5} \left(\frac{2}{5}\right)^5 + \dots.$$

14152. (DISCIPLUS.)—An alphabet consists of m consonants and n vowels, m being greater than n . Find the number of ways in which all the letters may be arranged so that each of the vowels shall be between two consonants.

14153. (ROBERT W. D. CHRISTIE.)—Resolve $x^{2m} - x^{2n} + 1$ into factors. (This theorem fills the hiatus in the general theorem, Quest. 8098, given in Vol. XLVIII, p. 108.)

14154. (H. J. WOODALL, A.R.C.S.)—Find the value of x in the following table:—

0	·493 107 418 043 066 689
1	·502 687 750 553 717 016
2	·512 251 521 229 044 033
3	·521 798 422 844 633 606
4	·531 328 149 182 931 742
5	·540 840 395 051 310 490
6	·550 334 856 300 060 834
7	x
8	·569 269 213 661 871 302
9	·578 708 506 850 937 002

14155. (G. H. HARDY.)—Prove, by contour, integration, or otherwise,

that $\int_0^\infty e^{n \cos x} \sin(\beta x + n \sin x) (dx)/x = \frac{1}{2} \pi e^\alpha.$

What conditions, if any, must α, β, n satisfy?

14156. (J. WATSON.)—In a given circle is a fixed chord equal to the radius, and also a point (not the centre). Describe a second circle that shall touch the given circle and the chord whilst passing through the given point.

14157. (Rev. T. MITCHESON, B.A.)—A straight line is drawn from O, the intersection of the directrix and the axis of x , meeting an ellipse in P and Q, so that OP = PQ; show that the length of the chord PQ = $\frac{p^2}{4a} \left(\frac{17a^2 - 9b^2}{a^2 - b^2} \right)^{\frac{1}{2}}$, and its inclination to the major axis is $\cos^{-1} \frac{3a}{(17a^2 - 9b^2)^{\frac{1}{2}}}$.

14158. (Lt.-Col. ALLAN CUNNINGHAM, R.F.)—Express $(3 \cdot 2^{3n} + 1)$ in one or more of the forms $(c^2 \pm 2d^2), (A^2 \pm 3B^2)$; or show that it does not admit of this expression.

14159. (Rev. J. CULLEN, B.A.)—Prove (1) that the PASCAL line of the hexagon DD'EE'FF', formed by the intersections of the sides of ABC with any "T" circle, is the radical axis of "T" and the circumcircle; (2) the intersections of the homologous sides of DEF and D'E'F' are the vertices of a triangle homothetic with ABC, and the homothetic centre lies on KEPERT'S hyperbola.

14160. (G. BIRTWISTLE.)—The tangents to any umbilical geodesic on a quadric all intersect the focal hyperbola.

14161. (W. C. STANHAM, B.A.)—If the tangents to a conic from any point on one of its directrices intersect a fixed straight line at points P and Q, the other two tangents to the conic from P and Q intersect on a fixed straight line.

14162. (Professor A. DROZ-FARNY.)—On donne un triangle rectangle en A, ABC; le côté BA est fixe, le sommet C se meut sur CA. On porte sur les bissectrices de l'angle C les longueurs CG = CG' = CH = CH' de manière que CG = (CB · CA)^{\frac{1}{2}}. Lieux des points G et H ?

14163. (I. ARNOLD.)—Given the length l of an inclined plane, and its height h . A body descends from the top of the plane. Find at what distance from the top of the plane the body will begin to describe a space equal to the height in the same time that it would have fallen perpendicularly through the height.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to

D. BIDDLE, Esq., Charlton Lodge, Kingston-on-Thames.

NOTICE.—Vol. LXIX. of the "Mathematical Reprint" is now ready, and may be had of the Publisher, FRANCIS HODGSON, 89 Farringdon Street, E.C. Price, to Subscribers, 5s.; to Non-Subscribers, 6s. 6d.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, February 9th, 1899.—Lt.-Col. Cunningham, R.E., V.P., in the Chair. Eighteen members present.

Mr. Umes Chandra Ghosh, M.A., Lecturer in Mathematics, Muir Central College, Allahabad, was elected a member; and Mr. E. W. Barnes, B.A., was admitted into the Society.

Mr. A. Berry, M.A., read a paper entitled "Note on a case of Divisibility of a Function of Two Variables by another Function."

Mr. Love, F.R.S., read a paper on "The Scattering of Electric Waves by an Insulating Sphere." A complete solution is given of the problem of determining the disturbance of a train of plane polarized waves of electric force by a dielectric sphere of any size and with any difference between the dielectric constants of the material of the sphere and the medium outside it. This solution verifies the approximation for a very small sphere otherwise obtained by Lord Rayleigh, according to which the direction in which the disturbance in the scattered wave vanishes is at right angles to the direction of propagation of the incident waves. It also shows that, in a second approximation, whatever the difference of dielectric constants may be, the direction in which the disturbance in the scattered wave vanishes is inclined at a slightly obtuse angle to the direction of propagation of the incident waves.

Mr. A. E. Western, M.A., communicated a paper on "Groups of Order p^2q "; and a paper by Dr. L. E. Dickson, entitled "The Group

of Linear Homogeneous Substitutions on mq Variables which is defined by a certain Invariant."

Mr. A. Young, B.A., read a paper on "The Irreducible Concomitants of any number of Binary Quatics."

The remaining papers were communicated in abstract, viz.:—

"On a Certain Minimal Surface, and on a Solution of $\nabla^2 r = 0$," by Mr. T. J. Bromwich, B.A. The paper consists of two parts. In the first the author investigates the condition that the plane $lx + my + nz = p$ should envelop a minimal surface. This is found to be

$$\frac{\partial^2 p}{\partial l^2} + \frac{\partial^2 p}{\partial m^2} + \frac{\partial^2 p}{\partial n^2} = 0, \text{ a result given by Mr. R. W. Genese in the } Quarterly$$

Journal of Mathematics (1875). The known surfaces of the helicoid and catenoid are proved to be deducible from this result. Comparing this with an expression for p in terms of l, m, n given by Darboux (*Théorie des Surfaces*), the author is led to a type of solution of $\nabla^2 r = 0$ which seems to be related to the forms given by Prof. Forsyth in the *Messenger of Mathematics* (1897). In the second part of the paper this solution and allied forms are investigated.

"On the Complete System of Differential Covariants of a Single Pfaffian Expression, and of a Set of Pfaffian Expressions," by Mr. J. Brill, M.A.

"The Figure of Jacobi with respect to a Linear System of Hyperquadrics," by Prof. Schoute.

COLLEGE OF PRECEPTORS.

Lectures for Teachers on the Science, Art, and History of Education.

MORAL EDUCATION.

To be delivered by JAMES SULLY, M.A., LL.D., Grote Professor of the Philosophy of Mind and Logic at University College, London.

The First Course of Lectures (27th Annual Series) commenced on Thursday, February 16th, at 7 p.m.

This Course, consisting of Twelve Lectures, will deal with the Development of the Will and Character. The aim of this branch of education will be elucidated by a reference to the ethical conception of good or virtuous character, and its methods by a reference to the psychological laws of development. Attention will be paid throughout to the special circumstances and needs of the school teacher.

Directions will be given as to reading, and care will be taken, by the setting of papers and by conversation, to give students a real grasp of the subjects of the Course.

SYLLABUS.

I.—The Conception of Moral Education—The Aim of Moral Education—The Idea of the Good Man not determined by Current Standards—The Ethical Conception of the End of Action and its Historical Development—Happiness and Moral Perfection—Relation of the Self to other Selves—The Service of Humanity—Dutiful conduct and Virtuous Character—The Connexion between Moral and other Excellences—The Intellectual Side of Virtuous Character: Reasonableness—The Emotional Element in Moral Perfection: Enthusiasm—Types of Virtuous Character.

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CHARING CROSS HOSPITAL is within three minutes' walk of the Dental Hospital of London, and the hours of Lectures are arranged to suit the convenience of both General and Dental Students.

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THE SCHOOL PROSPECTUS, containing full information concerning the classes, prizes, and all other arrangements connected with the Medical School, will be sent on application to the *Dean*, Chandos Street, Strand, W.C.

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THE DENTAL HOSPITAL OF LONDON MEDICAL SCHOOL, LEICESTER SQUARE.

The **SUMMER SESSION**, 1899, will commence on Monday, May 1st.

Dental Anatomy and Physiology (Human and Comparative)—CHARLES S. TOMES, F.R.S., M.A. Oxon., M.R.C.S., L.D.S., on Tuesdays and Thursdays at 5 p.m. (Summer.)

Dental Surgery and Pathology—WILLIAM HERN, M.R.C.S., L.D.S., on Wednesdays and Fridays, at 8 a.m. (Summer.)

Mechanical Dentistry—E. LLOYD WILLIAMS, L.R.C.P., M.R.C.S., L.D.S., L.S.A., on Wednesdays at 5.30 p.m. (Winter.)

Metalurgy and its application to Dental Purposes—Dr. FORSTER MORLEY, M.A., F.I.C., F.C.S., on Thursdays at 5 p.m. (Winter.)

The Hospital is open both morning and afternoon. During the sessions the Surgeons of the day will give demonstrations at stated hours.

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For further information and copies of the Prospectus apply to

JOHN EDWARD LLOYD, M.A.,

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FIFTH MATRICULATION EXAMINATION

will commence on Monday, June 26th, 1899. Particulars from the *REGISTRAR*, University Office, Brecon, from whom Forms of Entry can be obtained. Entries must be made not later than Monday, May 29th.

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Full opportunities for study are offered to students preparing for any of the examinations in Medicine and Surgery in the United Kingdom.

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Students entering in May are eligible to compete for the Entrance Scholarships (value £100 and £60) awarded at the commencement of the ensuing Winter Session. The Broderip Scholarships, Governors' Prize, Hedley Prize, Lyell Medal, Leopold Hudson Prize, and Freeman Scholarship, are awarded annually, the Murray Scholarship (in connexion with the University of Aberdeen) every third year. Eighteen resident appointments are open for competition annually, without fee.

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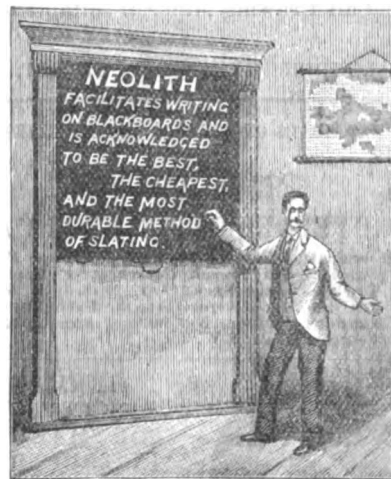
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The Educational Times.

An Easter Review.

THE Easter Vacation finds us fairly free from excitement or anxiety in regard to impending educational changes. We have the text of the Government Bill, and a reasonable prospect of its becoming law this year; but we do not greatly concern ourselves to know at what precise date in the Session it will make its appearance in the House of Commons, or pass into the critical stage of Committee. So, with respect to the new constitution for London University, we know that the Statutory Commission is at work, and there is even reason to believe that it has already included in the list of Faculties those of Engineering, Economics, and Political Science—which would comprise the subdivisions of commerce and industry. But that is only in accordance with our expectations; and, for the rest, we are content to give the Commissioners as much time as they require for their very difficult and delicate task. We should be still more content if the Committee which is sitting on the Imperial Institute idea would report that the metropolitan University could not be adequately housed in the spare rooms of the Institute; but we much fear that the Treasury has set its mind on this unfortunate piece of mistaken economy, and when the permanent officials of the Treasury set themselves to carry out an arrangement of this kind the odds are all in favour of their success. We need hardly say that our dislike is not for South Kensington as the site of the University, but only for the notion of "a Board in a flat," which the arrangement with the Institute inevitably suggests. A London University whose home extended over the whole area between the Albert Hall and the Cromwell Road, including the Imperial Institute, the City and Guilds Institute, the South Kensington Museum, and the Natural History Museum—why not?—would be a very different sort of conception. A mere hint of that as an ultimate possibility would at once restore our inveterate respect for the good sense and independence of Treasury officials.

If the new Education Bill, which is so big with hopes and fears for every one who takes an intelligent interest in the educational outlook, allows us to disperse for our Easter holidays with little or no anxiety in our minds, it is probably because the measure contains no great surprises, and has aroused no formidable show of opposition. If it were likely that the principles or details of the Bill would be hotly contested in the House of Commons, we should have heard the brewing of the

storm. The School Boards had already shot their bolt, and the County Councils have apparently concluded that the question of the Local Authorities will keep for another Session. If there is to be no prolonged or angry fight over the Bill, then we can wait till June or July with great equanimity. We do not minimize the importance of the measure, or shut our eyes to the danger and uncertainty which attend upon any large re-organization of secondary education. We are, indeed, much inclined to agree with a writer in the *Athenæum* who says that the Duke of Devonshire's Bill is, in a sense, nothing short of revolutionary.

Its effect will be to create in this country what we have never yet possessed—a separate Department of the Government, with a President of Cabinet rank and a Parliamentary Secretary, charged with the interests of education as a whole, and responsible for the ultimate control of every school in England and Wales, whether elementary or secondary, public or private, from the lowest to the highest. This in itself is a far-reaching innovation, from which the secondary schoolmasters of twenty years ago would have shrunk with alarm, and which does, as a matter of fact, alarm many of the schoolmasters of to-day. With the creation of the new Board the entire system of the Science and Art Department which has grown up during the last two generations at South Kensington is to be "revised" by a Departmental Committee, and then merged in the Central Authority in Whitehall; whilst power is to be given to the Queen in Council to transfer to the Education Board all such functions of the Charity and Endowed Schools Commissioners as may appear to relate to education exclusively. It would be difficult to imagine any administrative change more thorough-going and more revolutionary.

All this is indisputably true; but it is counterbalanced by the fact that the Government have given us guarantees against hasty and destructive change—guarantees which we have unceasingly demanded from the very beginning of the discussion, and on which the educational bodies have virtually made their acquiescence depend. For what have we consistently demanded as guarantees of the great national interests which secondary schoolmasters are pledged to defend? Our claims were these:—

1. An immediate secondary register.
2. Representation on all public authorities, based upon this register.
3. A Minister responsible in the House of Commons for secondary education.
4. A permanent Consultative Committee or Council, with a clear majority of educational experts.
5. A pledge against uniformity of instruction and curriculum, so as to maintain variety of types and freedom of initiative.
6. The independence of private schools which do not seek to share the advantages of the national organization.

These are the main conditions on which we have said that the

interests of secondary education might be held reasonably safe; and the Bill secures them—every one.

The evidence as to these guarantees is to be found partly in the Duke of Devonshire's speech on introducing the Bill—from which we quote in our Summary—and partly in the following clauses, or parts of clauses, in the text of the Bill:—

1. (1) There shall be established a Board of Education charged with the superintendence of matters relating to education in England and Wales. (2) The Board shall consist of a President, and of the Lord President of the Council (unless he is appointed President of the Board), Her Majesty's Principal Secretaries of State, the First Commissioner of Her Majesty's Treasury, and the Chancellor of Her Majesty's Exchequer. . . . 2. (1) The Board of Education shall take the place of the Education Department (including the Department of Science and Art), and all enactments and documents shall be construed accordingly. (2) It shall be lawful for Her Majesty in Council, from time to time, by Order, to transfer to, or make exercisable by, the Board of Education any of the powers of the Charity Commissioners in matters appearing to Her Majesty to relate to education. . . . 3. (1) The Board of Education may, by their officers or by any University or organization approved in that behalf by the Board, after taking the advice of the Consultative Committee hereinafter mentioned, inspect any school supplying secondary education and desiring to be so inspected, for the purpose of ascertaining the character of the teaching in the school and the nature of the provisions made for the teaching and health of the scholars. (2) The Council of any County or County Borough may, out of any money applicable for the purposes of technical education, pay or contribute to the expenses of inspecting under this section any school within their county or borough. 4 It shall be lawful for Her Majesty in Council, by Order, to establish a Consultative Committee, consisting, as to not less than two-thirds, of persons representing Universities and bodies interested in education, for the purpose of: (a) framing, with the approval of the Board of Education, regulations for the formation of a register of teachers; and (b) advising the Board of Education on any matter referred to the Committee by the Board. . . . 8. (2) After the abolition of the office of the Vice-President of the Committee of the Privy Council on Education, one of the Secretaries of the Board of Education shall not by reason of his office be incapable of being elected to or of voting in the Commons House of Parliament, but the President of the Board and a Secretary of the Board shall not at the same time be members of that House.

The Duke of Devonshire and his Department have done well. It would be difficult for any one to discover a trace of partisanship or prejudice in the Education Bill; and we have not observed that any organ of the Opposition has attempted to prove their existence. If secondary schoolmasters and the parents of boys and girls in secondary schools are able on mature consideration to accept this measure as wise, necessary, and prudent, we may conclude that the necessary consideration of details in Committee will not be fatal to it.

NOTES.

A GRANTHAM correspondent writes to us: "You may be interested by the following minute of a meeting of the Governors of Grantham Grammar School (so far as it related to the wholesale dismissal of assistant-masters) held on February 27:—'At a quarterly meeting of the Governors of the Grantham Grammar School, the charity of Richard Curteis, in Grantham, and of certain other charities in the borough of Grantham, held in the dining hall, the School House, Grantham aforesaid, on Monday, the 27th day of February, 1899, at 3 o'clock in the afternoon. Present: The Right Hon. Earl Brownlow in the chair, &c., &c. Letters were respectively read from Mr. Brooke, Mr. Marindin, and Mr. Preston, three of the assistant-masters, complaining to the Governors to [*sic*] the manner in which they had been treated by being dismissed without notice, and for no assigned reason, and appealing to the Governors against such dismissal. On the proposition of Mr. White, seconded by Mr. Jeans, it was unani-

mously resolved: "That the Governors deeply regret the dismissal by the late Headmaster of all the late under-masters without due notice, and now desire to express their sincere sympathy with them in their undeserved trouble, and full recognition of the good services which have been rendered by those gentlemen." Some of the masters have received the offer of donations in lieu of salary or notice—not as their due, but as a sort of *solatium*."

It looks rather ridiculous to throw the responsibility of these dismissals upon the late Headmaster, who, as we understand, left of his own accord and in pursuance of his own notice. What object could he have in dismissing men whom he had himself appointed, and with whom he had worked amicably? There may have been an understanding that the assistants would have to go with him, according to the custom of the profession; but, if so, the understanding was based on a misconception. Whatever custom or legal precedent exists in the circumstances can only extend to the right or privilege of a new Headmaster to select his own assistants. The responsibility falls on the new Headmaster. To try and put it on the outgoing Headmaster, or to assume an arbitrary right of dismissal, without cause or notice, on behalf of the Governors, is bad law and bad sense. The new Headmaster of Grantham is said to have stated that the Governors suggested to him the dismissal of the old staff. We do not affirm this; but it is an allegation, and a very serious allegation. It is certainly quite incompatible with the resolution adopted by the Governors on February 27.

If the Board of Education Bill should become an Act of Parliament, one of its most interesting and important results will be a final settlement of the question of secondary registration. Perhaps no provision of the Bill is more far-reaching than that which assigns to the permanent Consultative Committee—we shall learn to call it the "Education Committee" when the Committee of Council on Education is no more—the special duty of creating secondary and elementary registers. The work will be long and arduous. There are principles to determine, an office and a staff to organize, a profession to circularize, returns to wait for, a bulky volume to print, before the registers can be practically useful, and before an electoral roll can come into existence. We trust that in Committee the Government will be urged to put the work of registration in hand as soon as the Bill receives the Royal assent. It would be easy to provide for this beforehand; and the gain of eight precious months in so long and complicated a business would be of the utmost importance. Even so, the registers will not be formed when the remaining provisions of the Bill come into operation.

THE case of Mr. Weale, formerly Keeper of the Art Library at South Kensington, and now fulfilling an engagement at the British Museum, has almost passed into the domain of ancient history; but it gave occasion to the Duke of Devonshire, on March 16, to criticize rather sharply a passage in the Report of the Select Committee of the House of Commons on the Museums of the Science and Art Department. The Duke especially objected to this statement in the Report:—

Your Committee desire to record their opinion that the termination of

the engagement of Mr. Weale, late Keeper of the Art Library, immediately after the rising of the House in 1897, and subsequent to the giving of evidence by Mr. Weale, in which errors and abuses of administration in the Museum were freely exposed, very much resembling a breach of privilege and an infringement of the immunity usually enjoyed by witnesses before Committees of the House of Commons.

There was, says the Lord President, no dismissal. Mr. Weale was superannuated in March, 1897; but, virtually on his suggestion as head of the Education Department, the Treasury granted an extension of Mr. Weale's services to such period, not exceeding one year, as might elapse before the Committee had reported. The Select Committee reported after the Session of 1897, and asked to be reappointed in the following year. In the meantime Mr. Weale had given his frank evidence before the Committee; and "his services were dispensed with" after the interim Report, instead of waiting for the final Report or for the expiry of the year. Dismissal or no dismissal, this was what the Committee complained of as an infringement of the immunity of witnesses; and it certainly seems to bear that construction.

IN these times when "the social problem" is so pressing, it is a matter for serious regret that the study of political economy is receiving less and less attention at Oxford. It is hardly more than formally recognized in "Greats," and it has now been decided to make it an optional subject for ordinary students in the School of Modern History. The London School of Economics and Political Science is doing excellent work in this direction; but that is no reason for the slackening of effort elsewhere. If any change had to be made in the teaching of political economy at Oxford, it ought surely to have been in the direction of a more extended and practical treatment of the subject rather than in its restriction within narrower limits. Meanwhile, if the study of economics is declining in importance, that of geography is claiming increased attention. The Royal Geographical Society has offered to pay £400 a year for the next five years towards the promotion of geographical study at Oxford, if the University will also contribute a similar amount during the same time. It is proposed that the supervision of the new scheme shall be placed in the hands of a committee of eight: the Vice-Chancellor to be a member of the committee *ex officio*, four to be appointed by the Delegates of the Common University Fund, and three by the Council of the Society. A scheme of teaching and study has been approved by the Council of the Society and the Delegates. This is, of course, not the first effort of the Society to improve the quality of geographical teaching in the Universities.

MANCHESTER has taken the first step towards the foundation of a hall of residence for women students, in connexion with Owens College. Something of the kind was necessary to make the benefits of a University education as real and as far reaching as they might be to the women students of Manchester and the surrounding districts. It is admitted that the social life of the older Universities is one of the most important elements in the education of its members, and of the women who are admitted to a share of their privileges; but it is impossible to have all these privileges in a local University college, which draws the majority of its students from their homes in the locality. Much

can be done, however, by the establishment of halls of residence which supply something of the communal life of the old residential Universities. In Manchester there are two such halls for men, in connexion with Owens College; but, so far, nothing of the kind has been provided for the women students, of whom there are now more than a hundred. At the present time many girls in outlying parts of Lancashire are losing the opportunity of a University education, which would be possible for them if such a hall were in existence; and it was the object of a public meeting held in Manchester on March 6 to discuss the question of founding one. The sum required is about £3,000; but it is intended to begin the work as soon as £2,000 has been guaranteed. The greater part of this has already been contributed, and a suitable house has been offered by another benefactor. Altogether the prospects of the new undertaking are bright.

A CORRESPONDENT of the *Indépendance Belge* claims to have unearthed a signboard of the early part of last century bearing the following curious inscription. As two staid French newspapers have already reproduced it without throwing any doubt upon its genuineness, we are, at least, offending in good company in printing it for the edification of the *mestre d'école* of this country:—

Isaac Macaire, barbier, perruquier, chirurgien, clerc de la paroisse, mestre d'école, maréchal et accoucheur. Raze pour un sout, coupe les cheveux pour deux sous et poudre et pommade par-dessus le marché les jeunes demoiselles joliment élevées, allume les lampes par année ou par quartier. Les jeunes gentils hommes à prêne aussi leur langue grand-mère de la manière la plus propre. On prend grand soin de leurs mœurs, on leur enseigne à épier. Il à prêne à chanter le plein-chant et à ferrer les chevaux de main de maître. Il fait et raccommode aussi les bottes et les souliers, enseigne le hautbois et la guimbarde, coupe les cors, soigne et met les vessicatoires au plus bas prix. Il donne des lavements et purge à un sous la pièce; enseigne au logis les cotillons et autres danses et vat en ville. Vend en gros et en détail la parfumerie dans toutes ses branches. Vend toutes sortes de papeteries, cire à décroter, harengs salés, pain d'épices, brosses à frotter, sourisnières de fil d'archal et autres confitures, racines cordiales et de gode frais, pommes de terre, sossisses et autres légumes. J'enseigne la joggraphy et marchandises étrangères tous les mercredi et vendredi. Dieu aidant, par moi, Isaac Macaire.

Sleep well, old colleague! We have changed all that now; but some day, when the Headmaster numbers His assistants, we will stand shoulder to shoulder.

THE chances of a new Roman Catholic University in Ireland, which Mr. Balfour, in a famous letter, encouraged the Irish majority to expect, have altogether disappeared since the Duke of Devonshire took occasion to criticize that letter in a speech to his brother Liberal Unionists. The writer of the letter, he said, expressed his own opinions; they were eminently worthy of respect, but they committed nobody, and he should be extremely surprised if, during the existence of the present Government, any practical measure dealing with the subject were brought forward. So far as we have seen, the Roman bishops in Ireland have made no sign since the Duke spoke—but they must be thinking the more. For ourselves, apart from any question of religious supremacy and exclusiveness, we have rather inclined to the foundation of a new University. Higher education in Ireland appears to have languished a little. If a stimulus is needed, it seems reasonable to give it where spontaneous energy and ambition have recently declared themselves.

SUMMARY.

THE MONTH.

ON March 14 the Secondary Education Bill was introduced in the House of Lords, and the Duke of Devonshire explained how far its provisions varied from those of the two Bills introduced in August. The Board of Education is to be constituted on the pattern of the Board of Trade, with a President and a Parliamentary Secretary. There will be no Vice-President, but Sir John Gorst will be nominated as an original member of the Board. We quote the principal points of the Lord President's explanation.

THE CHARITY COMMISSION.

The present Bill will give more elastic powers of transfer of the educational functions of the Charity Commissioners to the new Department. It will give power to the Queen in Council to order the transfer to the Education Board of such powers as may appear to relate to education. The question of whether a trust is of an educational or other character, and the apportioning of endowments for educational or other purposes, will, however, as in the Bill of last year, be reserved to the Charity Commissioners. Our intention is that this transfer shall only come gradually into operation, and the only power which at present will be transferred from the Charity Commissioners to the Board of Education will be that of the inspection of schools which are under schemes framed by the Endowed Schools Commissioners. The future transfer of these educational powers from the Charity Commissioners will be facilitated by the change which has recently taken place in the composition of the Commission. One of the Commissioners has recently been appointed to the office of Registrar to the Judicial Committee. His place will not, at all events for the present, be filled up, and the Commissioner appointed under the Endowed Schools Act, whose time has hitherto been entirely occupied by his educational duties, will now take his share in the ordinary duties of the Board; and the Commissioners have been informed that, in view of pending changes which are in contemplation, it will not be necessary or, in the opinion of the Government, desirable that they should push on the work of framing new educational schemes except in such cases as, for local reasons or special circumstances, may appear urgently necessary.

INSPECTION.

The Duke admitted that Clause (4) 2 of the August Bill was too drastic; it would have made all public and private schools liable to inspection except Eton and Winchester. It is true that most of the largest and most important schools have expressed their willingness to come under a general system of inspection, if that should be deemed necessary in the public interest. But the headmasters lay down conditions.

They indicate a great dread of any attempt to impose upon them uniformity of instruction or curriculum. They therefore attach great importance to the permanent existence of a Consultative Committee, in which they see a guarantee against any such attempt on the part of a Government Department. They also require that University inspection should be recognized as alternative to State inspection. These are conditions which may be satisfied without great difficulty, but there are others which will be less easily met. . . . All that we have at present in view is such an inspection of local schools as may assist the Local Authorities, hereafter to be constituted, to bring the endowed, municipal, and private proprietary schools within their areas into some common local scheme. It would be impossible to draw an exact line of demarcation between those schools in which it would be desirable that inspection should be compulsory and those in which it should be optional; and, therefore, we propose that inspection in all cases should be optional, except in the case of those schools which are being conducted under schemes of the Endowed School Commissioners, in whose case the new Department will inherit the powers of inspection which are already possessed by the Charity Commissioners.

AN APPEAL AND A RESPITE.

I believe that the advantages of recognition by the Local Authority will be a strong inducement to a greater number of the non-local schools to place themselves under inspection, and thus to obtain a guarantee of efficiency which will enable them to be recognized as part of the local provision for education, and I trust that the assent which has been given by the highest educational authorities to the principle of inspection will tend to remove any apprehensions which, up to the present time, may have been felt by the smaller local schools. We recognize that the conditions which will be required for the higher and more important schools ought, in their due degree, to be applied to the case of the smaller local public schools, and that, in the first place, no attempt should be made to impose upon them anything like uniformity in their course of instruction; that the inspection should be conducted on the advice of, and in consultation with, the Consultative Committee formed under the Bill; that due care should be taken in the selection of the inspectors; that University or other competent organizations shall be admitted as equivalent to give inspection; and, though we are unable to ask Parliament

to devote funds to provide for the inspection of schools which are mainly for the benefit of the upper or middle classes, we recognize that in the case of the poorer schools the cost of inspection may properly form a charge upon funds placed at the disposal of the counties for educational purposes.

PERMANENT COMMITTEE AND REGISTRATION.

The Government, it will be seen, have conceded the principle of a permanent Council of experts, partly elective, and charged with the responsibility of inspection and registration. The Bills of last year provided for a "fixed and permanent" Registration Council. The new Bill identifies this Council with the Consultative Committee.

The registration of teachers was provided for last year in a separate measure. We now consider that this is unnecessary. We consider that the registers of both elementary and secondary teachers may be most properly kept by the Department itself, and we provide that the regulations under which these registers are formed shall be framed in consultation with and on the advice of the Consultative Committee. The composition of that Committee will not be stereotyped by the terms of the Bill further than that it will be provided that it shall be as to two-thirds representative of the Universities or other teaching bodies and endowed, as it will be, with the permanent functions to which I have referred. I hope that any doubt which has been felt as to the intention of the Government to make the Consultative Committee a permanent institution under the Board will be removed.

THE SCIENCE AND ART DEPARTMENT.

The anomalous institution at South Kensington is to be submitted to "a very searching and complete examination," after which we shall know it as a whole no more.

Through its colleges of science and schools of art it is itself a teaching institution. It distributes a large sum in aid of instruction in certain subjects, and, therefore, it exercises a considerable control over the course of study throughout the country. It is also an examining body whose certificates possess a value of the same character as that of a University degree. It also directs great museums at South Kensington, Bethnal Green, Edinburgh, and Dublin. Its internal arrangements are also of a peculiar character, having, as it has, directors of science and art who possess no executive authority, and whose functions and responsibilities I have always found it rather difficult to understand. The intention expressed in the Bill of making this Department a branch of a larger Education Department, and also the pending vacancy in the secretaryship of the Science and Art Department, will obviously make a thorough revision of this Department necessary. That revision will be undertaken by a departmental committee, and, as soon as the principle of amalgamation of the two Departments has been approved by Parliament, that committee will be appointed and the revision commenced. It will extend to both the science and art sides of the Department and also to the administration of the museums. It is an inquiry which will necessarily occupy a certain amount of time and entail a great deal of labour, and we therefore propose that the Bill shall not come into force until the 1st of April of next year, which will certainly not allow more than the necessary time for conducting this very difficult inquiry.

At a special meeting of the Senate of London University, held on March 8, Sir Henry Roscoe, Vice-Chancellor, moved a resolution of condolence on the death of Lord Herschell, the substance of which was as follows:—

The Senate hereby desires to record its deep sense of the great and irreparable loss which the University has sustained in the untimely death of its Chancellor, Lord Herschell. The loss of such a man as the late Chancellor would at any time have been a grievous one; doubly grievous is it at this moment, when the constitution of the University is about to undergo a radical change, and when the wise counsel and enlightened views of Lord Herschell would have been of the utmost value. The Senate desires to call to mind that Lord Herschell has been not only the Chancellor, not only the most distinguished amongst the graduates of the University, but that as a Fellow and a member of Senate he for many years, and in the midst of professional and political duties of no ordinary kind, ungrudgingly placed his time and energies at the disposal of the University, the interests of which he had so much at heart.

A DIVISIONAL meeting of the Association of Headmasters was held at Southport on March 11, under the presidency of the chairman, Mr. J. E. King, M.A., High Master of the Manchester Grammar School. There was a good attendance, the Headmasters of the following schools being present:—Bury, St. Helens, Warrington, Bolton Church Institute, Wallasey, Wigan, Rivington, Ormskirk, Farnworth, Widnes, Harris Institute, Preston, Blackburn, Burnley, Liverpool Institute, Merchant Taylors' School (Crosby), Chorley, Newchurch, Southport, Keswick, Birkenhead Institute, Bolton Grammar School, and, by invitation, the Registrar of Victoria University. It was announced

that the Association intended to hold its annual summer meeting at Manchester on June 30 and July 1, and the arrangements were discussed. The meeting also considered the possibility of Victoria University instituting an examination of schools, but the subject was adjourned for further consideration.

At Belfast an "Association of Royal University graduates is being formed of those who are opposed to the establishment of provincial or sectarian Universities in Ireland as being detrimental to higher education, and involving the depreciation of Irish academic degrees and distinctions." The Association is to be called "The Northern Graduates' Association." Its objects will be: (1) to further the interests of the graduates of the Royal University; (2) to watch the initiation and progress of any legislation bearing upon the interests of higher education; and (3) to influence, if need be, such legislation, and to take concerted action thereon.

The annual report of the Headmaster of Christ's Hospital to the Council of Almoners states that the number of boys in the school in Newgate Street at the beginning of last year was 463. In the course of the year 212 were admitted and 133 left. The year closed with a roll of 542 names, which would soon be increased to nearly 600, a larger number than had been in the school for some years past. Of the 212 boys admitted during the year, 29 came from public elementary schools, 43 from endowed schools, 34 on Governor's nomination to compete, six on West's Trust, and 100 from the Preparatory School at Hertford. After the examination of the school in July, exhibitions of the usual value and allowances were awarded to six Grecians, and that was the last "parting" of exhibitioners composed exclusively of boys on the old foundation.

The Education Estimates for the coming year amount to £8,753,986, which is an increase of £186,240 on the expenditure of last year. Of this amount it is reckoned that voluntary schools will require in aid grant an additional £1,813, making in all £622,813. The Board schools are to receive an extra £17,900, bringing their total up to £210,900. The additional sum (£8,963) is estimated as necessary for training colleges.

DR. ARTHUR VINTER, Headmaster of Woodhouse Grove School, writes to the *Methodist Recorder* to complain that the £12,000 set apart for education from the Thanksgiving Fund was divided amongst the various limited companies supporting middle-class schools "either in the form of share capital on which dividend is payable, or in the form of a loan without interest." Dr. Vinter maintains that

no educational establishment belonging to a church ought ever to pay any dividend. The fundamental objects of these foundations is religious. They should, therefore, like all other religious institutions, be conducted without becoming a source of profit to any individual. This remark is not intended to refer to paying a reasonable rate of interest on borrowed money. The surplus profits, when there are any, ought to be used (a) in making the equipment of the schools equal to that of those with which they compete; (b) in improving the position of the assistant staff. Any young person who enters the teaching profession as a member of our Church ought to have a prospect that, in a reasonable time, a position may be secured that will make his vocation a life-work instead of a stepping-stone to something else.

The eleventh annual meeting of the National Association for the Promotion of Technical and Secondary Education was held on March 8. The Duke of Devonshire, who took the chair, made an interesting statement on the application of the Parliamentary grants for technical education.

In England the total amount which is now available under the Local Taxation (Customs and Excise) Act, 1890, amounts to £827,000, an increase of £20,000 over last year, and the latest figures show that, of this amount, £770,000 is now being spent on technical and secondary education, while the total sum which is devoted to other purposes, such as the relief of the rates, has been reduced during the year by £10,000. The share of London in this grant is £192,000, of which £170,000 is appropriated for educational purposes, and, I believe I may say, most usefully appropriated. That amount is an increase of £20,000 as compared with last year. The sums accumulated from the grant in England by County and County Borough Councils represent a total of £332,000, the whole of which has been ear-marked for educational purposes. Turning to the sums which have been locally raised under the Technical Instruction Acts of 1889 and 1891, the number of Local Authorities who have adopted

these Acts in England now stands at 206, while the total sum raised by rate amounts to as much as £57,000. This shows an increase of 69 Authorities exercising their rating powers and of £24,000 over the year 1895-96.

LAST month the Science and Art Department forwarded to the London School Board a protest from the North London School of Art against the action of the Board in setting up in the immediate neighbourhood of their school art classes in which not only instruction was gratuitous, but all drawing materials and apparatus were provided free. The Department called the Board's attention to Section VI. of the "Science and Art Directory," and inquired whether any of the expenses of the Board's art classes were defrayed out of the school fund, and, if so, on what authority. Further memorials have been sent by the Department to the Board from the governors of the Addey and Stanhope Schools, Deptford, and from the managers of the Camden School of Art and Science Corporation making similar complaints. The latter body pointed out that this "wanton system of overlapping" of art instruction on the part of the School Board was caused by the Board exceeding its statutory powers, and appealed to the Lord President of the Council to take steps to put an end to "this gross misapplication of public funds." The School Board, in their reply to the Department, state that the words of Section VI., to which they understood the Department to refer, were:—"Recognition may be refused to any class which the Department considers to be unnecessary, or to compete unduly with a neighbouring school." On that point the Board say that the schools complained of by the North London School of Art were taken over by them in 1897 and recognized then and before by the Department. As to the question on what authority the expenses of these classes, if any, are defrayed out of the school fund, the Board state that this point has been raised before the Local Government Board auditor engaged in auditing the accounts of the Board, and is now receiving his consideration.

THE Clothworkers' Company have established a free studentship in connexion with the Datchelor Training College, to be awarded under the following regulations:—(1) That a free studentship be offered annually, to include training in the College and board at Datchelor House for one year. (2) That such free studentship be open only to intending teachers, who are either graduates of a British University (London by preference) or have passed a degree examination of the University of Oxford or Cambridge. (3) That the selection of the free student from amongst those who become candidates be wholly with the Company, and that the pecuniary circumstances be taken into consideration in making the selection. The first award will be made for the September term.

ON St. David's Eve a meeting of Welsh students was held at the Women Teachers' College, Cambridge. There was a good attendance of both men and women, most, though not all, of whom were past students of Aberystwyth College; and the evening was marked by a presentation to Miss E. P. Hughes, the well-known Principal of the College, who has resigned on account of ill-health. Mr. S. C. Williams, Trinity College, referred to the debt of the Welsh Students' Society to Miss Hughes. It was she who made a society of the kind possible—one composed of both men and women. No one who knew her had failed to be impressed by her devotion to the cause of education and culture in Wales. They much regretted her departure, and hoped she would soon be able to resume her work. Mr. W. Jenkyn Jones, B.A., Caius College, said that, as one of the oldest members, he could keenly realize how great and varied Miss Hughes' services had been. The society had found a congenial home in the College, and had thriven there. He wished Miss Hughes a thorough and speedy restoration to health. Miss Mary Holt, Girton College, made the presentation, which took the form of a pair of silver candlesticks. Miss Hughes thanked the society for its expression of good will. She had always found the greatest pleasure in being of some use to Welsh students. She hoped the society would continue to flourish, and that the men would not drive out the women.

THE death is recorded of Dr. Leitner, of Woking, who, it is said, could speak, read, and write twenty-five languages. He was remarkable for his erudition and research. He acquired the Royal Dramatic College building at Woking in 1884, and adapted

it to the foundation of an Oriental Institute in England for the training of Orientals in any of the learned professions, and for the linguistic preparation of Europeans proceeding to various parts of the East. In the grounds of this institution he erected a mosque, for the benefit of Mohammedan residents or visitors in this country.

Our Welsh correspondent writes:—A meeting of the Executive Committee of the Court of the University of Wales was held at the Westminster Palace Hotel, London, on March 10, to make arrangements for the next meeting of the University Court, to be held at Swansea on April 21. At this meeting the report of the Judicial Committee on the question of the representation on the Senate of the Department of Education at Cardiff will be presented. The Judicial Committee of the Court consists of Lord Justice Vaughan Williams and the standing counsel of the University. Mr. D. Brynmor Jones, Q.C., M.P., and Mr. Cadwaladr Davies.—The meeting of the Court of Governors of the University College, Aberystwyth, was held at Llandrindod Wells on Friday, March 24. The chief business consisted of the receiving of reports of the various Committees connected with the College. A meeting of the Welsh Library Committee of the College was also held on the same date. This Committee has been formed in order to develop as far as possible the Welsh section of the College Library. Already several valuable gifts have been presented to the Library.—The Annual Collegiate Meeting of the Guild of Graduates of the University of Wales will be held this year at the University College, Bangor, on April 4 and 5. The general meeting for the discussion of educational questions will be held on April 5 at 10 a.m., and the business meeting for the election of officers of the Guild at 2 p.m.—A meeting of the Executive Committee of the Welsh Central Board for Intermediate Education will be held at the Raven Hotel, Shrewsbury, on April 13, in order to make arrangements for the spring meeting of the Board at Welshpool on April 28. One of the chief subjects of discussion at the meeting at Welshpool will probably be the teaching of Welsh in intermediate schools, in which Mr. T. E. Ellis, M.P., has taken considerable interest. The teaching of Welsh in the intermediate schools bears a very close relation to the teaching of English, and much could be done to practise children in Welsh districts in translation from Welsh into English, and *vice versa*.—The Central Welsh Board for intermediate education will, at its next meeting, on April 13, appoint oral examiners for the annual examinations in July.—Mr. Marchant Williams, B.A., has been appointed one of the Crown representatives on the Court of the University of Wales for a period of five years. Mr. Marchant Williams is a former student at Aberystwyth.—At a meeting held in London under the presidency of Lord Justice Sir Roland Vaughan Williams, resolutions were passed in favour of opening a subscription list towards founding a School of Law in connexion with the University College at Aberystwyth. Similar steps have already been taken to establish a School of Music in connexion with the College.—A preliminary collection of Welsh educational exhibits for the Paris Exhibition of 1900 will probably be on view during the National Eisteddfod, to be held this year at Cardiff.

UNIVERSITIES.

(From our Correspondents.)

Cambridge. THE proposed changes in the Classical Tripos have during the last part of the term produced an unusual number of the inevitable flysheets. Arguments of all kinds and descriptions have been trotted out, and, as every one's mind was made up at a comparatively early period, considerable amusement was caused by the waste of printer's ink. The new scheme was avowedly framed upon the lines of the Oxford Classical Examinations: the first part of the Tripos was to be sunk to the level of Moderations, to be taken in the second year; the new second part was to be an *olla podrida* of antiquarian subjects, and it was hoped that this would be a rival to Oxford "Greats." This fallacy was, however, quickly disproved, and the prestige of Cambridge pure scholarship was felt to be in danger. Large majorities threw out all the proposals of the Syndicate, and the Classical Tripos will now rest in peace. The appointment of Dr. Handley Moule to the Norrisian Professorship of Divinity will be received with satisfaction by all

Cambridge men. A recognized leader of the Evangelical school of thought, he has by his courtesy, as much as by his ability, made for himself a strong position in the academic world as well as in ecclesiastical circles, while those who do not agree with his views are the readiest to admit that he is a fighting man who fights fair. There is little doubt but that the needs of the Episcopal Bench will before long cause a vacancy once more in the Norrisian Professorship.

The Senate House is to be fitted with the electric light, one of the main reasons why this is to be done being that discussions which now take place in the Art Schools have to be adjourned at dusk. The Senate House will also under the new arrangement be available for sundry functions, such as the reception of distinguished guests, which at present have to take place in college halls or in the Fitzwilliam Museum.

The Botany Professors and Lecturers are joining in the general cry for better accommodation. They quote statistics with deadly effect, and dwell with harrowing precision upon the fact that twenty-nine students have to sit upon fifty-seven feet of form. There is no doubt that all science teaching in Cambridge is rapidly becoming disassociated from the college, and being vested in the University; so that, while college lecture-rooms are devoted to the uses of those who have to be taught their Greek verbs, the one department which is saving us from being a reproach to the outer world has its habitation in sheds and out-houses; a zinc roof and a tottering wall is generally found to be the only protection which *savants* of European reputation can procure from a penny-wise and pound-foolish University.

The Report of the Additional Subjects Syndicate reveals a curious state of affairs. At an early state of their deliberations, the members of this body, being at variance among themselves, referred to the Senate the question of abolishing the additional subjects altogether. By a decisive vote it was settled that the examination should continue to exist. Fresh discussions arose as to what improvements could be made. A bare majority, having originally been in favour of abolition, steadily voted against any scheme which would improve the examination, and would have preferred to reduce it to an absurdly low level with a view to ultimate abolition.

Under these circumstances a report has been issued by the majority that no alteration is desirable, while the minority issue a flyleaf setting out the facts of the case. So the matter rests for the present. It is clear that the "abolitionists" should in common fairness have resigned when they were not in favour of any change for the better.

The revised edict against bonfires in public places is even more absurd than the unamended edition. Bonfires are prohibited except on special occasions when the prohibition is withdrawn by the Vice-Chancellor; in other words, the undergraduates will not be visited with University censures, though they may be liable to six months' imprisonment or more at the discretion of the Quarter Sessions Chairman.

The recent doings at Queens' College have had a happy termination. Rumours are afloat that the recent severe sentence on Mr. Fletcher has been reconsidered by the authorities of the College, and the University football fifteen will, after all, next year have the services of one of its most brilliant members.

Among the personal items of the month may be noted the following:—Mr. Duff takes the place of Dr. Verrall after next Long Vacation as Tutor of Trinity. Chancellor's Medal for English Verse: A. C. Pigou, King's College. Porson Prize (Greek Iambics): J. E. C. Jukes, Pembroke. Isaac Newton Studentship: G. G. Walker, B.A. Trinity College. Browne's Medals: Greek Ode, T. G. Johnson, Jesus College; Greek Epigram, R. K. Gaye, Trinity College; Latin Epigram, E. Harrison, Trinity College.

London. THE principal event of the month, and a sad one, has been the death of the Chancellor, Lord Herschell, creating the third vacancy in the Chancellorship within eight years. Lord Herschell's career and distinctions have been so fully recorded and widely published in the daily and other journals that we will here do no more than mention that he received his early education in, and matriculated from, a private school—the then well known Denmark Hill Grammar School, of which the Headmaster was the equally well known educator, Mr. C. P. Mason, B.A., who, I believe, is still living; and that he was the first graduate of the University to be made its head. The Senate, at a meeting on March 8, passed a series of resolutions expressive of their sorrow at the great loss suffered

by the University, and of condolence with Lady Herschell and the family, and then adjourned without transacting any other business. Under the Cowper Scheme, Convocation is, by-and-by, to have the power of electing the Chancellor; at present he is appointed by the Queen, and the appointment is notified to the Vice-Chancellor by the Prime Minister. As it is inconvenient for the University to be without a head, it is to be presumed that an appointment will be made before long, notwithstanding the impending reconstitution of the University. A good selection may be made without going outside the Senate; the senior Crown Fellow, the Earl of Kimberley, if he would accept, would be an excellent appointment; or, if a London graduate is to be appointed, there is the choice of Lord Lister or Viscount Llandaff.

After an interval of six months, and probably because the work of the Statutory Commission has not advanced so rapidly as was expected, the Crown has appointed a Fellow, Dr. Tilden, in place of Dr. John Hopkinson. The new Fellow is a D.Sc. of London and Professor of Chemistry at the Royal College of Science: he recently examined for the University for five years.

A regrettable vacancy on the Commission was recently caused by the serious illness, which still continues, and consequent resignation, of Sir William Roberts, whose ability is only equalled by his modesty and his power of reconciling diverse views and interests. Dr. Thomas Barlow, M.D. Lond., a distinguished physician, who, like the late Chancellor, matriculated from a private school, has been appointed to fill the vacancy.

At the end of April the Senate will elect a Board of Examiners for the year beginning on July 1. Of the existing Board the following members are retiring:—Prof. Wilkins (Latin); Mr. Gollancz (English); Prof. Spiers (French); Prof. Knight (Mental and Moral Science); Mr. Storr (Teaching); Prof. Dunstan (Chemistry); Prof. Hunter (Roman Law), deceased; Judge Bompas (Common Law); and Mr. G. E. Herman (Obstetrics).

The Lords of the Treasury have appointed Sir F. Mowatt (Permanent Secretary to the Treasury), Mr. Spring Rice (a Principal Clerk), and Mr. A. Fitzroy (Clerk of the Council) to represent them upon the consultative Conference respecting the housing of the University at South Kensington.

COLLEGE OF PRECEPTORS.

PROFESSIONAL PRELIMINARY EXAMINATION—PASS LIST.

MARCH, 1899.

THE Supplementary Examination by the College of Preceptors for Certificates recognized by the General Medical Council, the Incorporated Law Society, the Royal College of Veterinary Surgeons, the Pharmaceutical Society of Great Britain, and other bodies, was held on the 7th, 8th, and 9th of March, in London, and at four other local centres, viz., Birmingham, Bristol, Leeds, and Liverpool. The following candidates obtained Certificates:—

FIRST CLASS.

Pass Division.

Higson, W. D. | Rowntree, S. J.

SECOND CLASS.

First Division.

Ashton, C.	Kaye, W. H.	Papanicoly, J.
Barnes, J. H.	Lee, S. J.	Squires, H. C.
Bransom, J. J. B.	Leese, A. S.	Steward, F. V.
Brookes, C. J.	Levy, A. G.	Theobalds, V. W.
Collins, S. W.	McRae, A.	Thomason, H. P.
Cooke, O. C. P.	Moser, F. E.	Wallin, O. H.
Edmond, W. S.	Mottram, M. J.	Wernicke, F. P.
Holder, S. E.	Palmer, C. L.	

Second Division.

Ambrose, R.	Gent, P. W.	O'Neill, T.
Barlow, S. H.	Gibbard, S. D.	Otley, E. T. S.
Blaxley, T. T.	Glendining, R.	Peers, E. C.
Booley, J. A.	Grove, E. D.	Phippen, H. G.
Bryant, P. H.	Harris, T. E.	Ramsden, H. C. H.
Burridge, J. H.	Heathcote, G.	Ripley, J. H.
Clegg, F. W.	Holman, H. J.	Robinson, W. P.
Devas, H. C.	Houchin, V. S.	Shaw, J. A.
Dickins, C. F.	James, H. H.	Thorne, W. H. G.
Duke, H. D.	Kemp, F. W.	Walker, N. H.
Dumayne, H. G.	Lomas, G.	Wyatt, H. D.
Fearn, I. R.	McLellan, S. W.	Young, E. C.
Fletcher, W. J.	Nash, E. G.	

Third Division.

Barragry, R.	Hobbs, F. W.	Roberts, H. K.
Bridges, E. B.	Hodgkins, J. R.	Russell, H. J.
Bruce, G. A. A.	Jackson, R.	Selge, J.
d'Abadie, St. L. J.	Lister, G.	Smith, G. H.
de Greayer, H. G.	Moody, M.	South, F. M. W.
Dingle, P. A.	Moyle, H. H.	Taylor, F.
Galloway, N.	Nelson, F. G. T.	Weston, W. J.
Gayton, W. J. G.	Plumley, C. G.	White, E. R. B.
Grammer, F.	Pounds, G. C.	Wolfe, J. H.
Harborow, G. J.	Read, C.	Wolfenden, A. B.
Hicks, T.		

The following qualified for Registration as Medical Students, but did not pass in all the subjects required for a Second Class Certificate:—

Bateman, E. W.	Elliott, C.	Mann, D.
Carlyll, H. B.	Heron, G. W.	Scott, H. B.
Coles, C.	Maddison, T. W.	Tyabjee, S.
Crozier, P. B.		

COLLEGE OF PRECEPTORS.

DISTRIBUTION OF DIPLOMAS, PRIZES, AND CERTIFICATES.

THE Public Distribution of Diplomas, Prizes, and Certificates awarded to the successful candidates at the last Christmas Examinations took place at the College, Bloomsbury Square, on Wednesday, March 1. The Chair was occupied by the Rev. T. W. SHARPE, C.B., who was supported on the platform by Mr. H. W. EVE, Dean of the College, and Dr. R. Wormell, Vice-President. There were also present Mr. Atkinson, Mr. Barlet, Mr. Brown, Dr. Gladstone, Mr. Hagreen, Rev. G. Henslow, Rev. Dr. Hiron, Mr. Langler, Mr. Longsdon, Mr. Musson, Mr. Reynolds, Prof. Seeley, Rev. R. O. T. Thorpe, Dr. Turpin, Mr. Wilson, and others. The CHAIRMAN, in opening the proceedings, said:—

Ladies and Gentlemen,—I find that it is the ordinary practice for the Chairman of the day to open the proceedings with a few remarks. The first remark which I have to make is that it seems I have to deal not only with living persons, but also with ghosts, for I am told that a great number of those who ought to receive prizes live in distant parts of the country, and, consequently, they will be ghosts to most of us, as they are not here to receive their prizes.

I am not going to make a long address this afternoon, for I bear in mind what Lord Rosebery said the other day with reference to a man who was making a long speech and boring everybody. Lord Granville was present, and the speaker constantly referred to his notes, and Lord Granville, looking at them, saw in the middle: "Here enlarge on the cotton trade." Seizing a favourable moment, Lord Granville took the notes away, tore them up, and threw them on the floor. When the gentleman turned round for his notes, he found they were not forthcoming, and his speech came abruptly to an end.

In the first place, I wish to congratulate all the candidates upon the success which has attended them at the recent examination. Prizes and examinations have two sides to them. I believe that the examinations which are held here have really a good side to them: first of all, because the prizes are justly awarded; and, secondly, because they are not awarded for cram of any kind. By "cram" I mean things that are packed into the heads of the scholars which cannot be got out at the right moment, and, therefore, are useless to the possessor. I take it for granted, therefore, that, as the College of Preceptors has held these examinations, the prizes have been justly awarded, and that they are not awarded for cram. But, at the same time, I hope they do not encourage pride amongst pupils, or, as the boys say, they are not too "cocky" because they have obtained a prize. I hope will give them confidence, and make them feel that they have made a step forward in life, and got on to a little firmer ground. I do not know whether you have heard the story of the two frogs, one of a pessimistic nature, and the other of an optimistic nature. Both were tilted into a bowl of cream: the pessimistic one went quietly to the bottom and refused to stir; but the other, who had more pluck in him, tried his best to get out. In so doing he swam round and round the bowl, but did not succeed; after a short interval, he found himself sitting on a pat of butter, as the result of his unconscious labours. His labours had turned the cream into a pat of butter, and it would be well if boys would learn from the frog. I do not say that they will always sit on a pat of butter; but their exertions will be rewarded, and in a way they perhaps do not themselves expect. You have all tasted the pleasure of knowledge; but I would like to ask you one question—whether you think labour is natural to man? I myself do not think it is. I think we should all be very lazy people indeed, if we had the chance. If you go to the West End of London, you will see many lazy people, who do nothing for their livelihood; all they have to do is to enjoy themselves. Now,

you have had the enjoyment of acquiring knowledge for yourselves. One great mistake of former times used to be that the accumulation of knowledge was one of the chief ends of going to school, though one of the lessons we have all learned in recent times is that it is not the mere accumulation of knowledge, but the power of using it at once, at the right time, and for the right purpose. This accumulative age followed the days of the great renaissance of learning, when people like Bacon and Milton (the latter, by-the-by, was an unsuccessful schoolmaster, and is not a good guide for us) were all praising up the accumulation of knowledge. In fact, they thought it possible that any one could exhaust the whole round of useful knowledge. But if you go to the British Museum, and look at the books there, you will soon be cured of that fancy; you will see that it is possible to acquire but a very small part of any one branch of knowledge. I often congratulate boys and girls on living in a better age in regard to education than that in which I was brought up. Good books in those days were very few. Both teachers and books were poor on the whole, though there were some good teachers and good books. Then there came another stage when there were good books and fair teachers. Now we have nothing but good teachers. At the same time, I should like to say that all teachers have one great fault—they all talk too much to their scholars; they do not allow the scholars to think for themselves. I wish they would consider the willing boys and girls—not the unwilling ones, for, of course, they have to be pushed along the road of knowledge, and a painful road it is for the teachers—but the willing scholars should be left more to themselves, and they should apply to their teachers when they are in difficulty, rather than go through the ordinary routine such as other boys and girls are compelled to follow. If I wanted to test the education of boys and girls, I should set them to read a book to me. I could soon tell by their reading what the character of the teaching was which was given in the school. Dean Dawes had a very good school, in which all the scholars read well. The reading was so good, not because the scholars had been drilled mechanically in the art of reading, but because the teaching had been made so interesting that when they came to read a book they took an interest in all that they read. Now you live in a very happy age for yourselves; for, as I have said, there are good schools and good teachers in abundance. But, in the time to come, when you are old and grey-headed, you will be astonished at the great improvement in schools. We have not reached the excellence which I hope will be attained when the generation to which I belong has passed away. You will find that things will alter for the better, that schools will all have a definite purpose, which is wanting just now. We are rather in a state of chaos as regards the purpose for which our schools should exist. There is a great controversy going on between primary and secondary schools. I have learned to dislike the words "primary" and "secondary." They were useful at first to drive into a stubborn nation the idea that there was such a thing as primary, as totally distinct from secondary; that, though the subjects might be the same, yet the methods of teaching must differ. The French, with their love of scientific clearness, have divided all schools into primary and secondary—they are useful names, and we must bear with them for the present. When we get a thoroughly organized system of education, instead of schools being divided by a hard-and-fast line, they will be divided into types of schools. What we want is a bold declaration on the part of our middle schools that they will divide themselves into higher or lower commercial schools. We want a purpose in the schools rather than a hard and a fast division. Some people would like to separate the whole population into two parts, and say: This part requires primary education, and this secondary. Of course there might be a few in the primary who would need to be removed into the other division; and this, they say, could be done by ladling them out by means of County Council scholarships, and the like; but such an idea will not be accepted in the North of England, and I hope not in London. I have now only to congratulate you upon your success, and to hope that you will not be satisfied with your success, but that you will carry forward the same spirit you have shown in winning prizes and in acquiring knowledge, and apply it in your future life to any purpose to which it may have to be applied.

The Diplomas, Prizes, and Certificates were then distributed, after which the Dean of the College,

Mr. H. W. EVE, in proposing a vote of thanks to the Chairman, said that, when Mr. Sharpe spoke of the contrast between education now and forty or fifty years ago, he spoke from a very large experience, and from the happy experience of one who could say *quorum pars magna fui*. He had been among the foremost in raising the general standard of education throughout the country, and, in particular, in guiding elementary schools, and estimating the results of their efforts, not so much on a mechanical system as by a much larger and more intelligent method. The system of paying by results obtained on a somewhat narrow examination had been largely superseded by a general estimate of the work of the school—an estimate that it was much harder for an inspector to form, but an estimate that bore a fairer testimony to the real work done in the school. He was not surprised to hear Mr. Sharpe laying great stress upon the importance of teaching being directed to make boys and girls think a little. He (Mr. Eve) had had a number of communications from examiners, and one of the points

most often reiterated was that the questions requiring a little thought were much worse done than those requiring straightforward methods. That was to be expected. You must get your straightforward method first; but it was a very great thing if you could get a little beyond it. Take one of the most ordinary subjects of school-work—geography. There was hardly any subject that lent itself better to little bits of thinking. In history it was much more difficult, as the problems required maturer intellect. He was sure that, with a real interest on the part of boys and girls, a good deal might be done in working out small geographical problems. Mr. Sharpe also spoke about idleness being the natural condition of man, and, for people who had just given up their work, there was a certain consolation in that. But he thought he could give another illustration which had just appeared in most of the newspapers, of the unhappy condition of the Pitcairn Islanders, which was put down partly to their extremely lazy habits. They have not much inducement to work, and they do not work. He expected they would all find that, if men had not had to work pretty hard, they would lose nine-tenths of the fun of life. There was one other point on which Mr. Sharpe dwelt which raised a very difficult question—it, perhaps, concerned teachers more than pupils—the advice to do less teaching at some point in a school career, and to make pupils teach themselves a little more. He remembered being told by the late Archbishop of Canterbury that when he was a boy at Birmingham, where he was one of a very remarkable group of men, he practically read through the whole of Thucydides. That meant a condition of things more difficult to bring about, and a condition of things that, perhaps, oftener came about when schools were worse managed than they were now. Schoolmasters and mistresses felt that their duty was to get the best out of every boy and girl, and he believed that they did their utmost in that way. There were far fewer waifs and strays in the schools than there used to be. But there was the possible danger connected with it of not allowing some of the best to develop themselves a little more freely. The perfection of school teaching would have been attained when they had succeeded in guiding the best pupils to work for themselves, and yet in keeping everybody up to the mark. They all knew what good work the Chairman had done in the past, and, though he had retired with all his honours from the Government's service, it was a pleasure to them to think that he was still engaged in influencing education in many ways, and that, among his other duties, he had undertaken to guide the education of the more important and the more industrious half of the community at Queen's College.

Dr. WORMELL, in seconding the motion, said he would venture to follow the Dean in one respect, and to underscore a few of the remarks which the Chairman gave in his too short, but very suggestive, address. There used to be an old saying that there was "nothing like leather." When that was translated into the language of English manufacturers, it was "nothing like cotton." But in that room it was "There is nothing like education"; and the address of Mr. Sharpe had very direct bearing on the great work with which they were all concerned. He was amused and interested at the reference made to the difference between a pessimist and an optimist. He was sure that the Chairman was not a pessimist, and he was glad to know it, for pessimists in education cut out the sunshine. From what had been said, it might be supposed that an optimist was one who floated about on a pat of butter, whereas a pessimist was one who floundered in skimmed milk; but, perhaps, he might be allowed to give his definition. He considered a pessimist was one who perpetually endured life with the chill on, and an optimist was one who occasionally enjoyed life with the chill off. From the warmth of the address to which they had all listened, he was sure that the Chairman was, according to that definition, not a pessimist. With regard to preserving time for thinking, they were too apt in schools to work out an elaborate time-table which would account for every minute of the time of the pupil, and give no time for individual thought. This was a mistake. The poet Southey was a methodical man who cut out his time in that way. He recollected hearing a story of the Quaker who interviewed Southey, and was informed that every hour of the day had its particular task assigned to it in a kind of time-table. "But, friend," replied the visitor, "when dost thou think?" It was very necessary that they should take to heart that suggestion, and preserve time for thinking. The next point to which the Chairman had referred was the need for differentiation of schools. They were talking of the need of organization in regard to education; but what did that mean? He took it that it meant that schools should be so arranged that none were driven to cover the whole ground. With regard to this College and its examinations, there was a certain liberty of choice offered, by which it was assumed that nobody could cover the whole range of knowledge, but that those who took up certain portions, and studied them systematically, were as worthy of the best honours the College could give as those who took up another portion. What was wanted was that schools should adapt themselves to that; that no school should attempt to cover the whole ground, but that each school, by the adaptation of its curriculum, should offer a training in a certain set of subjects, and parents should be allowed to select schools for their children according to the knowledge which was possessed in individual cases and the kind of occupation that was to be followed. He almost wished the Chairman,

from his inner consciousness and from his intimate knowledge of the intentions of those working in the higher atmosphere of legislation, had told them what was coming. But, as he had not informed them, they were left to hope that when legislation did come it would be in the direction that the Chairman had suggested as being desirable—that of allowing a selection of subjects, and permitting a differentiation of schools. Comparing England with Germany, he felt confident that the English methods of teaching were better than the German; but, with regard to organization, Germany was far in advance. He remembered reading a long time ago an address which Baron Liebig delivered in Germany. He said: "There are building materials in abundance about us, so as almost to cover the ground on which the edifice of education should stand; but the master builders have not made up their minds as to the plans. One would have the structure of wood, another of stone, another of iron. All three, if properly combined, would yield an excellent building were it not for the labourers, who will have it made of straw and build it in the air. It is because of that that even the foundation is not yet finished". Germany had since then entirely removed that uncertainty, and the structure of varied materials was complete. In England they had only just gone beyond that point, for the labourers—the teachers—were more agreed than they ever were before that the structure was not to be one of straw and built in the air, but that it might be wood in one place, stone in another, and iron in another, and for the whole community a combination.

The vote of thanks having been carried by acclamation,

The CHAIRMAN, in replying, said: I thank you all for the very kind way in which you have unanimously passed this vote of thanks for the few things I have said. I should like to make one suggestion as regards this meeting. Looking at the wide range that the College of Preceptors takes in covering the whole country, I think you should hold your meeting when the excursion trains are running. If you did, I think you would have much more chance of filling the room with the candidates who have so well earned the prizes and certificates than you have at the present time when ordinary fares are being charged. I see also by the list that a great number of the candidates come from private schools. I hope very much there is a good time coming for deserving private schools—that they will not only be recognized as part of the great supply of schools of the country, but that they will receive from public funds such money as will enable them to carry on their work with greater success than before. I hope that all private schools will form part of the general system, and that they will be subsidized either by scholarships or in other ways. They have one natural dread, and that is of inspectors. Having been an inspector for forty years, I do not think that one need be afraid of that particular race. I remember on one occasion being present at the Freemasons' Tavern, and sitting behind a perfervid gentleman, who denounced inspectors root and branch; but, still, I do think the dread is an unnecessary dread. Two sorts of inspectors are needed—one for primary schools and another for secondary schools, for the reason that the methods throughout are different in the subjects taught. I have had the pleasure of inspecting a good many secondary schools since I left the public service, and I must say I do not find the difference so great as I expected. Still, I think it would be better to have one inspector for secondary schools and another inspector for primary schools.

CORRESPONDENCE.

SIR EDWARD CLARKE'S ADDRESS ON SHORTHAND.

To the Editor of the Educational Times.

SIR,—The historical accuracy of my contentions is easily proved. Without entering upon a verbal quibble as to what constitutes a title-page, I beg to make certain extracts from documents which lie before me. You and your readers will perceive that what is involved is no mere quarrel between rival shorthandmongers, but a matter of public interest and importance—especially to schoolmasters and those entrusted to their care.

My first extract shall be from a speech. The year was 1868; the place, Manchester Town Hall; the speaker, Mr. Isaac Pitman; and the most accessible form in which the speech is to be found, publications issued at the time, and for many years afterwards, from the Pitman headquarters at Bath. My own copy is dated so late as 1890:—

"At the age of about sixteen or seventeen, I read through 'Walker's Pronouncing Dictionary' for the sole purpose of ascertaining what the dumb symbols that I knew so well in books were to be called. It was this study of 'Walker's Dictionary'—particularly in the introductory matter of his work ('Walker's Key to Pronunciation')—that gave me the first idea of the science of phonetics. Walker lays down the relations of letters to each other as you have them in 'Phonography' (now better known as 'Pitman's Shorthand')—that is, the pairing of the consonants: *p* with *b*, &c.; and the vowels are classed as 'long' and 'short.' The whole of the science of phonetics that you have in 'Phonography' you have in the Introduction to 'Walker's

Dictionary.' . . . At that time I did not write shorthand. . . . About a year after, with that love of knowledge common to boys, I began to study it. I borrowed a book ('Taylor's System,' Harding's 'Improved' Edition), copied the alphabet and 'arbitrary words,' and have written shorthand ever since. I wrote it (unaltered), for about seven years. This brings me to about the age of twenty-four. I was at this time teacher of a British school. I wished that every boy in the kingdom should have an opportunity of learning shorthand. I knew that a little manual could be got up for two or three pence, and I drew up one, to be published at 3d. It was Taylor's system. You will perceive that I had no intention of becoming a shorthand author. The ambition of appearing before the public in that capacity never entered my mind until it was suggested to me as a means of accomplishing my end. . . . Mr. Bagster submitted my manual to a friend. . . . The friend said: 'The system Mr. Pitman has sent you is already in the market. . . . If he will compile a new system, there will be novelty about it.' Mr. Bagster communicated this opinion to me, and I began by making improvements in Taylor's. The first thing I did was, to distinguish the long from the short sounds of the vowels. I then began to pair the consonants (as in 'Walker's Dictionary'). In November, [1837]—[quick work for a new shorthand system!]—I sent it to Mr. Bagster. It came out in two or three weeks, a little fourpenny edition of 'Stenographic Sound-Hand.'"

Now, any one reading the above would at once conclude—and justly—that this was simply a Walkerized edition of Harding's Taylor. But let us look at the book itself.

At the foot of "Plate 1" are the words "Drawn by Isaac Pitman, Stenographer"—that is to say, a practitioner of Taylor. On Plate 2 the name of the lithographer is similarly inscribed: the one "drew," the characters and the other lithographed them.

The observer beholds the familiar Taylorian circle, such as Sir Edward Clarke drew so skilfully upon the blackboard, and an A B C arrangement of the letters; the consonants coming, as in all the other Taylorian editions, in the order B, D, F, G, &c., five of the consonant strokes being retained from Taylor, unchanged in direction, length, or value; and the examples of joinings, &c., which are given being Taylorian out and out. The spokesman for Sir Isaac Pitman & Sons, Limited, offers, in support of his case, the assertion that a Taylorian writer might have read what Sir Isaac wrote in shorthand prior to 1837, but could not read what Sir Isaac wrote afterwards. I fear the fact goes a bit further. The influence of Walker is seen in the further "pairing" of the consonants—the principle is applied to *f*, *v*, &c., in the original Taylor—but ten of the consonant strokes differ from their present allotment, only ten being the same; and the vowel scheme differs widely from the present one, but was then, as it still is, Taylorian in principle: the use of characters, dashes, hooks, &c., similar to, but on a smaller scale than, the consonants, written detached, for internal vowels, after the consonants have been dealt with, as in *t*, *k*, *a*, for "take." Taylor was "phonetic," just as this professed to be, in the use of *f* for *ph*, the omission of silent letters, and so on; and I frankly confess that I fail to discover much of the "novelty" which Bagster's adviser recommended. There are "arbitraries" of the good old pattern: a cross for *x*, prefixes and suffixes, and many curious contrivances, such as were looked for in the other editions of Taylor's Shorthand of that day; while the "draughtsman"—afterwards to be known as the "inventor," "the father of phonography," and what not?—after giving a few of the common abbreviating devices, added: "Should other methods of abbreviation be required, they may be found in shorthand treatises." Schoolboys may be interested in knowing that the fearful lists of "grammalogues" and "logograms" did not then exist, pupils being advised to represent such phrases as "Kingdom of Heaven" by joining the initial letters; while long words might be shortened to one or two letters with a comma underneath! Mr. Thomas Allen Reed remarks of the Isaac Pitman of this period, as an excuse for such things, that "he had had very little experience in actual reporting." This remained true of him through life. But he knew Taylor's Shorthand—such as he first sent to Bagster in a handy manual—to be a simple and practical system; and there is no concealing the fact that it was Taylor's he desired to further popularize. Present-day schoolboys might not be disposed to regard with much affection the memory of the commercial-minded man who advised something novel, not already "in the market"; and they will be interested in hearing the deliberate judgment of Isaac Pitman of 1837, after the publication of "Stenographic Sound-Hand," upon "refinements" such as he afterwards adopted with such bewildering fickleness. I will quote his exact words:—

"Systems that depend upon staves like music, or even on a single line on which the letters have a three-fold power of expressing different words, above, on, or below the line, are not practical. Systems containing letters of different sizes, or the same size more or less curved, are equally objectionable."

This is precisely the view of Sir Edward Clarke. From a Pitmanite report of the meeting, it appears that a Pitman teacher declared that the Pitman system in its present form could not be difficult to learn, for they found schoolboys able, after six months' tuition, to write it at the rate of 120 words a minute, and to fluently read back what they had written. In my own fourteen years' constant experience I must have

been singularly unfortunate, for, with my eyes wide open, I have never found *one* such boy.

It is worth observing that G. A. L. Sladen, the winner of the Pitman medal at the last Certificate Examination of the College of Preceptors, is not a Pitmanite; also, that the Taylor system is, in spite of the expiry of the copyright and the absence of people commercially interested in carrying on the propaganda, still in extensive use in Great Britain and the colonies, and has been adapted to local requirements in France, Italy, Spain, Holland, Belgium, Portugal, Sweden, Germany, Roumania, Hungary, India, and the Far East. Why, like other progressive shorthand-masters, I prefer to teach some modern joined-vowel cursive system, you permitted me to explain in your columns two months ago.—Yours sincerely,

PERCY E. KINGSFORD, M.J.I.,
Shorthand Master at Dover College.

Excelsior, Dover, March 7, 1899.

CODRINGTON COLLEGE, BARBADOS.

To the Editor of the Educational Times.

DEAR SIR,—Codrington, the University of the major part of the West Indies, will be closed on June 29 of this year, unless, by May 1 next, funds are available to provide for its continuance. We estimate that a minimum sum of £5,000, as an emergency fund, is required. This College—established in 1710 by General Codrington, soldier, administrator, man of letters, and a native of the West Indies—provides “an adequate education for such of the West Indian youths as should be disposed to devote themselves to the Christian ministry in their native islands, without the expense and trouble of seeking the necessary qualifications in Europe, at a distance from their friends and relations”; and has, with one interval, continued to fulfil the intentions of the founder.

General Codrington left two estates, which in those prosperous days seemed sufficient to provide for ever for the maintenance of the College. Now, alas! these estates—owing to the depression in the sugar industry—are no longer able to provide the necessary funds, and our only hope is in an appeal to the public. The wide-spread interest taken by the British people to avert the proposed closing of Codrington College leads us to hope that this appeal will be successful, and that they will surely not allow the suspension of an institution which, from its good work in sending out clergy and teachers, not only to the West Indies, but also to West Africa, has become a centre of Christianizing and civilizing influence.

Would you, therefore, allow us to state that, with the sanction of the Trustees of the College, subscriptions, with full name and address, can be sent immediately to Messrs. Drummond's Bank, 49 Charing Cross, S.W.? Cheques should be made payable to “The Trustees of Codrington College or Bearer,” and crossed “Messrs. Drummond.”—Yours faithfully,

F. CANTUAR; STAMFORD; BESSBOROUGH; B. F. DUNELM.; J. E. COMMERELE, Admiral of the Fleet; JOHN MITCHINSON, Bishop; G. W. KITCHIN, Dean of Durham; H. BARBADOS; H. B. TRISTRAM, Canon of Durham; GERALD W. H. CODRINGTON; A. E. CODRINGTON, Lt.-Col., Coldstream Guards.

THE CENTRAL WELSH BOARD.

To the Editor of the Educational Times.

DEAR SIR,—I think the letter and cutting printed therewith from “H.” should not be accepted as accurate without further investigation. One County Council has complained of certain items of the Board's expenditure. I doubt if more than one has done so. The Board only examines once a year—not “at every season.” The communications sent to my school from the Board clearly indicate a desire to diminish, not to increase, the number of examiners.

The certificate scheme established by the Board is, undoubtedly, costly to the Board; it is, however, not costly to the parents, and some such plan is absolutely necessary to the efficiency of teaching in the higher forms. It is true that the plan will make it unnecessary for intermediate schools to prepare for Oxford or Cambridge Locals.

But Oxford and Cambridge may surely afford to dispense with the scanty fees which they have collected since 1870 from Welsh schools and parents?

I write without any prejudice, for I knew nothing of these matters until it became my business to investigate them last year. I am sure that, whatever be the particular financial difficulties encountered by the Central Welsh Board at this moment, their work and their officers ought not to be slandered in the style adopted by your correspondent.

And, in view of the fact that England will soon have a Board of much greater magnitude, it may be worth while for English teachers to study carefully the operations of the Welsh Board as described, for example, in the report recently published by Mr. Sadler for the Education Department.—Yours, &c.,

J. J. FINDLAY.

St. David's Day, 1899.

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FORECASTS AND COMMENTS.

April 1, 1899.

PROFESSOR SULLY will resume his Lectures to Fixtures. Teachers on "Moral Education" on Thursday, April 27. Professor Woods Hutchinson will lecture on "The Growth of the Child's Mind" at the Evening Meeting of Members on April 19.

* * *

THE National Union of Teachers holds its Easter Conference this year at Cambridge. Mr. Clancy and Mr. Yoxall are to receive the degree of M.A. There will be four public and four private sessions. The subjects to be discussed at the open meetings are compulsory school attendance, salaries, grants, fixity of tenure, and the training and qualifications of teachers. Mrs. S. Bryant, D.Sc., and Prof. Jebb, M.P., will deliver addresses during the morning session of April 4.

* * *

A MEETING in promotion of a Colston Educational Society, intended to provide further funds for the Bristol University College, has been convened by the Mayor of Bristol, the Headmaster of Clifton College, the Bishop of Hereford, and others. It will be held at the Bristol College on April 13.

* * *

THE next examinations of the London College of Music will begin at the various local centres on April 4 (for practical music) and on April 12 (for theoretical music). The summer term of the College opens on April 24.

* * *

ON April 26 the London Senate will elect its Board of Examiners. Fifty-two of the present examiners are eligible for re-election, and it may be assumed that they will be again chosen; but eight have served their full term, and can only be re-elected after an interval. The eight vacancies are in Latin, English, French, Mental and Moral Science, Teaching, Chemistry, Roman Law, and Obstetric Medicine.

* * *

AT University College, London, there will shortly be an examination for three Andrews Scholarships, of the value of £30 each: one for classics; one for any two of the following three subjects—mathematics, physics, chemistry; and the other subject for two modern languages and a science chosen out of a group. Notice of intention to compete must be sent before May 1. A West Scholarship, of similar value, is also given annually for proficiency in English history and English language, entries for which must be received by July 14. The above are open to either sex. In the Faculty of Medicine three scholarships are annually awarded; one of the value of 131 guineas, and two of the value of 55 guineas each. The conditions attaching to each scholarship may be obtained of the acting secretary (Mr. T. Gregory Foster) at the College.

* * *

AT St. John's College, Cambridge, an examination for three Choral Studentships of £40 for three years, beginning October, 1899, will be held on May 3. Two will be awarded to tenor singers and one to a bass singer. The duties of choral students are to take part in the musical services in the College Chapel. They are required to pass the University Examinations for the B.A. degree under the same conditions as other members

of the College. Further information may be obtained from the Organist.

* * *

AN International Congress on Commercial Instruction will be held in Venice from May 4 to May 8 next. Great Britain will be represented by Mr. Gilbert Redgrave, chief senior inspector of the Science and Art Department. Among the subjects to be discussed are the organization of secondary commercial instruction, tuition in foreign languages, and scholarships for the purpose of acquiring business training in foreign countries. Merchants and others interested in commercial instruction are invited to take part in the congress. Particulars may be obtained of the Secretary of the Italian Chamber of Commerce, 4 St. Mary Axe.

* * *

THE Annual Conference of Roman Catholic Colleges will this year hold its fourth meeting in the newly opened St. George's Hall, adjoining the Cathedral, Southwark. The days of meeting will be Tuesday and Wednesday, May 16 and 17. The President of the Conference this year is the Rev. John Norris, Headmaster of the Oratory School.

* * *

At the next examination (in June) of candidates for the Army, thirty commissions will be offered for competition by University candidates. London University men are eligible for these commissions on equal terms with members of the older Universities. Particulars are to be obtained from the Secretary of the Civil Service Commission.

* * *

It is proposed that a Conference of those interested in extending the National Home-Reading Union should be held at Cambridge at the end of June, and that a meeting of the nature of a Summer Assembly, but on a smaller scale, should be held in connexion with the "Co-operative Holidays" at Whitby at the end of July or early in August.

* * *

THE Modern Languages Holiday Courses, managed by a Committee of the Teachers' Guild, are to be held this year at Lisieux (from August 2) and Tours (from August 3). A handbook of information will be printed in May.

◆◆◆

Education
Gossip.

DR. WORMELL'S retirement from the Headmastership of the Central Foundation School is amply justified by his devotion of over thirty years to the interests of the school, which he entered (under the Rev. W. Jowitt) in the same year in which he won the Gold Medal for Mathematics and Natural Philosophy at London University. The dates should argue Dr. Wormell still a young man; and members of the College of Preceptors will trust that both their senior Vice-President and their Dean, retiring from their headmasterships within a year of each other, may be able to take, if possible, an increased interest in its control and government.

* * *

THE annual meeting of members of University College, London, was held too late in February for notice last month. The Report of the Council showed a decrease of twenty-five pupils and £386 in fees; while the excess of expenditure over income during the session amounted to £2,629. The College now owes its bankers £30,000; and a Committee is being formed to issue a special appeal for subscriptions to pay off this debt. This appeal is not, however, to be made until the Council have received a reply from the Statutory Commission to their offer to transfer to that body the whole of the endowments of the College.

* * *

THE good schoolmaster will avail himself of any pretext for promoting the welfare of his school. Oliver Cromwell's three-hundredth birthday is to be celebrated by the raising of

a fund for the enlargement and general development of the Huntingdon Grammar School, where he was educated. A Committee, appointed by the Governors, have issued an appeal for subscriptions, being "persuaded that the idea of honouring one who fills so conspicuous a place in history, by promoting the cause of education, will commend itself far and wide."

* * *

AN appeal for funds has been issued on behalf of Westminster College, the Presbyterian theological institution which was removed three years ago from London to Cambridge. The new building just completed has cost £38,000 with furniture, and the subscriptions so far received fall £16,000 short of this amount.

* * *

A MOVEMENT is on foot to establish a Department of Law at University College, Aberystwyth. Lord Justice Williams recently presided at a meeting held to further this object, when an influential Committee was formed to carry it out.

* * *

It is understood that arrangements are in progress for organizing an educational exhibition in London in connexion with the forthcoming Paris Exhibition of 1900. Owing to the limited space which will be available in the Paris building for the educational section, it will not be possible to give as adequate an exhibition of English educational work as had at first been hoped; and it is, therefore, proposed to hold an exhibition early in the year, in London, which will give a comprehensive survey of the various branches of educational activity.

* * *

PURSUANT to Section 2 of the University of London Act, 1898, a notification of the appointment on March 10 of Dr. Thomas Barlow, to fill a vacancy in the London University Commission, caused by the resignation of Sir William Roberts, has been laid before Parliament.

* * *

A QUARTER of a million was mentioned as necessary for the equipment of the proposed new University of Birmingham. Of this £160,000 has been promised—£25,000 coming from an anonymous donor on condition that the total amount is raised within twelve months. There is an uncomfortable rumour that the anonymous one is of American nationality.

◆◆◆

THE REV. H. C. G. MOULE, D.D. Trinity, Appointments and Vacancies. Principal of Ridley Hall, has been elected Norrisian Professor of Divinity, in succession to Dr. Armitage Robinson. Dr. Moule was educated at Trinity, taking the second place in the Classical Tripos, 1864, bracketed equal with Mr. F. W. H. Myers, now one of Her Majesty's inspectors of schools. While an undergraduate Dr. Moule was awarded Sir William Browne's medals for a Latin ode and for Greek and Latin epigrams. He was elected to a Fellowship at Trinity in 1865, and was assistant-master at Marlborough 1865-7. He obtained a First Class in the Theological Examination in 1865, with distinction in Hebrew. He has frequently filled the office of Select Preacher at Cambridge, and once at Oxford. On the institution of Ridley Hall, he was appointed, in 1881, its first Principal.

* * *

THE QUEEN has approved the appointment of Mr. Alexander Anderson, late Fellow of Sidney Sussex, Cambridge, to be President of Queen's College, Galway, in the room of Mr. W. G. M. Starkie, now Resident Commissioner of National Education. Mr. Anderson, who is a Presbyterian and an old Galway student, has been for some time past Professor of Natural Philosophy at Galway.

* * *

THE REV. HERBERT RICKARD, M.A. Jesus College, Oxford, has been appointed Principal of Chichester Theological College.

* * *

THE REV. R. S. DE COURCY LAFFAN has resigned the Principal-

ship of Cheltenham College, from the end of the forthcoming summer term.—There is, as we announced last month, a vacancy in the Headmastership of the Central Foundation Schools, owing to the resignation of Dr. Wormell.—The Headmastership of the Mathematical Department of the Belfast Academical Institution is also vacant.

* * *

SIGNOR RUDOLFO LANCIANI, D.C.L., LL.D., Professor of Ancient Topography in the University of Rome, and director of the Italian School of Archæology, has been appointed Clifford Lecturer in the University of St. Andrews for the next two academical years. Professor Lanciani is one of the leading archæologists of the day, and is the author of the following among other works:—"Ancient Rome in the light of Recent Discoveries," "Pagan and Christian Rome," "Ruins and Excavations of Ancient Rome," and "Forma Urbis Romæ." The subject of his lectures will be the Religion of Rome, and the first course will commence shortly after the opening of the winter session.

* * *

AMONGST the efforts now being made in this country to promote commercial education, it is said that the establishment of Chairs of Commerce is contemplated both in Victoria University and in the new Midlands University.

* * *

PROF. SAYCE, of Oxford, has been appointed Gifford Lecturer in the University of Aberdeen for 1900-2.

* * *

MISS MARGARET PUNNETT has been appointed by the Council of the Cambridge Training College to succeed Miss Hughes as Principal of the College. Miss Punnett is a B.A. of London, and a former student of the Training College, and has the Cambridge Teachers' Certificate, with distinction in both the theoretical and practical parts of the examination. She has also obtained the London Teachers' Diploma, with special distinction.

* * *

THERE are vacancies for one French and eight Oral Examiners under the Central Welsh Board; for Lectureships in Classics and Germanic Philology at Holloway College; and for a Lady Tutor at Bristol University College.

* * *

MR. EDGAR JONES, M.A., Headmaster of the County School, Llandilo, Carmarthenshire, has been appointed Headmaster of the County School, Barry, Glamorganshire.

* * *

MR. G. GWYN JONES, B.A., Headmaster of the County School, Aberavon, Cardiganshire, has been appointed Headmaster of Llandilo.

* * *

MR. J. TRAVIS JENKINS, B.Sc. London and Wales, has been appointed an assistant-master at the Swansea Grammar School.

* * *

MISS SUSAN COLLIE, of Bedford, has been appointed Headmistress of the High School for Girls at Bedford, in succession to Miss Belcher.

* * *

MISS YOUNG has succeeded Miss Japp as Headmistress of the Edgbaston High School for Girls.

* * *

A HEADMISTRESS is required for the Bury St. Edmunds High School for Girls, under the Church Schools Company.

* * *

Literary Gossip. THE Public Orator at Cambridge was exceptionally happy in presenting Lord Tennyson for an honorary degree previous to his departure to take up the Governorship of South Australia:—

"Idem fortasse nonnumquam etiam amicos suos Cantabrigiensi recordabitur, qui eum ipsum, quom hodie, auspiciis optimis proficia-

centum, non sine desiderio prosequuntur, aliquando non sine laurea nova ab Austro sibi redditum animo laeto excipient.

Quale iubar primum velo e candente renidet navis devexo nostros referentis ab Austro; quale iubar summum rosea face carbasæ tingit quæ desiderium nostrum sub marmora mergunt; tam laetum actorum tempus, tam triste dierum.

The reference is to a familiar poem in "The Princess":—

Fresh as the first beam glittering on a sail
That brings our friends up from the underworld,
Sad as the last which reddens over one
That sinks with all we love below the verge;
So sad, so fresh, the days that are no more.

* * *

"I HAVE no confidence," Matthew Arnold once said, "in those who at the Universities regulate studies, degrees, and honours." If he had lived till to-day, he would scarcely have withdrawn his remark. Oxford has attempted in vain, and in a vain fashion, to create a School of English Literature. The set subject in the next examination for the degree of Bachelor of Letters is "a dissertation on the dialects of Scottish Gaelic," and there is to be a supplementary examination in that subject.

* * *

THE REV. DR. CUNNINGHAM has assigned the profits arising from the sale of his work on "The Growth of English Industry and Commerce" for the purpose of providing a fund for publishing a series of dissertations by former students of Girton College. Only such essays are to be judged worthy of publication as show evidence of original work, although translations will not be excluded. Already £330 has been received and invested.

* * *

THE Senate of Edinburgh University have resolved to confer the honorary degree of LL.D. upon the Marquis of Dufferin and Ava, Sir William Anson (Warden of All Souls, Oxford), and Prof. G. W. Prothero, the new editor of the *Quarterly Review*. The same degree is to be conferred by the University of Aberdeen upon Mr. James Frederick Goodhart, M.D., Lord Strathcona and Mount Royal, and Miss Anna Swanwick, who has done much for the promotion of higher education among women. She has also made many translations from the German and Greek.

* * *

WE extract the following version (without permission) from the *Eagle*, No. 103, March, 1894:—

"Mrs. Harris,' I says to her, 'don't name the charge, for, if I could afford to lay all my feller creeturs out for nothink, I would gladly do it; sich is the love I bear 'em. But what I always says to them as has the management of matters, Mrs. Harris'"—here she kept her eye on Mr. Pecksniff—" 'be they gents or be they ladies—is, Don't ask me whether I won't take none, or whether I will, but leave the bottle on the chimley-piece, and let me put my lips to it when I am so disposed.' " ("Martin Chuzzlewit," chapter xix.)

"ὡς ἔφατ'· αὐτὰρ ἐγὼ μιν ἀμειβομένη προσέειπον,
'δαιμονίη, Ἀρρισιαδῶ ἄλοχ' ἀντιόειο,
μὴ θῆν δὴ περὶ μίσθον ἀνείρεο, μὴδ' ὀνόμαζε
τοίη γὰρ τοι ἐγὼν ἀγαθὴ καὶ ἠπίη εἰμί,
ἥ κεν λαὸν ἅπαντ' εἴ μοι δύναμις γε παρήη,
σίτου ἐπητανοῦ βιότου θ' ἄλις ἔνδον ἔοντος,
ἀσπασίως καὶ ἄμισθος εὐδοῖα περιστέλλαιμι
[ἐν λέκτρῳ λέξασα ταμηλεγὸς θανάτιο
αὐτῆ, ὅς κε θάγησι βροτῶν καὶ πότμον ἐπίσση]
ἄλλ' ἔκ τοι ἔρέω σὺ δ' ἐνὶ φρεσὶ βάλλεο σῆσιν"
— ὅσσε δέ οἱ Πεζυγείφον ἐσέδρακον ἀσκελὲς αἰεὶ—
" 'κείνοισιν γὰρ πᾶσι πιφασκομένη ἀγορεύω
εἴτ' ἔνδρ' εἶπε γυναίχ' ὅτεω τάδε ἔργα μείμηλεν,
ὦ φίλε, τίπτε σὺ ταῦτα μ' ἀνείρειαι; οὐδέ τί σε χρῆ
ιδμεναὶ ἢ ἐθέλω πίνειν μέθυ, ἦε καὶ οὐχί·
εἰ δ' ἄγ' ἐπ' ἐσχάρωφιν κάταθε δέπας ἠέδοιο οἴνου,
ὄσρ' ἐν χερσὶν ἔλω πίνουσά τε τερπομένη τε,
χείλεά τε προσθεῖσ' ὀπότεα φίλον ἦτορ ἀνώγη.'"
SAMUEL BUTLER.

* * *

THE new Norrisian Professor of Divinity, Dr. Moule, has published commentaries on the Epistles to the Romans,

Ephesians, Philippians, and Colossians, "Outlines of Christian Doctrine," and "Thoughts on Christian Sanctity," and numerous devotional and expository works.

* * *

FATHER EDMUND NOLAN, who is the Chaplain to the Roman Catholic undergraduates at Cambridge, has submitted to the Degree Committee of the Special Board for Divinity, as an advanced student of Trinity College, a dissertation dealing with a manuscript in the University library of an unedited English martyrology. Along with this he presented the proofs of an edition of two medieval Greek grammars prepared by him for the University Press. The Degree Committee has judged these to be "of distinction as records of original research."

* * *

AN address on "Remedies for the Needless Injury to Children involved in the Present System of School Education," which Dr. Clement Dukes delivered before the Incorporated Association of Headmasters last January, is printed by request (Rivingtons). The writer prescribes much shorter hours of work and longer hours of sleep than at present obtain.

* * *

AMONGST other reprinted addresses we have that of Mr. James Stuart, M.P., on his installation as Lord Rector of St. Andrews (Macmillan); a speech by Lord Balfour of Burleigh at the opening of an industrial school in Edinburgh (Blackwood); and two papers read before the Library Association by Mr. John Ballinger, on "The Public Libraries and the Schools" (Henry Sotheran).

* * *

THE recurrence of "Richard II." as a "set subject" this year brings us sundry helps to the study of the play and its period. Amongst them is Mr. Cyril Ransome's "Short Study," extracted from a volume which was noticed in our columns on its publication by Messrs. Macmillan. Miss Beale, of Cheltenham, has reprinted a translation of a "French Metrical History of the Deposition of Richard the Second," made by the Rev. John Webb some seventy years ago (Bell & Sons). Mr. Webb was a minor canon of Gloucester, but it is not correct to speak of him as Canon Webb.

LITERARY INVENTIVENESS IN SCHOOL-CHILDREN.

AT the Members' Evening Meeting of the College of Preceptors, on March 17, the chair having been taken by Mr. George Brown, Mr. H. HOLMAN, M.A., delivered a lecture on "Literary Inventiveness in School-Children."

MR. HOLMAN said that there was very grave danger with regard to the education of children that, in many cases, the mental development might be arrested, if not perverted. Unless they had a satisfactory knowledge of the child's mind, and the general development of the mind, they might feed it with the wrong material, or stimulate it in the wrong direction, or even train it on the wrong lines. Again, they might attempt too early to develop a certain kind of mental power, a certain kind of mental taste, or a certain kind of emotion. On the other hand, they might leave it till too late before beginning to endeavour to stimulate, to strengthen, and to make skilful, certain mental powers. The result of either of those methods would be that they would practically arrest the mental development, if not do worse, and pervert it, or even cause it to be diseased. It was necessary that they should have such a general notion of child mind and child development that, at least, there should be a minimum danger with regard to this matter. He was inclined to think that it was because of a want of knowledge of this in the educational system that in England they had too few adults; by which he meant that grown-up people were too much children in many respects, and with regard to many of the practical duties and problems of life. A typical instance of this was the dread which many parents had of their children. They looked at them as if they were strange and even dangerous little animals. He remembered an instance of a lady stopping an express train because she had dropped her handbag out of the window. This was an instance of a want of a well balanced mental development. From what he had seen, heard, and read, he believed that in America they had too few children; the boys and girls were all too much like men and women before they had time to be infants.

Dealing with what he called the "constructive power of mind," or aggressiveness of mind, with regard to special conditions and special

material, Mr. Holman said there were one or two postulates which it was well to remember. They would all be agreed that the truest and best progress in education was based on material personal experience. Actual positive personal life gave actual positive personal knowledge, more or less accurate, more or less full, more or less complete; but, at the same time, more or less erroneous. Still, it was that which had come to the individual, and it was, in a true sense, a real part of the individual, and that it was which was the basis of anything like true and sound education. Given that kind of actual personal experience and personal possession of something, then the second step was that one should make a rational use of it; that one should, so to speak, rationalize the empirical and train the mind on what happened through the body to the mind; that one should search into that which the mind had by its reflective power, and get the best mental value out of it. To make clear what he meant, he would take the case of teaching grammar. The actual personal material experience in that case was the child's own language, which it had used for many years for all purposes, and to a very considerable extent. All the thought activities which language expressed were real and actual to the child. That was the empirical basis. What one had to do was to lead the child to see for itself what it had been doing, through language, with regard to thoughts. To give an example. Suppose they had a class which was going to deal with the definition of a sentence. He would say to the children: "Do you know what sentences are?"—"Yes." "Where have you seen them?"—"In reading books." "Have you ever heard of them?"—"Yes." "Where have you heard of them?"—"When we talk." "Can you define a sentence?"—"No"; they cannot, and they immediately stop there. Then he would say: "Can you make a sentence for me?"—"Yes"; and he would have a dozen or so sentences made. Upon asking where they made the sentences, the reply would be: "In our heads—in our brains—in our minds." Accepting the last answer, his next question was: "What was it when it was in your minds?" To which the reply would be: "It was thought." The next question would be: "Could I know it when it was a thought?" Answer: "No." "What did you have to do? How could you tell me?" They would say: "In a sentence." "What sort of a thing did you use to make up a sentence?"—"Words." "What did you do with your thought, so that I might know it?"—"We told it out to you in words." That was an answer which he actually got from a child; and it seemed an admirable way of expressing the actual fact. Upon asking what a sentence was, he was told that a sentence was a thought told out in words. There one had the actual knowledge and personal experience to express thought.

Personal life was the bed-rock of true education. No doubt many had read certain articles which appeared in *Hand and Eye* with regard to the imitativeness of school-children, where it was shown by experiment that where you asked children to reproduce imitatively there was an overwhelming tendency to change in the process of reproduction. Unusual ideas are replaced by usual ones; the unknown by the known; the indefinite by the definite; the complex by the simple; and book-language changed to colloquial language. For instance, "a pony and cart" were, by an East-end child, changed into "a donkey and barrow."

The lecturer then gave several interesting examples of essays and descriptions written by school-children, both boys and girls, in illustration of what he had been saying, and also of another stage of the development of inventiveness, which he called inventiveness through elaboration, or working from incomplete suggestions; and the third stage, which was inventiveness proper, or spontaneity. In the three stages which he had roughly sketched, there was evidence of the powers of observation and of construction which was really striking, and which might be said to be overwhelming evidence of the native activity of the mind. There were also in the essays to which he had called attention many traits of personal character and many evidences of personal experience and influence in the individual life. The original powers and tastes of children were also shown, and, with such a knowledge of children, teachers would be in a better position to deal with them wisely, not to say more completely and satisfactorily.

The facts to which he had referred pointed out certain definite conclusions with regard to school work, namely, that the inventive capacities of children were not sufficiently employed; that they were being treated on imitative lines when they should be treated on inventive lines. Schoolmasters did too much for children, and allowed them to do far too little for themselves. This resulted in a great waste of time and opportunity, and also in a great waste of mental power in the individual, and great waste of self-development and self-realization. Surely the moral of the whole was, "Study the child." That way education lay. They ought not to study methods too much. Method should not be studied except in direct relation to the study of the child. We should study children first through types, then as a class, and afterwards a child in particular: first through the type and then through the individual. The overstudy of method is the worst form of cram, even though the method be intelligible and based upon scientific principle. The person who studied method and not the scientific principles and the material to which the scientific principles applied was likely to go along the road of the crammer. Taking teaching as a profession, they had it in their hands to make it a mere mechanical trade or a noble profession.

So far as his experience went, it was in most cases a mechanical trade, more or less intelligent, more or less earnestly conducted, more or less successful; but, if they wanted to make it what it should be, namely, a profession than which there was no higher or nobler one, none more practical, important, or valuable, they would have to study the child, and not only to study the child, but to study themselves. A person who knew not himself in a reasonable sense was not the individual to know a child in a reasonable sense. In conclusion, he might repeat the maxim which he had given before in that room: "Man, know thyself; teacher, know thy pupil."

The CHAIRMAN said he had for a long time felt that in the educational systems of the day there was such a rush for knowledge that inventiveness in children was largely killed by thrusting upon the pupils information and knowledge which they were expected to reproduce in a mechanical way to the detriment of true inventiveness. If he might put it in the words of the lecturer, there was not the study of the child in the present day, but there was too much study of the subject. This was not so much the teacher's fault as that the circumstances which surrounded him and led him to be impatient; that he felt he had to thrust into the child's mind a certain amount of knowledge in a limited space of time. In the hurry to do it, he poured instruction into the child's ears at too rapid a rate; and the tendency was to displace that thoughtfulness and leisure in the brain, which were requisite for true inventiveness. He considered the most valuable part in the training of children was the practice of essay-writing. The inspectors of the present day were following lines very different from those formerly followed. The idea was now to give greater freedom to the teacher, to educate rather than to instruct; and greater freedom was given to the inspectors to test education. This was a return to a sensible method, and the country was at last returning to methods which must commend themselves to those who had studied child life, and seen the mistakes made in the past. There was a danger with regard to secondary education lest the State should foist upon the nation a cramped system. The Education Department, in recognizing their mistakes in the past, were now disposed to adopt a more sensible method.

A vote of thanks to the lecturer concluded the proceedings.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held at the College, Bloomsbury Square, on March 15. Present: Sir Philip Magnus, Vice-President, in the Chair; Mr. Brown, Miss Dawes, Mr. Eve, Rev. Dr. Hiron, Mr. Leatham, Mr. Millar Inglis, Mr. Milne, Mr. Pinches, Rev. Dr. Poole, Mr. Reynolds, and Mr. Storr.

The minutes of the last meeting were read and confirmed.

The Secretary reported the death of Mr. J. F. P. Massé, one of the examiners in French.

The Report of the Examination Committee was adopted.

The following persons were elected members of the College:—

Miss M. E. Courtice, Fairholme, Belle Vue, Portishead, Somerset.

Miss L. Forge, Bute House, Victoria Road, Deal, Kent.

Mr. W. H. Hill, M.A. Lond., Woodview, Archway Road, Highgate, N.

Miss L. M. Larcombe, A.C.P., 23 Marlborough Road, Dalston, N.E.

Miss E. Lovsey, A.C.P., Beverley House, Ilkeston.

Miss J. Owen, A.C.P., Fulham Park College, Dornclyffe Road, S.W.

The following books had been presented to the Library since the last meeting of the Council:—

By the AUTHOR.—Bernon's New English and French Dialogues; First Steps to English; Shall and Will.

By C. J. CLAY & SONS.—Breul's Goethe's Iphigenie auf Tauris.

By W. B. CLIVE.—Low and Wyatt's English Literature, 1660-1882; Woodhouse's Cicero de Officiis, Book III.

By MACMILLAN & Co.—Loane's De Vigny's Cinq-Mars; Morris's Byron's Child Harold's Pilgrimage, Cantos I.-IV.

By the UNIVERSITY EXAMINATION POSTAL INSTITUTE.—Cambridge Higher Local French and German Papers; Dodd's History of France, 1180-1814.

Calendar of Queen's College, Galway.

List of Fellows, Members, &c., of the Royal College of Physicians of London.

HUMOURS OF TRAINING-COLLEGE LIFE—A REMINISCENCE.

A TRAINING COLLEGE, it may be thought, is surely one of the last places where one would look for humour, or, if such a thing does exist, it must needs be of the kind generally characterized by the adjective "grim." Strenuousness, hard work, an atmosphere of severe and lofty idealism—for these one is prepared; but for humour?—No; better look elsewhere for that. Life is a serious affair for serious persons within these walls, and matters of high moment are their sole concern. So it may seem: yet even to the life of a training college there is a humorous side, and unhappy indeed is the lot of that student who has no eyes to discern it, though it is undeniably easier to see from

a distance than at a nearer view. To begin with: is it not rather a humorous idea that a training college is a place where women are prepared for a profession which men enter by reason of a certain Heaven-born fitness peculiar to their sex? Men teachers are born, it seems; women teachers are made, if one may adopt the well known saying. It is true that I have never heard this definition of a training college openly held and expressed; but, as far as secondary teachers are concerned, it is certainly implied in the attitude of ninety-nine schoolmasters out of every hundred in this enlightened country, and in the failure which has hitherto attended all efforts to start training colleges for men. This, however, is by the way.

Looking back on her college career, in a critical temper of mind, a student of my acquaintance was heard to say, reflectively and judicially: "Well, at any rate, it's a good preparation for life. If one has stood this, one can stand anything." It was not exactly a rose-coloured view to take of the case, but there was part of the truth in her summing up, at any rate. Doubtless the student in question had her mental eye fixed on the criticism lesson and kindred means of educational grace which form an important part of the "training" to which the student submits herself. These are excellent as discipline, but few there be who find them pleasant.

It has been suggested that to the list of ordeals recorded in ancient times—the ordeal by fire and by water—the present-day equivalent of ordeal by criticism lesson might well be added. To the training-college student fire and water are but trifles in comparison. It is probable that, as humanitarianism is on the increase, the wind of the criticism lesson is now somewhat tempered to the shorn lamb; but in my day the ceremonial was of the most awe-inspiring character, and was surrounded by an atmosphere of solemnity calculated to try the nerves of the boldest. First of all, came the choice of the victims. Each week two of our number were offered up as a sacrifice, and it was one of the excitements of a particular day in the week to scan a certain green-baize notice-board for the names of the ill-fated pair. I can still hear, across the years, the sighs of relief from the respited students, and see the pallid faces of the two on whom the lot had fallen.

There was a curious custom among us whereby each victim had a sort of second, if not exactly to hold the sponge during the fray, to support her comrade in the hour of trial by accompanying her to the place of execution, pinning up her maps and pictures, and seeing that all the preliminary arrangements for the lesson were duly made. Then came the fateful moment, when the student, left entirely to her own resources, stood before the dozen children chosen to be the target of her remarks. Critics to right of her, critics to left of her, critics all round her—principal, college lecturers, fellow-students, and possibly, an interested spectator from a foreign country come to enjoy the spectacle. Who that has ever passed through the ordeal herself can forget it—the entrance of the children; the forced cheerfulness and nervous smile of the teacher; the demure faces of the class, who are, to all appearances, little angels come to earth to smooth the path of budding teachers? Occasionally all goes well. The student is a good teacher and has decent control of her nerves. She knows her subject, and disdains to remember the pencils of the critics. She does not get flustered by unexpected questions on the part of the pupils, or by their unexampled density in seeing her points. But nervousness sometimes deprives her of her wits, and, if the explanation she has prepared beforehand does not succeed in explaining, she gazes blankly and piteously at the children, and repeats her former remarks with a persistence evidently born of the belief of the captain of the Snark Expedition—"What I say three times is true." The keen observer can, at this point, discern a malicious twinkle in the eyes of those good little girls. The teacher's extremity, it is to be feared, is their opportunity, and she founders deeper and deeper into the mire, and the lesson closes in a deadlock or a fiasco. Over the subsequent criticism of the various critics let us draw a veil. These things may be good for the strong; but for weak and timorous mortals they are sore trials. It is not easy to teach one's best in such a fierce blaze of publicity—or so some think who are not reckoned among the failures.

But criticism lessons are not, happily, matters of everyday occurrence. The steady round of teaching in the schools is the ordinary testing time, and here the note of high tragedy is rarely struck. I am sure that the vision of fifteen earnest young women hurrying along the muddy streets off Tottenham Court Road, with trays of sand, bags of vegetables, fish, ice, models, stuffed birds, and pictures, must have cheered many sombre lives in that sombre neighbourhood. These things were, of course, "illustrations," designed to make the way of education easy and delightful to the youthful Londoner. And certainly the children in the crowded schoolroom where we taught did appreciate our efforts to instruct and interest them. Their ordinary teachers did not tempt their intellectual appetites as we did, and, whereas we were "only students" to the more genteel young ladies of the other school, we were known as "the ladies" to the grimy little creatures in the standards of St. —'s. They grinned with delight at the pictures of Westminster Abbey and the Tower, and became wildly excited over the elementary physics lesson, in which ice, test-tubes, and bulbs of mercury played a fascinating part.

One class of infantile children I well remember. They were having a course of object-lessons on vegetables, and their delight in the gradual unfolding of the kitchen onion was only equalled by the pleasure which they got from the "little path" which they found running down the middle of the rhubarb stalk. Their enthusiasm over the beauty of the onion almost made one forget its strength—and this is saying a good deal, it will be admitted.

Do not mistake, however; it was no primrose path that we trod. To be one of half a dozen students teaching simultaneously in the same room is by no means an easy position, especially in hot weather. To the inscription over the school portal: "Holiness unto the Lord," which met our eyes as we entered, we should have liked to add the further words: "Cleanliness is next to godliness." But even outside the courts off Tottenham Court Road one remembers that it takes a world of water to be clean; and, no doubt, our little pupils did their best. But the best was but stuffy—in the mass! Only one who has tried it knows the tremendous physical and mental energy necessary to hold the attention of a class of children in a room where all sorts of interesting lessons are going on around them. Like the Sunday afternoon orators in Hyde Park, you had to talk down rival speakers and compel the attention of your own audience by sheer energy of mind and strength of lungs. If one happened to be feeling a little dull some morning, it was difficult not to resent the aggressive liveliness of one's neighbour, waxing eloquent on the habits of the oyster or the early life of a broad bean, with illustrations. If not skilled in drawing, the teacher of Standard IV. could not help feeling that the wooden-looking duck sitting awkwardly upon her own blackboard cut but a poor figure by the side of the life-like bird produced in a few masterly strokes by the chalk of Standard V.'s teacher. It was impossible to stifle the conviction that Standard IV. saw and appreciated the difference, and were making invidious comparisons. These things were somewhat depressing, and led one to take gloomy views of one's educational career for the rest of the afternoon. But real, thorough-going enthusiasm prevailed over all these minor difficulties and distractions, as in the case of an ardent student who was discovered by the wandering critic, grasping a herring in each hand, holding a class of children perfectly spellbound by her eloquence, and entirely unconscious of the growing fishiness of her hands and the horror-struck expression of the critic's face. These little Londoners were a curious mixture of shrewdness and ignorance. Their notions of country life were most pathetic, and the only basis to proceed from in descriptive geography lessons was their knowledge of the lake in Regent's Park, and, in some cases, of Primrose Hill. From these known objects one had to build up conceptions of oceans and mountains by a process of multiplication, aided by imagination and pictures. "Have you ever seen a bird with three legs?" was the somewhat fatuous question of a nervous beginner, anxious to impress on the class the two-leggedness of these creatures. A pause for reflection. Then a hand went up, and a shrill voice piped up: "Yes, teacher; I know—a dog." Whereat the nervous beginner registered a mental vow not to ask that kind of question again.

But, if the children were interesting, so also were one's fellow-students, of whom there was every variety. There was the clever girl fresh from school; the ex-governess come to learn principles after not a few years of practice; there was the graduate and the fashionable young woman; the shy, nervous girl, and the self-possessed young person, who passed through every ordeal without a tremor. Then there was the encyclopaedic student, to whom we turned for facts in time of need; the political one, who kept us posted in current events; and the wit, who turned aside even the wrath of our college Boanerges in the day of storm and stress. There were the gushing students, who talked much of "the child" and "the teacher's mission"; and the cynics, who confessedly taught for bread and butter, pure and simple, and quite frankly avowed their belief in original sin. Towards the end of the college year, however, these two classes were usually seen to approximate. The idealists lost some illusions, and learnt by more or less bitter experience that, in Carlyle's words, "the ideal has to grow in the real, and to seek its bed and board there—often in a very sorry way. . . . The heroic, independent of bed and board, is found in Drury Lane Theatre only." The cynics, on the other hand, occasionally became so much interested in their work that they almost forgot that bread and butter was the chief end of the teacher, which, if you come to think of it, was a result of which any training college might be proud; for the conversion of cynics into idealists is one of its best reasons for existing at all.

THE MEMORIAL TO ROBERT HEBERT QUICK.

THE following statement and appeal reached us too late for publication last month:—

Amongst those who have encouraged and inspired teachers, and helped to raise and dignify their aims during the last quarter of a century, a high position will unanimously be accorded to the honoured name of Robert Hebert Quick. In all the public work he did for education, his pervading thought was to raise the status of the

teacher—not by artificial or extraneous means, but by giving him an enthusiasm for his work.

Mr. Quick believed that, to make teaching a real profession, it is necessary that teachers should be conversant with contemporary educational movements at home and abroad, and also with what has been done by individuals and by nations towards the advancement, not only of learning, but also of teaching methods and educational aims. Of his own work, "Essays on Educational Reformers," which was written to supply the necessary historical material, it may be said that probably no educational work has been more widely acceptable to teachers, as interpreting the best of what has been said and done in teaching since the Renaissance. The book has also won its place with general readers as an admirable literary production. When it is remembered that Mr. Quick published this book at his own expense, and sustained for many years a considerable pecuniary loss—a loss which was still greater in the case of his magnificent reprint of Mulcaster's "Positions"—it will be recognized that the courage which prompted the publication of these books in the first instance cannot be judged by their present high reputation. It is that unselfish devotion to the highest interests of education, that readiness to speak the right and best word as he knew it, even if those who listened were few, that should make the commemoration of Mr. Quick's work a privilege to those who are conversant with what he has done, and with that spirit of the learner and the teacher which he so excellently combined for the public service.

Mr. Quick gave the introductory lecture on education in the University of Cambridge on October 18, 1879, when courses of lectures on education were begun in an English University. This fact emphasizes his historical position as a pioneer in the establishment of education as a University subject. In that address—"The Schoolmaster, Past and Future"—Mr. Quick said: "The work of the schoolmaster is, I maintain, a very important work. If this is granted, it will follow that any science which influences that work is an important science. If such science exists, it should be studied; if it does not yet exist, but may exist, we should endeavour to search it out."

Words like these, spoken on an historic occasion, form a landmark in the movement for the training of teachers, and it behoves his contemporaries to show that they did not pass unheeded, and that the splendid services which he so persistently and so modestly rendered to education were not unrecognized.

It has, therefore, been felt by many, who regret that no such step was taken at the time of his death in 1891, that the forthcoming publication of his "Literary Remains," by the Cambridge University Press, furnishes a suitable opportunity for raising some memorial to one whose name is held in so much honour, both here and in America; and it has been suggested that such memorial could take no more fitting form than the establishment of a Quick Memorial Library at the Teachers' Guild—an institution with whose aims and work he so fully sympathized, and in which there already exists a nucleus for such a memorial in the nine hundred volumes on modern pedagogy given to the Guild by Mrs. Quick in 1892, and in the valuable collection of works on historical pedagogy which she shortly after placed in its library on loan, and of which she is prepared to make a gift (with due guarantees against its dispersion in the event of the dissolution of the Teachers' Guild) at the request of the Memorial Committee.

It is further suggested that, if sufficient money—say, £500—be subscribed, the whole sum should be invested, and the interest only be devoted to the purchase of books, so that, if possible, the memorial should be permanent.

Subscriptions, marked on envelope "Quick Memorial Fund," may be sent either to John Russell, Cripplegate, Woking, or to Prof. Foster Watson, University College of Wales, Aberystwyth.

The statement is signed by Henry Barnard (U.S.A.), H. Courthope Bowen, Sophie Bryant, H. Montagu Butler, Nicholas Murray Butler (U.S.A.), C. Colbeck, J. Llewelyn Davies, Edward Dowden, A. S. Draper (U.S.A.), J. G. Fitch, G. Stanley Hall (U.S.A.), G. H. Hallam, William T. Harris (U.S.A.), Elizabeth Phillips Hughes, David S. Jordan (U.S.A.), S. S. Laurie, Edward Lyttelton, Frank E. Marshall, J. M. D. Meiklejohn, Joseph Merriman, Caroline E. Rigg, Michael E. Sadler, Francis Storr, James Sully, James Ward, Alice Woods, W. H. Woodward.

REVIEWS.

A SAFE GUIDE.

Demonstrations in Latin Elegiac Verse. By W. H. D. Rouse, M.A. (Clarendon Press.)

To the question: "Are we to go on with Latin verse?" we have often been tempted to reply: "No, it is not worth while, unless the teaching can be made more efficient." Not that the elements of the thing are difficult to acquire, or are an indifferent training for the pupil. On the contrary, few forms of mental discipline are more exacting or more stimulating to the young learner than the attempt to arrange words in a certain rhythm,

with due regard to the rules of language. But, after acquiring these elements, is it then worth while to "go on"? And it is in the higher stages that teaching is apt to be entirely unsystematic, and the attempt to learn for oneself is too often baffled.

The fact is that the niceties of elegiac verse, the style and method of the Latin poets, must be taught, and taught with real intelligence. At present, what generally happens when the pupil is able to write verses of some sort—generally in a "wooden" and prosy manner, is that passages of English are read out for him to twist into Latin somehow. He produces his copy, and then a fair copy is dictated. This fair copy, the work of a recognized scholar, is often itself a poor thing at best. The pupil's copy is returned to him with corrections, and perhaps some alternative suggestions. But all this really takes him no further. He is no nearer to understanding the real art. In time, when he is soon to go to the University, perhaps, it is too frequently discovered that the verses he produces are scarcely of the standard that is required in the "Hertford" examination, or the Civil Service competition. So, as a remedy for an unsatisfactory state of things, he is made to do an increased quantity of verses, and it never seems to occur to the master that, if the boy made verses all day and all night, he would be no nearer to writing tolerable Latin verse. There are schools in which some sixty Latin lines are written in the highest forms every week, and yet not one word of real teaching—of teaching that can bear fruit—is attempted. The result is a prodigious waste of precious time, leading often to disgust and to failure in the high classical examinations. There is no subject taught in the highest forms with such lamentable lack of intelligence as Latin verse: and, above all, as Latin elegiac verse. It is certain that, with care, the secrets of Ovidian verse can be discovered and laid bare to a pupil of ordinary capacity. It does not, of course, follow that all students will be able to write good elegiacs even then. There is no doubt that aptability for Latin verse is confined to a few. But at least these few would write well, and even the many might produce tolerable verses, or, at the worst, much better verses than they produce now.

Mr. Rouse has, with unsparing labour and great ability, produced a really admirable manual on the elegiac of Ovid. He has classified in a most valuable introduction a large number of examples illustrating the various devices and the rhythms employed by the poet in his best work. This introduction is followed by a large selection of passages which Mr. Rouse goes through, showing line by line how the English may be effectively done into Latin. Many of the renderings are extremely happy; and the author, like the practised teacher that he is, contrives to make the lesson really interesting, often even amusing. Most heartily do we commend his work, and we trust that its wide adoption will do something towards reducing what is at present chaos to something like order.

As a second edition must surely be soon called for, we suggest that Mr. Rouse should include in his introduction some paragraphs on elision, and on the writing of passages in correct form without a long pause at the end of the pentameter. This latter point is one well worthy of attention, for Ovid uses the device much more frequently than is usually supposed—and, moreover, with definite restrictions that can be tabulated as clearly as Mr. Rouse has tabulated so many other laws. The author has, indeed, deserved well of all who are condemned to write elegiacs.

A HISTORY OF ENGLISH INDUSTRY.

Landmarks in English Industrial History. By George Townsend Warner, M.A. (Blackie.)

Mr. Warner has not shrunk from the very laborious task of surveying the whole course of England's industrial and commercial progress, selecting the "chief landmarks" in each age, and grouping around these their causes, concomitants, and consequences. It would have been much easier for him to write a much larger book on the subject. Hitherto the main attention has been drawn to the political and constitutional aspects of English history; but a deeper analysis has brought into just prominence the economic features of the life of the people. Mr. Warner's handy volume will be found exceedingly useful and suggestive, and it will probably send the careful reader to larger and more detailed works, if not to the basal documents themselves. The work is written in a lucid and simple style, and the author has prepared himself for the task with obvious diligence. There ought to be room for this instructive book in the curriculum of our schools. It will certainly be welcomed by intelligent youths that have left school but have taken with them

a liberal desire to continue their education, for bettering their ideal of citizenship as well as for personal satisfaction. Mr. Warner reaches the middle of his work before he is quite at the end of his account of the legislation of Elizabeth. If he seems thus to have cramped the exposition of the modern developments, it has yet to be remembered that the preceding centuries form a long stretch of time, and that it is historically important to show the beginnings and successive stages of progress which have brought us gradually into the existing conditions. At the same time, he has anticipated the later period a good deal, by reason of his treatment of the matter by subjects rather than by strict adherence to chronology. The manorial system, the beginnings of town life, the Exchequer system of the Plantagenets, the face of England in the great period of the three Edwards, the Black Death, later developments of towns and guilds, sheep farming and the great woollen industry, the mercantile system—these main heads indicate the lines of the earlier half of the work. Then come the important legislative reforms under Elizabeth—the expansion consequent on an honest coinage; the Act of Apprentices, bringing proper payment of labourers and better work; the Poor Law, diminishing idleness and vagabondage and crime, and recognizing a great principle of social interdependence. The story of the trading companies and the beginnings of colonial expansion have all the interest of a novel of Imperial adventure; and one regrets that it must be so severely condensed. The survey of English industries in the latter half—the bigger half, rather—of the seventeenth century is full of points of extreme interest, some of which have a clear bearing on modern questions. Thus, the history of the influence of foreign incomers, refugees, and others, might well suggest hesitation to some of our politicians, in their schemes for differential treatment. It needs but mention the enormous reclamation of fen lands by Cornelius Vermuyden, a Dutchman, and the immense economic impulse communicated by the Huguenots. The rise and progress of banking is not devoid of romance, apart from its extensive influence in the expansion of industrial and commercial enterprise. The chapter on the growth of Greater Britain brings out forcibly several principles that are even yet in need of constant watch and ward. The chapter on "Machinery and Power" opens out a still wider Imperial influence; and the Agrarian Revolution has not yet entered on its last phase. Mr. Warner is careful to point out, as an essential part of the study, not only the actual facts of change, but the social effects resulting; and this we take to be a most useful, as well as necessary, element in his task. His corrections of the absolute application of *laissez-faire* must always be borne in mind; and he does well to insist on fairness in the exchange of labour as well as on freedom in the exchange of commodities. He is scarcely innocent of the misleading, if picturesque, heresy that trade follows the flag. But it is very seldom one is inclined to question his conclusions or to doubt his judgment in working out his materials to scale. Taken altogether, this useful volume is a piece of honest and skilful workmanship.

THE STUDY OF VOLCANOES.

"The Progressive Science Series." Edited by F. E. Beddard, M.A., F.R.S.—*Volcanoes, their Structure and Significance.* By T. G. Bonney, D.Sc., LL.D., F.R.S. (John Murray.)

The names of Daubeny, Scrope, Judd, and Geikie will naturally occur to the scientific reader in connexion with the later literature of volcanoes; but, as Dr. Bonney remarks, the works of three of these, though not yet superannuated, belong to a generation earlier than our own, and, in the process of physical research, a lapse of twenty years or so is ample justification for a new study of a subject which cannot be said to have approached a condition of finality. Certainly the volcanoes themselves have not been idle in the last twenty years, and many new conditions have been added to a problem which keenly interests and, to a large extent, baffles the scientific inquirer.

What, precisely, is the cause of volcanic eruption? Beyond the obvious facts of the permanent fusion of the earth beneath its thin superficial crust, and the constant production and escape of steam, what are the determining causes of the phenomena with which we are so familiar? How shall we account for, and what should we infer from, the great circle of eruptive activity which is drawn round the world from the extreme point of South America, following the whole western coast of the twin American continent, along the Aleutian Islands, through the Japanese and Philippine Islands, by New Guinea and a string of South Pacific islands to New Zealand, and so down to the Antarctic Circle

again? The chain of this mighty rift in the world's crust is practically unbroken, and beyond it—except for the great diverging cleft to Java, Sumatra, and Burmah—the other volcanic manifestations are, confining ourselves to present activities, isolated and comparatively few in number.

Dr. Bonney deals successively with the "life-history" of volcanoes, their formation and products, their geological history and distribution, illustrating his text by a series of excellent plates. In a final chapter he discusses the various theories which have been advanced in explanation of recorded facts, such as the chemical origin of the molten rock which issues from the craters in the form of lava, and the suggestion of Daubeny that descending water, resolving itself into its elements, supplies oxygen to the previously unoxidized bases. This would certainly produce heat and fusion, with consequent eruption. "But what becomes of the hydrogen? Where are the flames?" Daubeny was asked; and, as flames are not conspicuous in volcanic eruptions, he abandoned his hypothesis, perhaps somewhat prematurely.

Some have supposed magnetic currents to produce local melting of the rock. Such currents, undoubtedly, traverse the earth's crust, and melting metals in the electric arc is a familiar experiment, often of great commercial importance; but there is not evidence to show that these currents are sufficiently localized or strong enough to produce any material elevation of temperature in the rocks through which they pass. Indeed, in the present state of our knowledge, explanations of this kind are regarded with just suspicion as being only *ignotum per ignotius*, a process unjustifiable in any scientific investigation.

We have found this volume very attractive and suggestive, and that, we believe, will be the general verdict of its readers.

CLASSICAL METRES.

On the Use of Classical Metres in English. By W. J. Stone. (Frowde.)

In this very interesting exercise the author attempts to demonstrate that classical metres in English should be written according to the laws of Greek quantitative prosody. In order to understand his argument, it will be well to set down, in his own words, the principles on which he relies. They are as follows:—

1. That accent hardly differs at all now and in classical times, and that, if it differs, the difference is in degree, not in kind.
2. That classical writers did not deliberately in reading make their verses read themselves, in the meaning of the modern phrase, and that their words so read would have sounded as monstrous to them as the word *unexpectedly* pronounced unexpectedly would sound in English.
3. That English words have a distinct quantity to any one who will attend to it, and if pronounced accurately.
4. That the accent in English does not lengthen the syllable at all.
5. That our English ears are so vitiated by the combined effect of reading English accentuated verse and reading Latin and Greek without the true pronunciation or accentuation, that we are, in general, unable to detect quantity.

He gives some specimens of quantitative verse constructed on his principles, and of these specimens we will set down a rendering of Callimachus' celebrated epigram, *Ἐπέ τις, Ἡράκλειτε*:—

Come hither, Heraclitus, a word of thy death, awaking
Me to sorrow, and I thought upon how together
We would see the sun out sweet-counselling: all that is of thee,
Dear Halicarnassian, long, long ago is ashes;
But thy nightingales will abide with us; on them of all things
Else the coming ravisher will not ever set his hand.

Mr. Stone regretfully remarks that he hardly expects to carry his readers with him, and we must confess that we find ourselves unable to agree with his main proposition. We think there is much of value in his pamphlet; but we believe that, in common with so many writers on prosody, he overlooks some important and indisputable facts. With regard to the first of his principles, we cannot help putting him a question. If the accent of English is essentially the same as the accent of Greek, how comes it that the Greek authors tolerate the clashing of a large number of unaccented syllables? Open any Greek author, and you find continually that there are sequences of five, six, or even more unaccented syllables; and, be it remembered, the grave accent does not count.

Again, the close relationship between Greek poetry and Greek music is wholly disregarded by Mr. Stone. He forgets that Homer composed for music, and, what is still more significant, that Greek music disregards the natural accent invariably, and

concerns itself only with longs and shorts. Hence, when Mr. Stone says that the ancients did not make their verses read themselves, the answer is: Perhaps not—neither did Milton, for that matter. But the Greeks did make their verses sing themselves, and, when sung on the Greek principle, some of Mr. Stone's verses—all those, in fact, in which the natural accent clashes with the verse accent—would be grotesque. The only inference that we can draw from this is that accent in Greek was something essentially different from accent in English.

But, further, Mr. Stone does not take account that the theories of Greek *prose* rhythm depended, no less than the theories of Greek verse rhythm, on quantity, not on accent. What use would a prose rhythm have been that was only apparent to the eye, and was not apparent to the ear? Be it remembered, too, that it is the Greek orators who concerned themselves with rhythm, and they wrote for the listener, and—like the lyric and epic poets—only in a minor degree for the reader.

Although, then, we are quite open to conviction, we must confess that, for the present, we remain unconvinced. Mr. Stone seems to think that strict quantitative verse in classical metres ought to exist side by side with accentuated verse—we are not quite sure of his doctrine on this point—but it seems to us that a double system of versification would be extremely inconvenient. Mr. Stone, we are informed, reads his own verses in a manner that affords pleasure to the ear; but we do not see how this can be done without sacrificing the rhythm in all cases where there is a clashing of accent, and unrhymical verse seems to us to be not verse.

IS ADAM SMITH DISCREDITED?

"Famous Scots Series."—*Adam Smith*. By Hector C. Macpherson. (Oliphant Anderson & Ferrier.)

Lord Salisbury has said that we are all free-traders in these days; and doubtless the statement is true, if nothing more is intended by the term than that we all believe, in some vague general way, that trade flourishes best when least hampered by restrictions. We have, however, lost our fathers' whole-hearted enthusiasm for political economy and its train of general propositions. It is not because we believe, with Ruskin, that political economy is not a science, in the true sense, but because the intense desire for scientific generalizations, common to all the earlier writers on the subject, led them into the statement of rigid laws before the relations and effects of different conditions of social and industrial life had been sufficiently determined. No better way of testing the truth of the conclusions of the earlier writers could be found than by applying them to the novel conditions of a later age. It is by such a method alone that a too rigid law, arrived at by logical deduction from insufficient data, can be declared untenable.

In this book, Mr. Macpherson has, to some extent, attempted such a criticism of "The Wealth of Nations"; and he claims that the main principles underlying that work harmonize with the conclusions arrived at by Herbert Spencer, in his application of the theory of evolution to social development. This, however, he has not adequately shown. He has attempted too much within his allotted limits, and, consequently, in its present form, the book is not satisfactory as a biography nor complete as a review of Adam Smith's philosophical work. This is to be regretted, for Mr. Macpherson shows himself to be admirably qualified for the latter and more important task.

Buckle suggested that the two principal works of Adam Smith—"The Theory of Moral Sentiments" and "The Wealth of Nations"—are complementary parts of one great scheme, in which he endeavoured to deal with human nature as a whole. The philosophers of the eighteenth century, whatever their deficiencies, seldom lacked comprehensiveness. Mr. Macpherson, with equal confidence, presses home a general principle and denounces severely the present-day mania for territory grabbing; but it is idle to preach to the man in the street the efficacy of cheap products and honest work to win new markets, when he sees more and more of the earth's surface girt with a ring of protective tariffs, making the cheapest and best wares of the producer dear to the consumer. As a true disciple of Adam Smith, he is no lover of trade unions. Doubtless the author of "The Wealth of Nations" would be horrified at the artificial clogging of industry which they involve. In his day, however, rings, monopoly, and the power of immense capital were unknown; and the reconciling of these with the interests of labour still remains unsolved, in spite of all the laws of political economy and Government Boards of conciliation.

GENERAL NOTICES.

CLASSICS.

The Hellenica of Xenophon, I. and II., edited by G. M. Edwards (Pitt Press), is designed "chiefly for those students who have already some knowledge of Greek, but are not advanced enough to grapple with the difficulties of Thucydides." Though we hold that there are more suitable subjects for such students than the dreary "Hellenica," there is no doubt that this edition will be of use to those who take a contrary view. We observe that in II. 3, 31, Mr. Edwards accepts with enthusiasm Dr. Postgate's ἀπολέπει for ἀποβλέπει of the MSS.—*ὁ κόθορνος ἀμύττει μὲν τοῖς ποσὶν ἀμφοτέροις δοκεῖ, ἀποβλέπει δὲ ἀπ' ἀμφοτέρων.* The emendation is, without doubt, very attractive and, perhaps, right; but we are not sure that it renders the sentence appropriate to the context in which it appears; nor do we see why the Greeks should have tolerated the "reversible boot" if its precise peculiarity was that it rubbed the skin off whichever foot you wore it on. On that supposition, a pair of "reversible boots" must, indeed, have been a thing to avoid.

The Medea of Euripides, edited by P. B. Halcombe (Blackie), is something of a novelty. The choruses are not given in the original, but only in a prose translation. We should have preferred to see both text and translation. There are brief notes and a vocabulary. The book is likely to enable young students to understand how a Greek play was presented.

Lower Latin Prose, by K. P. Wilson (Blackwood), is an intermediate book intended to cover the ground between a beginner's book and an advanced Latin prose. The editor proceeds systematically, dealing, first, exhaustively with the simple sentence, then with the compound, and, lastly, with continuous pieces. Thus, the first two parts are in the nature of what is generally called "a Latin course." The "simple sentence" is intended to accompany the reading of Cæsar, and the compound is to go with Livy and Cicero. This is a well planned book, the vocabularies are useful, and the teaching sound. We fancy that rather too much is contained in the volume, and that it would be better to divide the book into two, or even three, parts.

Lower Latin Unseens, by W. Lobban (Blackwood), is a selection of two hundred passages of prose and verse, intended to lead up to a higher volume in the same series. There are some hints on translation, which may be turned to good account by a careful teacher, but will probably be rather beyond the capacity of the pupil.

Demosthenes, On the Crown, edited by Evelyn Abbott and P. E. Matheson, is uniform with the two previous volumes of Demosthenes for which the editors are responsible. Consequently there is no critical appendix, and no adequate information about the text. Nevertheless, having suffered much from the other English editions of the speech, we are duly grateful to Messrs. Abbott and Matheson for a competent edition that is a great improvement on those hitherto in use in our schools. Almost any page of the commentary will demonstrate this superiority. Thus the word *πρόσχημα*, which may mean a pretext, but certainly cannot bear that meaning if the context in which it appears in this speech (§ 178) is correctly interpreted. The difficult passage *οὐδὲ γὰρ ὄν τευχεν ἦν* is reasonably dealt with, and, in all cases where doubts arise, the views of the principal editors are given and discussed. In § 104 we think that the note and reading of Rehdantz-Blass with regard to *συνεκαίθεκα* should have received notice, and that the reading *ἐν Μουρυχία* should not be retained without reason given. The book is certain to become the standard edition of the speech in England until—what may some day happen—a better shall appear.

Cicero, Philippic Orations, I., II., III., V., VII., edited by J. R. King (Clarendon Press), is a convenient volume, the notes and introductions of which are drawn mainly from the editor's larger edition of the whole series of speeches against Antony. Mr. King refers constantly to Halm's views, and his own are always worthy of consideration. Inasmuch as the merit of this edition has been already acknowledged, it is unnecessary to say more than that the volume, like that noticed immediately before it, is sure of a place in our schools.

Cicero, De Officiis, Books III., edited by W. J. Woodhouse (Clive), is a sound and useful piece of work. The book, though, of course, intended mainly for a particular examination, would prove a suitable introduction to the philosophy of Cicero to any University student, the more so as Mr. Woodhouse has himself provided the translation in the same series. Mr. Woodhouse very justly remarks that the late Dr. Holden's edition "mostly reproduces the notes of the German editors." Dr. Holden's books are much esteemed, and, to some extent, justly; but he was one of the most extensive "lifters" from the German that even English editing has produced. Often he merely translates his German authority, and not always correctly. It should be added that the Introduction includes some valuable data with regard to the style and structure of the period as used by Demosthenes.

SCIENCE.

"Arnold's Practical Science Manuals." Edited by Prof. Meldola.—*An Experimental Course of Chemistry for Agricultural Students.* By T. S. Dymond. (Arnold.)

The aim of one who organizes a course in any science for students who belong to some particular industry should not be to pick out such facts of the science as relate to that industry, as the greedy boy picks the plums out of the pudding, but to utilize the phenomena which form part of the everyday life of his students as the basis for his teaching. That is what Mr. Dymond has done, and we congratulate him on his success in dealing with a difficult problem. Technical education classes in chemistry in rural districts cannot do much better than follow the course here adopted.

An Introduction to Practical Physics. By D. Rintoul, M.A. (Macmillan.)

This excellent manual bears the stamp of the well managed laboratory on every page. Whether the subject is the measurement of a cylinder, the determination of a boiling point, or the parallelogram of forces, we always find clear instructions, which are just sufficient to make the pupil do his work properly, without giving him anticipations of his results, which are so apt to spoil the thoroughness of his work. We can cordially recommend this book to teachers of elementary science.

"Text-Books of Technology." Edited by Prof. W. Garnett and Prof. J. Wertheimer.—*Practical Mechanics.* By S. H. Wells. (Methuen.)

As a guide to the practical study of mechanics, this book should be of great value. From the beginning experimental and graphic methods of measuring forces are used concurrently, and the plan and method of the book bear evidence of careful thought and practical experience. The subject-matter covers the parallelogram of forces, moments, levers, elasticity, friction, ordinary mechanisms, hydraulics, fly-wheels, &c.

A Text-Book of Physics:—Sound. By J. H. Poynting and J. J. Thomson. (Griffin.)

This is the first published section of what should be an important text-book when complete. The portions we have read are very clearly written, and the names of the authors are a guarantee of the scientific accuracy and up-to-date character of the work.

An Introduction to Practical Quantitative Analysis. By H. P. Highton, M.A. (Rivingtons.)

We have here a well designed course of quantitative work, suitable for lessons of only one hour's duration. The instructions for the work to be performed are clear, many little details indicating the practical knowledge of the author.

"University Tutorial Series." Edited by William Briggs, M.A.—*A Text-Book of Botany.* By J. M. Lawson, M.A. (Clive.)

Mr. Lawson has combined in this volume a general and comprehensive introduction to structural and physiological botany with a special treatment of the types set for the London Intermediate and Preliminary Science Examinations. These types he elucidates both in text and by illustration, aiming, not unsuccessfully, at simple and clear exposition. The book has all the merits which we are accustomed to look for in the "Tutorial Series," being carefully prepared and produced, and practically adapted for the needs of candidates.

An Intermediate Text-Book of Geology. By Charles Lapworth. (Blackwood.)

Though founded on the well known work of Page, of which it constitutes the twelfth edition, the change of name from "Introductory" to "Intermediate" exactly expresses the change of scope in the present work. A large part has been rewritten, and considerable additions have been made, especially in foreign stratigraphy, so that the work is now well up to date, and the imperfections that marred certain portions of the previous edition have been removed. Either for the young beginner who has mastered the elementary notions of geology on the lines of Watts's book, or for the adult whose ideas have been gained in the work of a field club, we can suggest no better text-book than this for extending his knowledge. The conscientious which marks all parts is saved from dogmatism by the clear statement of rival views on disputed points, while it avoids the encumbrance of details which render many larger works unreadable.

"Organized Science Series."—*Advanced Inorganic Chemistry.* By G. H. Bailey, D.Sc., Ph.D. (Clive.)

This is a well planned and well executed sequel to the same author's elementary work. Instead of being a mere repetition of the facts required to be known, the book has a unity based on modern ideas of the constitution of matter. A list of suggested illustrative experiments is given in an appendix; while another appendix gives a better introduction to crystallography than we have seen in any book of the kind. The work meets the requirements of the Science and Art "Advanced Stage" syllabus, and we can recommend it to teachers of chemistry.

"University Tutorial Series"—*General Elementary Science*. Edited by W. Briggs, M.A., &c. (Clive.)

This second edition contains a few alterations and improvements, but not of a fundamental kind.

Arithmetical Chemistry, Part I. By C. J. Woodward, B.Sc. New Edition. (Simpkin, Marshall, & Co.)

This useful little book is somewhat enlarged in the present edition. As it gives advice on all points connected with the application of arithmetical methods to practical chemistry, it should be of value in any laboratory.

MODERN LANGUAGES.

Alfred de Vigny, Cinq-Mars. Adapted and Edited by G. G. Loane, M.A. (Macmillan.)

One of the best historical novels in the French language has been suitably condensed and carefully edited; it will, no doubt, be read with delight by hosts of boys. The hundred pages of text should not take up more than a term, as this is a book eminently suited for rapid reading. The notes are clear and to the point. We have noticed little that calls for remark. In the note on page 20, line 1, read "before a feminine adjective." Surely the "nearest English" for *en cuire* (page 45, line 3) is "we made it hot for him," or "he had a hot time of it." In the note on page 81, line 7, "one at a time" seems superfluous. But these are mere trifles; and we gladly conclude by congratulating Mr. Loane on producing a good book.

Ch. Perrault, Contes des Fées. (Relfe.)

Text, notes (of the conventional kind), vocabulary (very awkwardly arranged), and irregular verbs. The editor prefers to remain anonymous, though there is nothing reprehensible in his work; certainly it also has no conspicuous merit.

French Historical Unseens for Army Classes. By N. E. Toke, B.A. (Blackwood.)

We can recommend this book most warmly—it represents good and careful work and provides interesting and useful reading matter. It consists of 107 extracts bearing on the history of the last three centuries, fifty specimens of French literature, from Malherbe to Pierre Loti; short biographies (in English) of fifty-four authors; a brief outline of French history (thirty pages); and sundry biographical and literary notes. The book is well printed; and, altogether, may be regarded as perhaps the very best yet published for the use of Army classes.

Second German Exercises. By H. W. Eve, M.A., and F. de Baudiss. (Nutt.)

Mr. Eve's Grammar is well known, and used by many teachers. These exercises will, therefore, be welcome. They are the "Elementary Exercises" rewritten throughout. A Key is supplied by the publishers.

German Test Papers. By J. A. Joerg. (Sonnenschein.)

A book for the examinee; the kind of thing which will be perpetrated as long as examinations remain as they are. The book contains a large number of passages for composition, none for unseen translation; questions on grammar, of which we give the following samples:—"When do you translate 'what' and 'which' by *welches*, both in the singular and plural?" "Why can *Fürst, Graf, Held, Narr*, not be considered monosyllables?" [Why, indeed?] "How do you translate 'one's' standing before a substantive?" "Give the various translations of *state, condition, burn, appear, author, cause, leave, severe, continue, number, conquer.*" From Sandhurst papers Mr. Joerg has collected a number of questions on "literature" and "history," which had apparently been set for the encouragement of cramming. We have no liking for books of this stamp.

Fontane, Vor dem Sturm. Edited by Aloys Weiss, Ph.D. (Macmillan.)

Mr. Siepmann was fortunate in securing this volume for his series; for the "Roman aus dem Winter 1812 auf 13" is a good story well told, likely to interest young readers. It is furnished with brief and satisfactory introductions by Prof. Weiss, who has also written capital notes. The translations are good, as a rule; but, we refuse to accept "arbitrariness," "consequentialness," and "beautifulness." Is *senden* a strong verb (note on page 2, line 10)? *Ich anerkenne* (page 5, line 11) is a recognized provincialism. Page 8, line 10: add *Mod. German Feldstuhl*. Page 15, line 16: the form *Lichterchen* requires explanation. Page 26, line 28: substitute *Bände* for *Banden*. Page 37, line 26: the "hypothetical clause without *wenn*" becomes clear as soon as it is shown to have been a question originally. Page 49, line 19: the whole point of the explanation is lost; in accordance with a vow, Isabella wore her clothes until they became a brownish yellow. Page 54, line 18: "euophony" is a term no longer used by philologists. Page 73, line 3: in *Weg und Steg* there is rime, not assonance. Page 77, line 4: the adverb used to be *schöne*. We are surprised to see the note on page 82, line 7, in which Prof. Weiss recommends *derselbe*—what would the Allgemeine Deutsche Sprachverein say? Page 158, line 23: *voilà* is no longer explained as going back to an imperative. There is little to say about Mr. Siepmann's appendices. The fourth this time deals with word-formation, and contains some useful notes on the "suffixes of concrete sub-

stantives." Here also we miss an explanation of *Lichterchen* (cf. *Männerchen* and even *Geisserchen*); and what is the exact meaning of "stem *pa*" after *Vater*? The *ig* of *Essig* has nothing to do with the old suffix *-inc*; nor should *Loch* have been given under words with *-ich*, owing to the peculiar development of its *ch*.

Goethe, Iphigenie auf Tauris. Edited by Karl Breul, Litt.D., Ph.D. (Cambridge University Press.)

We have taken occasion before now to express our regret at the multiplication of editions of the same text; it represents a waste of energy, and is often merely due to the setting of a book for an examination. We have already several editions of the *Iphigenie* for use in English schools; but, when it was known that Dr. Breul was giving his attention to this play, the fresh contribution to our editions of the classics was awaited with great interest. Since he first came to Cambridge, some fifteen years ago, he has found time to edit many a text in the scant leisure which his manifold duties left him. There is a certain crudeness in some of the early work, but this was natural, and can only serve to increase our appreciation of his later books. We do not hesitate to say that the hopes entertained as to his "Iphigenie" were thoroughly justified. The volume before us takes rank at once as the standard edition. There is no need to insist in detail on its merits; for we confidently expect that every student of German literature in this country will read it carefully and gratefully.

Hints on Teaching German. By Walter Rippmann, M.A. (J. M. Dent & Co.)

This very simple and sensible little book includes "a running commentary to 'Dent's First German Book and German Reader.'" Mr. Rippmann sets out by comparing the "dead" method, the "translation" method, and the "living" method of teaching a language; and dwells on the use of pictures in association with new words. His hints are in most cases very much to the point, and well calculated to encourage the learning of German by English boys and girls.

Key to Appendices of "Sappho." By Otto Siepmann. (Macmillan.)

Mr. Siepmann very thoroughly and consistently carries out the essential ideas of his valuable "German Series." This Key to Mr. Rippmann's edition of Grillparzer's "Sappho" is, of course, supplied to teachers only.

A First Italian Course. (The Italian Principia, Part I.) By Prof. Ricci. Revised by Prof. Coscia. (Murray.)

This is a sixth edition of the late Prof. Ricci's Italian "Principia," containing grammar, exercises, delectus, and vocabulary; carefully revised by Prof. Coscia, of Oxford. There is much to be said for the "Principia" pattern, which implies a constant drill in the grammatical forms, combined with the constant formation of simple sentences in both tongues, the sentences from English into Italian corresponding in some measure with parallel sentences from Italian into English. The Italian words in the grammatical part are accented throughout. In the vocabularies Italian forms are compared with the older Latin forms; but the occasional references to Teutonic forms are not always happy or conclusive, as: *bugia*, "lie" (G. *böse*, "wicked"); *poltrone*, "coward" (old form, *poltro*, "lazy"; O. G., *bolstar*; E. *bolster*).

Russian Reader: Lermontof's "Modern Hero," with English Translation. By Ivan Nestor-Schuurmann. (Cambridge University Press.)

A very serviceable Reader, with the two texts on opposite pages. A little more, and the utility of the book would have been greatly increased. The editor believes in saving labour and in learning languages by early comparison of texts; and he recognizes that those who study Russian are, "for the most part, men whose faculties are more or less trained; and busy men . . . to whom time is of the first importance." Now, this would have been just the book for a busy, intelligent man, if the editor had prefaced it with ten pages on the Russian alphabet, pronunciation, and chief grammatical forms.

MISCELLANEOUS.

The Art of Writing English. By Prof. J. M. D. Meiklejohn, M.A. (A. M. Holden.)

In the course of his "Art of Writing English," Prof. Meiklejohn warns us against using too many superlatives. We hope he will pardon us if, just for this once, we say that his book appears to us the clearest, fullest, most practical, and most interesting handbook on the subject that we have ever read. It deals briefly and suggestively with all essential parts of the subject: punctuation, paraphrasing, essay-writing, letter-writing, *précis*-writing, the use of idiomatic phrases, English and Romance words, figures of speech, synonyms, precision, pith, emphasis, the diction of prose, and common errors. His method is to teach rather by example than by precept. For instance, in the chapter on "what a sentence is," only four general rules are laid down—viz., (1) The sentence must not be overcrowded with words or with ideas; (2) the right words must be used; (3) there must be a pleasant rhythm; (4) the sentence must have unity." These rules are then illustrated by examples, and the merits or defects of each are pointed out. This method of teaching through the concrete will be found of great value to the young student in such chapters as those on paraphrasing and essay-writing. In his preface the author modestly

says: "Whatever utility may exist in this book is to be found chiefly in its exercises." The exercises are very numerous and are all on practical points. We fully admit their utility; but we think that there are many other elements in the book for which both teacher and pupil will thank the Professor, more especially for the clear directions as to the material points to attend to and the simple rules for working at them. The principle of *common sense* is the basis of all. The teacher will approve the dictum that all exercises should be short, for "correcting exercises is the bane of the teacher's profession. It paralyses his mental powers and granulates the fibre of his brain." And the student is told—not in the chapter on *irony*—to credit even the examiner with common sense. We need hardly say the study of the best authors is constantly insisted on. "Imitate! imitate! imitate! and you will come out all right." This we have heard before. The practical value of this book is that it shows what to imitate and how to do it."

Manual of English Grammar and Composition. By J. C. Nesfield, M.A. (Macmillan.)

This volume contains a treatise on English grammar, with special reference to analysis and parsing, another on composition, and a third on the figures of rhetoric and the enlargement of vocabulary, a fourth on the main divisions of prose and poetry and prosody and poetic diction, and, finally, a sketch of the sources of our language and the principal ways in which each has influenced it. It is very carefully written; the illustrations are numerous and well chosen, and there are plenty of exercises. We cannot help thinking, however, that it suffers from an attempt to include too much in a small space. The type, for instance, though good, is smaller and the pages are more crammed than is desirable in a school-book. The opening section appears to us the least satisfactory. It begins with a chapter on the parts of a sentence, and goes on in chapter ii. to define the parts of speech. Moreover, though we are told a good deal about the *subject* and the *predicate*, there does not appear to be any definition of the *object* of a verb. The *subject* is defined as "the word or words denoting what we speak about." But we speak quite as much about the object as the subject. In such a sentence as "the cat ate the mouse," how will this definition teach a child that "mouse" is not the subject? The main part of the book, however, is not open to criticism of this character, and some parts of it are of unusual merit.

A Class-Book of Physical Geography. By William Hughes, F.R.G.S. Revised and largely rewritten by R. A. Gregory, F.R.A.S. (Philip & Son.)

We are glad to welcome our old friend, "The Outlines of Physical Geography," by Prof. Hughes, in a new form, enlarged and brought up to date. It has been practically rewritten. We look in vain for the somewhat magniloquent language of our old school-book. Such phrases as: "The Sacred Scriptures, whose testimony is received by all men of unclouded minds," &c.; and "Man, the lord of creation," have disappeared, and are replaced by the more prosaic language of modern science. The book, however, has lost nothing of its interest, while it has gained considerably in fullness and, through the advance of knowledge, in accuracy. Thus several subjects, such as the Ocean, the Atmosphere, and Agents of Change, formerly treated in single chapters, are now divided, and each section has a chapter devoted to it. There are many new illustrations and maps, and these, as a rule, are good. The type is much larger, and the volume is more attractive in appearance than its predecessor. We wish it as great popularity and usefulness.

British Rule and Modern Politics. By Hon. Albert S. G. Canning. (Smith, Elder, & Co.)

We gather from a prefatory note that the object of this discursive book is "to examine the results of British power and thought in promoting civilization." The work is, however, so unmethodical, and, we feel bound to say, the reflections are so obvious and unconnected, that it is difficult to offer any serious criticism. The following may be taken as a specimen: "Politics, often the favourite subject for jokes, wit, and merriment in Britain, especially in London, are literally no joke in Ireland, but become revelations of hereditary hatred, class jealousy, and religious prejudice. These causes of irritation influence many Irish minds about political questions affecting their divided country." Readers of "Pickwick" will be inclined to suspect that we have here a volume of the same class as Count Smolitorok's "great work on England."

The Speaking Voice, Part II. By Mrs. Emil Behnke. (J. Curwen & Sons.)

We noticed quite recently the first part of Mrs. Behnke's valuable handbook. Part II. contains a variety of ingenious exercises for training the muscles of articulation, for pronouncing the vowels properly, and for curing other faults of pronunciation. According to Mrs. Behnke, the harsh and strident sounds that tear our own throats and afflict our pupils' ears are unnecessary. Our voices, if we will, may be as melodious as those of the singing birds. Why do we not all try, like Chaucer's Monk, "to make our English sweet upon our tongue"? The difficulty of finding teachers is, perhaps, our reason. On this point a little parenthesis or "aside" of Mrs. Behnke's is significant—"the teacher's vowels must, of course, be perfect."

The Secret of Achievement. By Orison Swett Marden. (Nelson & Sons.)

Another volume in Messrs. Nelson's "Self-Effort Series." The author's object is to stimulate the young by setting before them ideals of noble character. He sums up his method by a quotation: "The young," says Timothy Titcomb, "have been preached to, lectured to, taught, exhorted, advised. They have seldom been talked to." In a series of chatty chapters on Moral Sunshine, Honesty, Purity, Trifles, Self-Control, Tenacity of Purpose, and the like, he has massed together a great number of interesting and often amusing stories bearing on the matter in hand, and enforces them by many sage aphorisms and kindly counsels. The book is thoroughly manly and sensible. It is too interesting to be lightly laid down, and no one, young or old, who has been beguiled by its stories can fail to be stimulated by its enthusiasm for all that is noble. It is a book that boys will read, and we strongly commend it to those who have the charge of school libraries. It is illustrated by portraits of some eminent men.

"Modern Language Series." Edited by Walter Rippmann, M.A.—*Elements of Phonetics, English, French, and German.* Translated and adapted from Prof. Viëtor's "Kleine Phonetik," by Walter Rippmann. (Dent & Co.)

Mr. Rippmann has done well to add this little volume to his excellent series of modern language text-books. It is a good deal more than a mere translation, for no pains have been spared to bring together the substance of all that has been recently written by scholars on this attractive, but difficult, subject. Prof. Viëtor is not always a safe guide on English pronunciation: 'ho:ilinis does not represent "holiness," nor memeri "memory," nor a:mone "almoner." The following statement is particularly unfortunate:—"Final [e], even where it is not = er, or, &c., in uneducated speech, often takes a [r] sound: 'idea of' [aidi:er ev]. This is now sometimes heard even in educated speech." No educated person could slip in the r, except through carelessness, or a defective organ; or entirely ignore it in final er and or; or sound the a in "idea" like the o in "of."

The Grammar of Painting: or First Studies in Painting. Arranged in a Course of Brush Work for Young Students. By Helen and F. Emily Phillips. With a Preface by Katharine Phillips. Two vols. (Newmann & Co.)

The text and plates of these two volumes are alike very satisfactory, and the modest claim of the authors to have provided a manual of suggestions for young students and kindergarten teachers may be fully allowed. The succession of studies is not merely haphazard; it is in some degree historical, illustrating successive national ideas and schools of art. The directions for the student are plain, practical, and common-sense; the examples are thoroughly artistic in their treatment and production; and there is just enough upon some of the leading principles of art to instruct and interest an intelligent young painter.

Brush Drawing for Infants. By Helen Forbes. (Nelson & Sons.)

This is an unpretentious elementary course, fairly suitable for a first introduction to colour work, though some of the pictures are a little too elaborate for genuine "brush-drawing."

A Book of Beasts and Birds from Bible Lands, Verified from the Monuments, and Pictured from Life. By R. E. Holding. (Moffatt & Paige.)

If we begin by saying that Mr. Holding has many artistic qualifications for his task, and that he has caught the characteristics of most of his beasts and birds in an admirable manner, we may be allowed to add that he cannot (artistically) picture an animal from life and verify it from "the monuments." In one or two instances his drawing looks as if it had suffered by too much verification.

Twenty-four Test-Papers in Practical and Solid Geometry. By George Grace, B.Sc. (Macmillan.)

These well devised problems in what is known at South Kensington as "Science Subject 1, Elementary Stage," are carefully printed on twenty-four sheets of cartridge paper; and they are all that could be desired for a practical preparatory course.

Rhymes of Ironquill. (George Redway.)

A cheap English edition of an American book of serio-comic verse. It contains things good and bad, witty and feeble. "Scramble" rhymes with "Alhambra!"; "quarters" with "orders"; "optic" with "kaleidoscopic"—but the approximations are usually closer. Here is a fragment on the "Siege of Djkixprwb":—

"Before a Turkish town the Russians came,
And with huge cannon did bombard the same.
They got up close and rained fat bombshells down,
And blew out every vowel in the town.
And then the Turks, becoming rather sad,
Surrendered every consonant they had."

"Professor Meiklejohn's Series."—*One Hundred Short Essays in Outline.* (A. M. Holden.)

This collection of a hundred skeletons of essays, each occupying a page, is as good and serviceable as any teacher could desire for his younger classes in English composition. The subjects are partly classi-

fed and partly miscellaneous, and their subdivision is very simple and complete. The sharpest boys and girls will dash off their themes without much effort, but when they have worked through the book they will scarcely fail to write a passable essay.

Childe Harold's Pilgrimage: a Romaunt, by Lord Byron. Cantos I.-IV. Two vols. Edited, with Notes and an Introduction, by Prof. Edward E. Morris. (Macmillan.)

Byron's fervid poem, so sublime at its best, so full of little rifts and pitted specks, deserves to be formally studied, and may be relied upon to elevate the student. We would not use it indiscriminately, either for style or for edification; yet not to read it is to be ignorant of so much! Prof. Morris has done his part with the care and completeness which those who know his previous editions will expect of him.

One Hundred Stories for Composition. (Blackwood.)

This is a collection of well told anecdotes, of just the right length to read to a class and get reproduced in ten minutes. There is a tendency in such lessons for the exact words to be committed to memory, and the author has sought to obviate this difficulty by writing each anecdote twice, in slightly varied form. We do not think that this plan will go far towards counteracting the tendency to repeat the given form, and, on the other hand, it is apt to produce confusion. The anecdotes are so short that one reading ought to suffice, and the space that would be thus set free in this useful little manual might be well filled with some other variety of material for composition.

In Danger's Hour. (Cassell.)

Though evidently intended as a reader, this book might also be used for composition lessons, since it supplies a teacher with correct names, dates, and other details for stories of heroism which float vaguely in his memory, such as the wreck of the "Birkenhead," incidents in the Indian Mutiny, and so on. Many of the tales are quoted from well known writers, the style is good throughout, and the frequent illustrations would prove useful for blackboard sketches, or merely to help a teacher in his descriptions.

The Adventures of Ulysses. (Horace Marshall.)

We have here Charles Lamb's beautiful adaptation of Chapman's Homer, edited by E. E. Speight, and introduced in a scholarly manner by Sir George Birdwood. If, according to Herbart, the "Odyssey" is a perfect reading book for children, this edition will meet a felt want. The only drawback to its use in this way is the kind of illustration employed: interesting enough to those who understand ancient art, these reproductions of badly preserved friezes and drawings simply make children laugh when they ought to be impressed, and are no aid to their imagination. The frontispiece is a delightful exception—Turner's grand conception of Ulysses deriding Polyphemus.

Chaucer for Schools, with the Story of his Times and Work. By Mrs. H. R. Haweis. (Chatto & Windus.)

Mrs. Haweis was just able before her death to revise this enlarged and corrected edition of her "Chaucer for Schools." As it now stands, it is a monument to her industry and literary sympathy. As a reading-book, an introduction to Chaucer, and a first course of Early English literature, we have a high opinion of it. There are good introductions on the life and contemporaries of Chaucer, on his language and metre, and the selected passages run side by side with a graceful paraphrase.

"The New English Series." Edited by E. E. Speight, B.A.—*The Temple Reader.* By E. E. Speight. *Selections from the Poetry of Wordsworth.* With an Introduction by Dr. Edward Caird. (Horace Marshall & Son.)

Mr. Speight's capital Reader, which we noticed on its first appearance, is already in a second edition. The eighty pages of readings from Wordsworth, chiefly lyrical, to which Dr. Caird has contributed a short introduction on the poet's characteristics as a singer, are well chosen and very clearly printed. Dr. Caird, by the way, speaks of Wordsworth's "one clear harp in divers tones," referring to Tennyson's

"I hold it truth with him who sings
To one clear harp in divers tones,
That men may rise on stepping-stones
Of their dead selves to higher things."

Did Tennyson mean Wordsworth? The present writer cannot recall the passage of Wordsworth which the Master of Balliol must have in his mind. A poem of Longfellow's begins thus:

"Saint Augustine, well hast thou said
That of our vices we can frame
A ladder, if we will but tread
Beneath our feet each deed of shame."

It seems about as reasonable to speak of the "divers tones" of Augustine as of those of Wordsworth. But the idea of the ladder, or stairs, or stepping-stones, occurs in other writers, and the point as to the reference is scarcely cleared up.

"Bell's Cathedral Series." Edited by Gleeson White and Edward F. Strange.—*York.* By A. Clutton-Brock. *Gloucester.* By H. J. L. J. Massé, M.A. (Bell & Sons.)

Though precise comparison would be foolish, we are disposed to say

that there are few more interesting ecclesiastical buildings in England, from the historical point of view, than York Minster and Gloucester Cathedral, which are here adequately described and portrayed. There is no question about the extreme old age of the Christian Minster in York, which dates historically from the seventh century, though none of the existing buildings can be traced to a date before the eleventh. The late Mr. Freeman took a warm interest in the records of this Norman, Early Gothic, and Perpendicular edifice, and the two great fires of the present century, with the subsequent renovations, gave more than ordinary facility for verifying the relics of successive constructions. Mr. Clutton-Brock has given a great deal of attention to his subject, and his account of it is clear and concise. Mr. Massé has done justice to the marvellously beautiful cathedral of Gloucester, and his volume is attractive both by its illustrations and by its text.

English Versification: A Complete Practical Guide to the Whole Subject. By E. Wadham. (Longmans.)

There are good points in this little book, and we do not doubt that the student may learn a great deal from it; but he must be wary. Take page 57, for instance—"profúgus" is given as a correct Latin pronunciation. "Latin," Mr. Wadham airily says, "being a dead language, we treat it as we please; but in English nothing is more vital than accent. . . . Fancy reading: 'This is the forest primeval.' . . . But such would be only analogous." Evidently the author holds that Latin hexameters ought to be scanned with a good thump at the beginning of every foot. As for Mr. Wadham's style, here is a sentence on the same page, of which we cannot make head or tail: "The English hexameter, from its very structure, tends to the rise almost throughout, even more than crown verse; with mid-cæsure, unless, indeed, remaining slow, it unavoidably does, the last member being set so by rule, the first not having scope to be other, a quick foot in the second place being debarred, even more completely than a slow one in the sixth."

From Messrs. Gill & Sons we have some specimens of an entirely new series of "Cartographic" Wall Maps by George Gill, F.R.G.S., which challenge particular attention on more grounds than one. The size, to begin with, is eighty inches by sixty, so that, even for the largest schoolrooms, each map is almost equivalent to a piece of furniture. The drawing of the maps is excellent, being treated with great boldness, the outlines and physical features all well brought out, and the typography (a most important point) legible at a considerable distance. The colouring is marked, but nowhere too obtrusive, and on the darker blue of the ocean the place names are printed in white letters. So far as we have observed, these maps are geographically correct, up to a late stage of information or political change. In the map of Africa, for instance, the Cape to Cairo railway is duly traced, the completed and projected portions being properly distinguished. In all the maps the railway systems are plainly indicated. The series includes England and Wales, Scotland, Ireland, Europe, Africa, India, Asia, North America, and the World on Mercator's projection. Each map is mounted on linen and varnished, with wooden rollers. The "Cartographic" Wall Maps are certainly of exceptional and remarkable value, and we make no doubt that their merits will secure for them a high reputation.

Our Reprints for the month include *P's and Q's; or, the Question of Putting Upon*, and *Little Lucy's Wonderful Globe*, in one volume, by Charlotte M. Yonge (Macmillan)—a very charming illustrated book for girls; *Lyra Innocentium*, by John Keble (Methuen's "Library of Devotion")—with brief notes and introduction by Walter Lock, D.D.; *Schiller, Tasso, La Fontaine*, and *De Sévigné* (Blackwood's "Foreign Classics for English Readers"); *Poems, including "In Memoriam,"* by *Alfred Lord Tennyson* (Macmillan)—the noblest poem in the English language for sixpence: may it sell by the hundred thousand!

WE HAVE ALSO RECEIVED the following publications and new editions:—

Willing's Press Guide, 1899—the twenty-sixth annual issue of a very useful and comprehensive publication.

In the Guiana Forest: Studies of Nature in relation to the Struggles for Life, by James Rodway, F.L.S., with Introduction by Grant Allen (Fisher Unwin)—a third edition of an exceptionally interesting and well illustrated volume of physical observations.

Royal Graduated Drawing Books: Book 14, Advanced Geometrical Drawing (Nelson & Son)—the last book of an exceptionally commendable series of freehand and geometrical drawing books.

The Waverley Drawing Test Book (McDougal)—copies only for the first standards.

Semi-Vertical Copy Books (McDougal)—clear and well defined headlines; *Civil Service Copy Books* (Relfe Brothers)—mercantile headlines; *Globe Copy Books* (John Heywood).

Elementary Physics and Chemistry: First Stage (McDougal)—a very simple and suitable introduction.

Elementary Mensuration of Plane Surfaces: Stages I. and II. (McDougal)—clear demonstrations and numerous examples.

MATHEMATICS.

14121. (C. N. CAMA.)—If two parabolas touch at P, and their axes meet at O, the intersections of the focal distance to P of one with the axis of the other lie on a circle which passes through P and O. Hence, if S, S' be fixed points on fixed lines meeting at right angles in O, and two systems of parabolas be drawn having S, S' for their foci, and axes OS, OS', such that each parabola of one system touches the corresponding parabola in the other system, all the points of contact lie on a fixed circle. Generally, four parabolas of one system can be drawn to touch a given parabola of the other system. If the axes be parallel, show that the corresponding locus is a straight line.

Solution by the PROPOSER.

Let S, S' be the foci, P the point of contact, SU, S'U' the axes, T, T' the intersections of SP, S'P with the respective axes. Then $\angle SPU = \angle OOU'$, $\angle S'PU' = \angle OOU'$; therefore $\angle SPT = \angle S'OU'$; therefore O, P, T, T' are concyclic (Fig. 1).

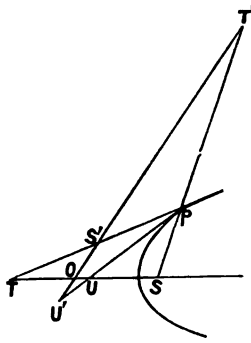


Fig. 1.

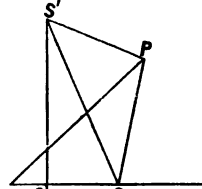


Fig. 2.

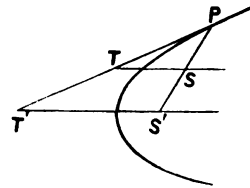


Fig. 3.

If the $\angle SOS'$ be a right angle, it follows that $\angle SPS'$ is so also; therefore P lies on a fixed circle, viz., the one with SS' as diameter (Fig. 2). Also, if the axes are parallel, it will be seen that P lies on SS', which is therefore its locus (Fig. 3).

Now, if a particular parabola with focus S be drawn, and the circle round SOS' cut it in P, it will generally cut the parabola in three other points which will therefore be the points of contact of three other parabolas of the second system.

14058. (Rev. T. MITCHELSON, B.A.)—If (h, k) be a point external to the ellipse, $a^2y^2 + b^2x^2 = a^2b^2$, and θ the angle at which a tangent from the point is inclined to the major axis, then

$$2hk = (h^2 - a^2) \tan \theta + (k^2 - b^2) \cot \theta.$$

Solution by G. BIRTWISTLE.

A line through (h, k) making an angle θ with major axis of ellipse is $(y - k) = \tan \theta (x - h)$ or $y - x \tan \theta = k - h \tan \theta$.

This touches the ellipse, $x^2/a^2 + y^2/b^2 = 1$, if

$$a^2(-\tan \theta)^2 + b^2(1)^2 = (k - h \tan \theta)^2,$$

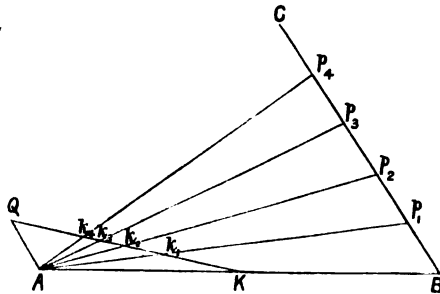
$$\text{or } (h^2 - a^2) \tan^2 \theta - 2kh \tan \theta + (k^2 - b^2) = 0,$$

$$\text{or } 2kh = (h^2 - a^2) \tan \theta + (k^2 - b^2) \cot \theta.$$

14017. (D. BIDDLE.)—In the straight line AB a point K is taken, such that

$$AK : KB = 1 : n,$$

and another straight line BC, forming any angle with AB, is divided into r equal parts by points p_1, p_2, \dots . The parallelogram ABp_1Q being completed, and the necessary joins being effected, KQ intersects Ap_1, Ap_2, \dots in k_1, k_2, \dots . Prove that



$$Ak_1 : k_1p_1 = 1 : n + 1, \quad Ak_2 : k_2p_2 = 1 : n + 2, \quad \dots,$$

$$\text{and } Ak_r : k_r p_r = 1 : n + r.$$

[Of course, parallels to BC from k_1, k_2, \dots divide AB in corresponding

ratios. But it would be interesting if the above theorem could be utilized for the summation of the reciprocals of successive numbers.]

Solution by H. W. CURJEL, M.A., and many others.

Draw $Bq_1q_2 \dots q_r$ parallel to KQ , cutting $Ap_1Ap_2 \dots Ap_r$ in q_1, q_2, \dots, q_r . Then $Ak_r : k_r q_r = 1 : n$, and $\triangle Bq_r p_r$ is similar to $\triangle Qk_r A$; therefore

$$q_r p_r = r \cdot Ak_r; \text{ therefore } Ak_r : k_r p_r = 1 : n + r.$$

[The rest in Volume.]

14067. (Professor E. LEMOINE.)—Soit M un point dont les coordonnées normales sont x, y, z par rapport à un triangle de référence ABC; AM, BM, CM coupent BC, CA, AB en A', B', C'; A_1, B_1, C_1 sont les milieux des hauteurs du triangle ABC. Trouver le lieu de M si A'A₁, B'B₁, C'C₁ sont concourantes en un point N.

Solutions (1) by the PROPOSER; (2) by R. TUCKER, M.A.

(1) Le lieu est la cubique $\Sigma yz (b^2y \cos C - c^2z \cos B) = 0$.

Remarques.—La cubique passe par les trois sommets. Elle passe par le point $1/(a \tan A), 1/(b \tan B), 1/(c \tan C)$, par l'orthocentre et par le point de NADEL $(p - a)/a, (p - b)/b, (p - c)/c$, et par ses transformés continus en A, B, C. Les points N sont respectivement le barycentre, l'orthocentre, le centre du cercle inscrit et ceux des cercles exinscrits. Le lieu des points N est la cubique $\Sigma ayz (by - cz) = 0$.

Elle coupe les côtés aux points où les coupent les droites qui joignent les sommets au point $1/(a \tan A), \dots$

(2) A_1 is $1, \cos C, \cos B$, and A' is $0, y, z$; therefore equation to A_1A' is $(z \cos C - y \cos B) a - xz + yz = 0$.

Hence locus is

$$\begin{vmatrix} z \cos C - y \cos B & -z & y \\ z & x \cos A - z \cos C & -x \\ -y & x & y \cos B - x \cos A \end{vmatrix} = 0;$$

i.e., the cubic $\Sigma a^2x^2 (y \cos B - z \cos C) = 0$.

The locus therefore passes through A, B, C, the centroid, and the orthocentre.

14014. (Professor SANJANA, M.A.)—In the triangle ABC, AD is the median from A; AE and AE' are the internal and external bisectors of the angle A. Prove that

$$AD \cos \angle DAE = \frac{1}{2} (AB + AC) \cos \frac{1}{2} A,$$

$$\text{and } AD \cos \angle DAE' = \frac{1}{2} (AB - AC) \sin \frac{1}{2} A.$$

Also apply these equalities to prove FEUERBACH'S theorem.

Solution by E. P. BARNETT, B.A.; and L. E. REAY, B.A.

In figure AN = AC, N being in BA produced: $ADA' = 2AD, A'P, Bm, pn, Cm, AE'$ perpendicular to AE, $Mm, A'a', Nn$ parallel to AE. Then BA' is equal and parallel to AC, therefore

$$Ba' = aC = pn;$$

therefore Pn is equal and parallel to AN, Pm equal and parallel to $A'B$; therefore

$$Nn = AP \text{ and } Bm = A'P,$$

or $(AB + AC) \cos \frac{1}{2} A = 2AD \cos \angle DAE$

$$\text{and } (AB - AC) \sin \frac{1}{2} A = 2AD \sin \angle DAE' = 2AD \cos \angle DAE'.$$

[FEUERBACH'S theorem, referred to in the Question, is that the nine-point circle touches the inscribed and escribed circles of a triangle; and Prof. U. C. GHOSH solves this part of the Question as follows:—In the figure given on p. 105 of CASEY'S *Sequel* (4th edition), let Σ be the centre of the nine-points circle, and draw $\Sigma N'$ parallel to ON. Then

$$ON = AN - AO = AF \cos \theta - r \operatorname{cosec} \frac{1}{2} A,$$

where $\theta = \angle FAN$, and $\Sigma N' = \frac{1}{2} FH = \frac{1}{2} R \sin (\frac{1}{2} A + B)$;

$$\text{therefore } ON - \Sigma N' = AF \cos \theta - \frac{1}{2} R \sin (\frac{1}{2} A + B) - r \operatorname{cosec} \frac{1}{2} A.$$

$$\text{And } FN = AF \sin \theta \text{ and } FN' = \frac{1}{2} FG = \frac{1}{2} R \cos (\frac{1}{2} A + B);$$

$$\text{therefore } NN' = AF \sin \theta - \frac{1}{2} R \cos (\frac{1}{2} A + B).$$

Therefore

$$\Sigma O^2 = AF^2 + \frac{1}{2} R^2 - AF \cdot R \sin (\theta + \frac{1}{2} A + B)$$

$$- 2AF \cos \theta \cdot r \operatorname{cosec} \frac{1}{2} A + r \cdot R \operatorname{cosec} \frac{1}{2} A \sin (\frac{1}{2} A + B) + r^2 \operatorname{cosec}^2 \frac{1}{2} A.$$

[The rest in Vol.]

14071. (Professor G. B. MATHEWS, F.R.S.)—Prove that the envelope of the line $\lambda \xi (\mu \eta^2 - \nu \zeta^2) x + \mu \eta (\nu \zeta^2 - \lambda \xi^2) y + \nu \zeta (\lambda \xi^2 - \mu \eta^2) z = 0$,

subject to the condition $\eta \zeta + \zeta \xi + \xi \eta = 0$,

is, in general, a curve of the third class and fourth order; and investigate the relations connecting λ, μ, ν in any exceptional cases.

Show how this analytical problem is connected with the following:—The sides BC, CA, AB of a triangle inscribed in a conic meet a fixed line

u in the points α, β, γ ; P is any point on the conic, and $Pa, Pb, P\gamma$ meet the conic again in A', B', C' . It may be proved that AA', BB', CC' meet in a point Q on u ; it is required to find the envelope of the line PQ as P moves round the conic. [A special case is the envelope of the axis of a parabola which touches three given lines.]

Solution by Rev. J. CULLEN.

If we eliminate η (say) between the equation of the given line and the condition $\eta\zeta + \xi\zeta + \eta\xi = 0$ and put $\zeta = \rho\xi$, we get

$$\rho^3L + \rho^2M + \rho N + K = 0 \dots\dots\dots (1),$$

where $L, \&c.$, are of the first degree in $x, y,$ and z . Hence, since this line is a tangent to the curve, it is clear that in general only three tangents can be drawn from any assigned point. The curve is therefore of the third class. Also, since the discriminant of a cubic is of the fourth degree in the coefficients, it is also of the fourth order. $\lambda, \mu,$ and ν are included in $L, \&c.$, so that in any exceptional case the conditions can be easily determined. Taking ABC as the triangle of reference, the circumscribing conic is $lyz + mzx + nxy = 0$; let u be $lx + my + nz = 0$ and P be $x/x' = \dots = \dots$. Then, in the ordinary manner, we find Q to be

$$xx'/l = \dots = \dots$$

Therefore the line PQ is

$$x'l(y'^2m'n - z^2mn)x + \dots + \dots = 0;$$

and putting $x' = lx, \&c.$, we see that the envelope of this line is of the same form as that of (1), differing only with regard to its constants.

13970. (C. E. HILLYER, M.A.)— F is a given point within an ellipse; CF meets the curve in P . Required to draw through F a straight line meeting the curve in Q , so that the angle between FQ and the tangent at Q is equal to that between CP and the tangent at P .

Solution by the PROPOSER.

In CF produced take E so that

$$CE \cdot CF = CA^2 + CB^2.$$

Let OK , the polar of F , meet CE in K . Take Y the image of E with respect to OK . Draw tangents YQ, YR from Y to the ellipse; then FQ, FR shall be the straight lines required.

For, if YQ meet OK in O , then QF is the polar of O .

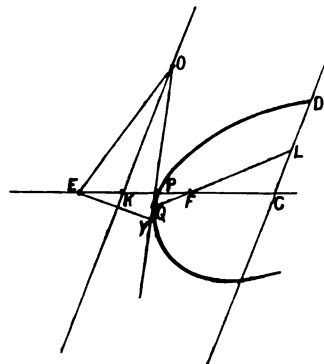
Therefore (by Quest. 13359) QF and EO are antiparallel with respect to the angle between the conjugate diameters CP, CD , i.e., if QF meet CD in L ,

$$\angle FLC = \text{OEK}.$$

But, since CL is parallel to OK ,

$$\angle FQO = \text{QOK} + \text{FLC} = \text{EOK} + \text{OEK} = \text{OKC}$$

$$= \text{angle between } CP \text{ and the tangent at } P.$$



14023. (Rev. T. ROACH, M.A.)—Point out the fallacy in the following statement:—

$$\tan^{-1} \frac{x}{1-x^2} + \tan^{-1} \frac{2x}{1-x^2} = \tan^{-1} \frac{3x(1-x^2)}{1-4x^2+x^4}$$

Now, when $x = 1$, we have

$$\tan^{-1} \infty + \tan^{-1} \infty = \tan^{-1} 0; \text{ therefore } \frac{1}{2}\pi + \frac{1}{2}\pi = 0.$$

Solution by Professor UMES CHANDRA GHOSH, M.A.; G. W. PRESTON, B.A.; and many others.

$\tan^{-1} \infty = n\pi + \frac{1}{2}\pi$ and not $\frac{1}{2}\pi$ only, and $\tan^{-1} 0 = n'\pi$ and not 0 only,

where n and n' are any integers. Hence

$$\tan^{-1} \infty + \tan^{-1} \infty = n\pi + \frac{1}{2}\pi + m\pi + \frac{1}{2}\pi = (n+m+1)\pi = \text{a multiple of } \pi = \tan^{-1} 0.$$

[Mr. BICKMORE observes that $\tan^{-1} y$ is an inverse symbol, and requires definition: "the least positive angle with tangent $y = \tan^{-1} y$." Then

$$\tan^{-1} y + \tan^{-1} z = \tan^{-1} \left\{ \frac{(y+z)/(1-yz)}{1} \right\},$$

if $\tan^{-1} y$ and $\tan^{-1} z$ be each $< \frac{1}{2}\pi$. But in the case considered each is equal to a right angle, so that their sum is two right angles. Hence the true formula is, in this case,

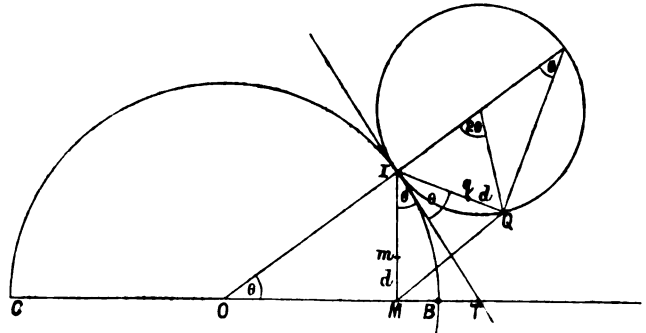
$$\tan^{-1} y + \tan^{-1} z = \pi + \tan^{-1} \left\{ \frac{(y+z)/(1-yz)}{1} \right\}.$$

13966. (R. F. DAVIS, M.A.)—If B, C are given fixed points, and the angle BPC is constant, prove geometrically that the complete envelope of the inscribed circle of the triangle PBC is the base BC , and a parallel to a two-cusped epicycloid.

Solution by the PROPOSER.

The circumcircle of the triangle PBC is fixed; and, if E is the middle point of its arc BC , then, by a well-known property, I , the incentre, lies on PE and $EI = EB = EC$.

The question therefore may be stated thus: Find the envelope of a circle whose centre moves along the circumference of a fixed circle, and



which touches a given right line (WILLIAMSON'S *Diff. Cal.*, Chap. xv., Ex. 15).

By considering the ultimate intersections of two consecutive circles of the series, the determination of the envelope is identical with the determination of a certain locus. Bearing in mind the fact that the common chord of two circles bisects common tangents and is perpendicular to the line of centres, we now require to solve the question:—If I be any point on the arc of a given circle cut off by a given chord BC , and IM perpendicular to BC , find the locus of the image of M in the tangent to the circle at I .

An examination of the particular case when BC is a diameter of the given circle easily discloses the locus required is the epicycloid formed by rolling upon the given circle a circle of half its dimensions.

When BC is no longer a diameter, but at a distance ($= d$) from the centre, the locus required is the curve formed by setting off a distance d along the normals to the epicycloid drawn internally.

14022. (B. N. CAMA, M.A.)—The pedal equation of a curve is given by $r^3 = pa^2$. In polars, this reduces to the lemniscate $r^2 = a^2 \sin 2\theta$. Can it be shown in a similar manner that the same equation may as well represent a fixed circle?

Solution by H. W. CURJEL, M.A.

The equation $a^2p = r^3$ gives $a^2u^6 = u^2 + (du/d\theta)^2$, of which $r = a$ is a singular solution. This represents the envelope of the lemniscates $r^2 = a^2 \sin(2\theta + a)$ represented by the general solution.

14045. (Professor SANJANA.)—In a triangle ABC both $AO = AI$ and $BO = BI$, where O and I are the circum- and in-centre, respectively. Determine the angles.

Solution by H. J. WOODALL, A.R.C.S.; Professor T. SAVAGE; and many others.

(1) If O and I are on the same side of AB , they must be coincident; whence we get the equilateral triangle.

(2) If O and I are on opposite sides, then $\angle OAB = \angle BAI = \angle IAC$.

But OAC is an isosceles triangle, and is similar in all respects to OBC . Therefore the three angles BAC, ACB, CBA are as $2 : 6 : 2$, and hence they are $36^\circ, 108^\circ, 36^\circ$, respectively.

[The PROPOSER remarks:—

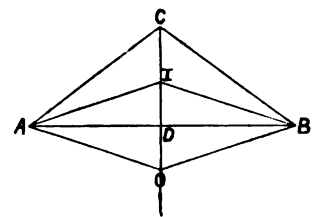
As $AIBO$ is a rhombus, $IO = 2ID = 2r$;

thus $R^2 - 2Rr = 4r^2$;

whence $R = r(\sqrt{5} + 1)$,

i.e., $r/R = \sin IAD = 1/(\sqrt{5} + 1) = \frac{1}{2}(\sqrt{5} - 1)$.

Hence $IAD = 18^\circ$.]



QUESTIONS FOR SOLUTION.

14164. (Professor ELLIOTT, F.R.S.)—If a, b are positive moduli, and $\alpha - \beta$ lies between 0 and 2π , and if $f(x)$ is a function of the complex variable $x = re^{i\theta}$ which approaches definite limits $f(0)$ and $f(\infty)$ as x becomes infinitely small and infinitely great within the sector from $\theta = \beta$ to $\theta = \alpha$, and is holomorphic within and on the bounding lines of the sector except for simple poles at c_1, c_2, \dots, c_n within the sector, prove the FRULLANIAN formula

$$\int_0^\infty \frac{f(ae^{i\alpha}x) - f(be^{i\beta}x)}{x} dx = \{f(\infty) - f(0)\} \left\{ \log \frac{a}{b} + i(\alpha - \beta) \right\} - 2\pi i \sum_{r=1}^n \left[(x - c_r) \frac{f(x)}{x} \right]_{x=c_r}$$

the variable x being real.

14165. (Professor CROFTON, F.R.S.)—If $8n+1$ is prime, prove that n^3-2^n is divisible by $8n+1$, if n is even. Also n^3+2^n is divisible by $8n+1$, if n is odd.

14166. (Professor G. B. MATHEWS, F.R.S.)—Prove the following theorems with respect to the Diophantine equation $xy(x+y) = z^n$, where n is a given positive integer:—(1) If $n = 3m$, there is no solution. (2) If $n = 3m+1$ or $3m+2$, there is a unique solution in which $x/y = a/b$, any given rational fraction in its lowest terms, and where the G.C.M. of x and y involves no perfect n th power. (3) If this solution be denoted by (ξ, η, ζ) , the general solution is $(\lambda^n\xi, \lambda^n\eta, \lambda^n\zeta)$, where λ is any positive integer. (4) The general solution of $xy(x+y) = x^5$, for which $x/y = 16/11$, is $x = 689904\lambda^5$, $y = 474368\lambda^5$, $z = 13068\lambda^5$.

14167. (Professor NEUBERG.)—Soient A_1, B_1, C_1, \dots les mineurs du déterminant

$$H = \begin{vmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{vmatrix}.$$

Démontrer que $(B_1C_2A_3 - B_2C_3A_1) = H(b_1c_2a_3 - b_2c_3a_1)$.

14168. (The late Professor WOLSTENHOLME, D.Sc.)—Given a quadric ($u = 0$) and two fixed points O, O' , S, S' denote the plane sections of u by the polar planes of O, O' ; prove that, if any straight line through O meet the quadric in points P, P' , the two cones whose vertices are P, P' and base the plane section S' will intersect in a second plane section whose locus is the quadric ($v = 0$) containing S, S' , and such that O is the pole of S' , and O' the pole of S . So also, if QQ' be any chord of u passing through O' , the locus of the second plane of intersection of the cones whose vertices are Q, Q' and base S is the same quadric.

14169. (Professor COCHEZ.)—Etudier la courbe $(2x+3y)^2(x-y) + x + y = 0$.

14170. (Professor SANJANA, M.A.)—Let Q be the orthocentre of the pedal triangle of ABC ; let S, K, T be the circum-, cosine-, and TAYLOR-centres of ABC . Prove that S, K, T, Q are collinear; that T bisects SQ , and that K divides it in the ratio $1 : 1 + 2 \cos A \cos B \cos C$.

14171. (Professor UMES CHANDRA GHOSH.)—Putting $a = 0$ in the well-known formulæ

$$\int_0^{\infty} e^{-ax} \cos rx \, dx = \frac{a}{a^2+r^2} \quad \text{and} \quad \int_0^{\infty} e^{-ax} \sin rx \, dx = \frac{r}{a^2+r^2}$$

we get $\int_0^{\infty} \cos rx \, dx = 0$ and $\int_0^{\infty} \sin rx \, dx = 0$;

that is, $\sin \infty = 0$ and $\cos \infty = 0$; and, differentiating CAUCHY'S integral

$$\int_0^{\infty} \frac{\tan ax}{x} \, dx = \frac{1}{2}\pi$$

with respect to a , we get $\tan \infty = 0$. Are there any other ways by which we can arrive at the same results?

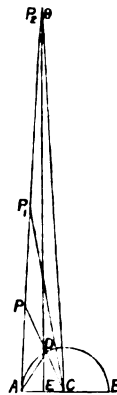
14172. (Professor THOMAS SAVAGE.)— ABC is an isosceles triangle; DE , a parallel to BC , intersects AB, AC in D, E respectively. If DE, DB, EC are all equal, show that BC is not one of the equal sides of the triangle.

14173. (D. BIDDLE.)—The sides of a triangle being given, $a > b > c$, draw a line parallel to one of them, such that the quadrilateral formed shall have the maximum area possible in proportion to its perimeter, and find both area and perimeter.

14174. (Rev. Dr. FLEETH.)— AB is the diameter, and AC , the half of AB , is the radius of the generating circle ADC . Assume any chord AD . Join CD , producing it to F , so that AD is equal to DP . Hence P is a point in a major trisectrix. Join AP , producing the line to AP_1 , so that CP is equal to PP_1 . Join CP_1 . Thus P_1 is a point in a supertrisectrix major. Produce AP_1 to P_2 , so that CP_1 is equal to P_1P_2 . Join CP_2 . Hence P_2 is a point in a bisupertrisectrix major. Bisect AC in R , and join P_2E . Let the angle $AP_2C = \theta$, $AC = r$, $CP_2 = R$, and $AP_2 = R'$. Then

$$R = r \frac{\sin 12\theta}{\sin \theta} \quad \text{and} \quad R' = r \frac{\sin 13\theta}{\sin \theta}.$$

Show that (1) in the isosceles position AP_2C is an isosceles triangle having each base angle the dodecuple of the vertical angle AP_2C ; (2) regarding the angle P_2AC , the curve is a dodecasetrix; (3) adopting the angle P_2CB , the curve is a tridecasetrix; (4) on AC in the isosceles position by means of the isosceles triangle AP_2C a regular icospentagon is describable; (5) trace the curve; (6) find its area, tangent, and rectangular coordinates. [Note by PROPOSER.—It is not intended at present to continue these regular polygons and polygonal curves, unless a demand should appear for them. One purpose of the PROPOSER, however, has been accomplished, namely, to indicate that by either trisectrix an isosceles triangle of 20° is obtainable; also, an angle of 21° being geometrically constructible, by subtraction an angle of 1° results. This, being trisected, gives $20'$, which,



bisected, $10'$, and quinsected by either quinsectrix, $12'$, from which, $10'$ being subtracted, there is a remainder of $2'$, or, bisected, of $1'$. Finally, trisecting an angle of $1'$, there results an angle of $20''$, which, bisected, becomes $10''$, and, quinsecting an angle of $1'$, we have $12''$, from which, $10''$ being deducted, there will remain an angle of $2''$, which, bisected, becomes $1''$. So that, by means of the PROPOSER'S polygonal curves, angles of $1^\circ, 1',$ and $1''$ can be described.

14175. (R. TUCKER, M.A.)—The normal at P , on a parabola, meets the directrix at Q . Show that QS meets (1) the tangent at P , (2) the diameter through P , (3) the polar of Q , in three cubic curves.

14176. (R. F. DAVIS, M.A.)— $ABCD$ is a concyclic quadrilateral, and E, F, G are the intersections $(AB, DC), (AD, BC),$ and (AC, BD) respectively. Show that the focus escribed to $ABCD$ is the foot of the perpendicular from G on EF .

14177. (B. N. CAMA, M.A.)—Prove that the locus of the intersection of tangents, including a given angle β , to the spiral $r = a^{\theta} \cot^{\alpha}$ is the copolar spiral

$$\frac{r \sin \psi}{\sin \alpha} = a^{\theta + \psi - \alpha} \cot \alpha,$$

where ψ is given by

$$\cot \psi = \frac{k - \cos \beta}{\sin \beta},$$

and ak is the vectorial distance of a point on the original curve whose vectorial angle is β . Show also that the locus touches the circle round the triangle formed by the tangents and the chord of contact.

14178. (Rev. W. ALLEN WHITWORTH, M.A.)—Establish the following rule to determine whether a given number be an ace, deuce, threec, or quart; that is, whether it be the sum of 1, 2, 3, or 4 integral squares. Cast out all square factors and examine the residual quotient. If this be unity, the number is an ace. If it be of the form $8N + 7$, the number is a quart. If it be of the form $4N + 1$ or $2(4N + 1)$, the number is a threec or a deuce, according as $4N + 1$ does or does not contain a prime factor of the form $4n - 1$. If it be of any other form, the number is a threec. For example,

- 1992 = $22^2 + 22^2 + 32^2$,
- 1993 = $12^2 + 43^2$,
- 1994 = $25^2 + 37^2$,
- 1995 = $23^2 + 25^2 + 29^2$,
- 1996 = $14^2 + 30^2 + 30^2$,
- 1997 = $29^2 + 34^2$,
- 1998 = $3^2 + 30^2 + 33^2$,
- 1999 = $2^2 + 23^2 + 25^2 + 29^2$.

14179. (G. H. HARDY.)—Find a root of $x^3 + 3x(\beta - 1/\beta)^3 = 4$. If A, B, C denote the quantities $8/(1+3x^2), \frac{1}{3} \{x(3+x^2)\}, \frac{1}{3} \{(4-x^2)/3x\}$, then, if $A = B$, each is $\pm \sqrt{\{ \pm \sqrt{1+C} \pm \sqrt{C} \}}$. Fix the signs when x is real and positive.

14180. (W. C. STANNAM, B.A.)—If O is a fixed point, and PQ is any chord of a conic drawn through one of its foci (S), and if OP, OQ meet the conic again at P' and Q' , $P'Q'$ passes through a fixed point (Z), and, conversely, if $P'Q'$ is any chord through Z , and if OP', OQ' meet the conic again at P and Q , PQ passes through S .

14181. (H. MACCOLL, B.A.)—Let A and B be two events which are not mutually independent. Show that, if the dependence of A upon B is equal to the dependence of B upon A , then the chance of A happening is equal to the chance of B happening. Definitions.—The fractional symbol a/β (when a and β are statements) denotes the chance that a is true on the assumption that β is true; the symbol a/ϵ denotes simply the chance that a is true, nothing being taken for granted but the data of the problem. The symbol $\delta a/\beta$ denotes $a/\beta - a/\epsilon$, and is called the dependence of a upon β , or of the event A , asserted by a , upon the event B , asserted by β .

14182. (Rev. J. CULLEN.)—A triangle $A'B'C'$ is obtained by revolving a given triangle ABC on a point A in its plane through an angle θ ; $A''B''C''$ is similarly obtained by revolving ABC on A' , the isogonal conjugate of A in an opposite direction $(-\theta)$. Prove that (1) the six intersections of the homologous sides of $A'B'C'$ and $A''B''C''$ with those of ABC lie on a circle C_6 . (2) As θ varies the locus of the centre of C_6 is the perpendicular to AA' through its mid-point. (3) The envelope of C_6 is the inscribed conic whose foci are A and A' . (4) If A lies on the circum-circle of ABC , C_6 becomes a right line whose envelope is a parabola.

14183. (R. KNOWLES, B.A.)— $ABCDEF$ is a pentagon inscribed in a conic; the lines joining the poles of AB, BC, CD, DE, AE to the points D, E, A, B, C respectively meet the curve in A', B', C', D', E' ; prove that the five lines joining the pole of $A'B'$ to $D', \&c.$, are concurrent.

14184. (J. J. BARNIVILLE, B.A.)—Prove that

$$\frac{1}{2^3 + 3^3 - 1} + \frac{2}{5^3 + 1} + \frac{3}{8^3 - 2} + \frac{6}{13^3 + 3} + \dots = 17/90,$$

$$\frac{1}{2 \cdot 3} + \frac{7}{5 \cdot 8} + \frac{57}{13 \cdot 21} + \frac{285}{34 \cdot 55} + \dots = 1,$$

$$\frac{7}{3 \cdot 5} + \frac{31}{8 \cdot 13} + \frac{183}{21 \cdot 34} + \frac{835}{55 \cdot 89} + \dots = \frac{3}{2}.$$

14185. (REV. T. MITCHESON, B.A.)—If R is the point of intersection of the normals drawn from the ends of semi-conjugate diameters of an ellipse, show that the distance of R from the centre is

$$x_1 y_1 a^{-3} b^{-3} (a^2 - b^2) \{ b^2 (bx_1 - ay_1)^2 + a^2 (bx_1 + ay_1)^2 \}^{\frac{1}{2}},$$

(x_1, y_1) being the extremity of one of the diameters.

14186. (LT.-COL. ALLAN CUNNINGHAM, R.E.)—Show that the sum of the cubes of any number (> 2) of integers in arithmetical progression may always be resolved into three factors.

14187. (ROBERT W. D. CHRISTIE.)—Let n and N be any integers whatever; then three factors of N are:—

$$(1) n, \quad (2) [N + \{(n^2 - N)/2n\}^2] \pm (n^2 - N)/2n,$$

and, if $(n^2 - N)/2n$ is integral, all the factors are.

14188. (SALUTATION.)—Bisect AB (= unity) in C , and AC in D ; on AB describe a semicircle; from A, D draw parallel lines intersecting the semicircle in P, Q respectively; S, T being the projections of P on AB , and of S on DQ , prove that $4ST$ is the sine of an angle = $3PAB$.

14189. (V. DANIEL.)— XY is the line $x \cos \alpha + y \sin \alpha = p$, referred to rectangular axes through O . If a point move along the zigzag line $OPP_1P_2P_3 \dots$ (which is such that OP is perpendicular to XY , PP_1 to YO , and, generally, P_nP_{n+1} perpendicular to $P_{n-1}P_n$), it will ultimately arrive at a point S . Similarly, if it move along $OPp_1p_2p_3 \dots$, it will ultimately arrive at a point S' . Prove (1) S and S' are the foci of an ellipse inscribed in the triangle YOX , and its major axis is

$$p/\sqrt{(1 + \cos^2 \alpha \sin^2 \alpha)}.$$

(2) OX, OY subtend right angles at S and S' respectively, and hence that three pairs of triangles are similar, namely, $OSX, OS'Y$; $OSY, XS'Y$; $OS'X, XS'Y$. (3) If SS' produced intersect the axes in T and T' , $OS^3 \cdot OT' = OS'^3 \cdot OT$. (4) When YOX is isosceles, the ellipse has eccentricity = $1/\sqrt{5}$.

14190. (C. E. HILLYER, M.A.)—If P be a point on the circumcircle of ABC , whose orthocentre is H , and a, b, c be the orthocentre of the triangle PBC , b of the triangle PCA , and c of the triangle PAB ; prove (1) that B, a, H, C are concyclic; (2) that the SIMSON-line of P with respect to the triangle ABC is also the SIMSON-line of a with respect to the triangle HBC , and of b with respect to HCA , and of c with respect to HAB ; (3) that this line bisects Aa, Bb, Cc , and PH .

14191. (PROFESSOR H. LANGHORNE ORCHARD, M.A., B.Sc.)—Find the roots of the quadratic equation

$$8x^2 - 2(n^4 + 2n^3 + 3n^2 + 2n)x + n^6 + 3n^5 + 3n^4 + n^3 = 0,$$

and exhibit each as a series.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to

D. BIDDLE, Esq., Charlton Lodge, Kingston-on-Thames.

NOTICE.—Vol. LXIX. of the "Mathematical Reprint" is now ready, and may be had of the Publisher, FRANCIS HODGSON, 89 Farringdon Street, E.C. Price, to Subscribers, 5s.; to Non-Subscribers, 6s. 6d.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, March 9, 1899.—Lt.-Col. Cunningham, R.E., V.P., in the Chair. Fifteen members present.

The following gentlemen were elected members:—Prof. L. E. Dickson, University of California; Prof. A. C. Dixon, Queen's College, Galway; and Mr. H. Hilton, B.A., Fellow of Magdalen College, Oxford.

Mr. J. G. Leatham, M.A., was admitted into the Society. Dr. J. Larmor, F.R.S., made a few remarks on the phenomenon of Zeeman and its bearing on the problem of the origin of spectra. Dr. Hobson, F.R.S., and Mr. R. Hargreaves, M.A. spoke on the subject of the communication.

Dr. Macaulay gave an account of a note by Mr. G. B. Mathews, F.R.S., on "Involution."

The following papers were given in abstract:—

"Note on the Expansion of $\tan(\sin \theta) - \sin(\tan \theta)$ in powers of θ ," by Mr. R. H. Pinkerton, M.A.

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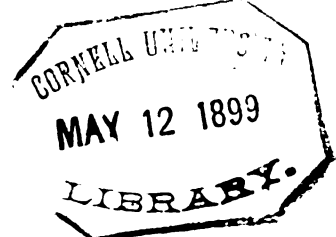
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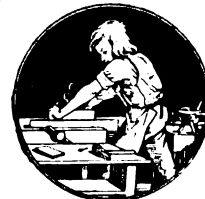
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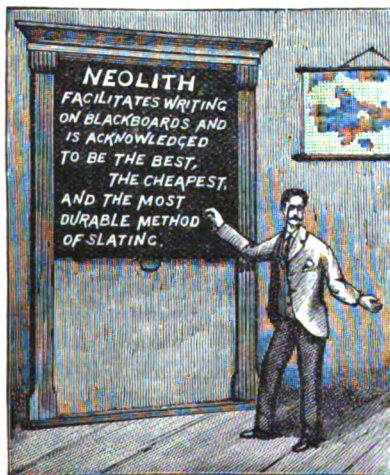
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The Educational Times.

Red Tape and Inspection.

It would be a nice question to determine the origin of that constitutional infirmity in an Englishman's character which makes him a prey to red-tapeism. That its bacillus has acclimatized itself in his very life-blood is only too apparent to any one having dealings with a Government Department. We, however, are not specially concerned with its operations, except in so far as it affects the interests of education, and we commend the etiology of red-tapeism to philosophic educationists as a subject well worth inquiry. Indeed, the disease is so deep rooted and general that most people have become blind to its existence. A small town in Cumberland cannot make a reservoir to satisfy its notions of cleanliness without an inquiry conducted by the Local Government Board. The fishermen of the Dovey may not vary the size of the mesh of their salmon nets without a similar inquiry held by some official unearthed from the Board of Trade. Through every Government Department the vice is spread. We refrain from giving an instance from the working of the existing Education Department, as we have no desire to cool the growing enthusiasm for the proposals of the Government contained in the new Education Bill. We hope that Kipling is a false prophet when he says:

As it was in the beginning
Is to-day official sinning,
And shall be evermore.

Indeed, it was not so in early days, as witness the old Patent Rolls, when an English King would give a simple warrant to an officer, commanding him, it may be, to take prisoners from Chester to York Castle, and authorizing him to claim safe conduct, with all necessary maintenance, from the King's Sheriffs by the way. All details were left to his discretion, and, if things went wrong, doubtless he suffered. It is true that times are changed and life is more complex; but surely it is worth some pains to endeavour to regain the grand opportunities for the development of force of character and independence which the elasticity of primitive government provided. At any rate, let us jealously guard the small area left for individual initiative.

To know what are the chances that the new Board of Education has of escaping from infection by red-tapeism is a matter of some interest. This depends on the Bill, and we may frankly say that it was the elastic character of the new Education Bill that served to commend it to us from the first. By

Section 3 (1) it is provided that "the Board of Education may, by their officers or by any University or organization approved in that behalf by the Board, after taking the advice of the Consultative Committee hereinafter mentioned, inspect any school supplying secondary education and desiring to be so inspected, for the purpose of ascertaining the character of the teaching in the school and the nature of the provisions made for the teaching and health of the scholars." Now, every schoolmaster will admit that from the standpoint of pure educational influence this is one of the most important sections in the whole Bill. Whatever effect the measure may have on the future of education in this country will depend in the main upon the manner in which this section as to inspection—which, of course, includes examination—is worked. With the exception of those carried on under schemes framed under the Endowed Schools Acts, no school can be compelled to submit itself for inspection. If, therefore, the Board of Education desires to see inspection general—as it doubtless will in the interests of its own success—schools will be able to obtain the benefit of inspection under the conditions most suitable for their own special needs. The frank way in which, in introducing the Bill, the Lord President admitted the desirability of maintaining the optional character of the inspection, shows an unlooked-for and hopeful diffidence in the head of a Government Department as to the advantage of departmental interference. It is in this section especially that the germ of red-tapeism resides. If it should become too rampant, the *status quo* can be regained by any school—other than the excepted class above mentioned—desiring independence by simply not offering itself for inspection. Nevertheless, it is important to understand the pitfalls which exist within Section 3.

It is not clear, on the wording of this section, whether it is implied that the Consultative Committee has the right to give advice only as to what particular Universities or institutions should be the inspecting bodies, or whether the Committee's advice may extend to giving counsel with respect to the subjects as well as mode of inspection. The former construction seems the grammatical one, and therefore, as Acts of Parliament know no punctuation, the legal one. But, if so, it confines the action of the Consultative Committee within absurd limits in this respect, and the hand of the Government Department will be subject to no control in the very sphere where red-tapeism is most fatal to healthy development. The Duke of Devonshire's speech, indeed, would make us think that the second construction is what the framers of the Bill intend to express. The wording of this section must be made free

from ambiguity when the Bill reaches Committee. If the Consultative Committee is to become an effective Privy Council in educational matters, as we hope it may, its advice must be sought in all questions relating to inspection and curriculum.

The importance of this lies in the fact that, left to itself, the Board, through its permanent staff, would almost inevitably develop a rigid and formal system. Such a system is useless as a test of real efficiency, and cramping and sterilizing in its effect upon the curriculum of schools and the originality of teachers. The influence of the existing local examinations in determining the course of instruction in ordinary secondary schools is, we think, under-estimated. In their multitude and variety, however, there is safety. It is to be hoped that the example of the Central Board under the Welsh Intermediate Education Act will not be followed, and that every means will be adopted to prevent the new Board from creating itself into a central examining body. This can only be obviated by a strong Consultative Committee with full advisory jurisdiction. There seems to be no reason why a distinction should be drawn in the matter of inspection between schools working under schemes framed under the Endowed Schools Acts, now under the jurisdiction of the Charity Commissioners, and the other secondary schools of the country. It would appear from the Bill that the right to control the inspection of such schools, when transferred from the Charity Commissioners, would pass to the Board without being affected by the provisions of Section 3, which only applies to schools desiring to be inspected. Schools under the Charity Commissioners are already subject to inspection, at the will of the Commissioners, under the terms of their schemes, and are not in a position to express a free desire. These are matters of substance, but in no way hostile to the spirit of the Duke of Devonshire's speeches on the first and second readings of the Bill; and we think there ought to be no difficulty in getting them put outside controversy when the Bill is in Committee.

NOTES.

THE House of Lords has read the Board of Education Bill a second time, after a sufficiently interesting discussion. The Duke of Devonshire (who began the month by nearly soliloquizing himself out of public life) admitted once more the incomplete and tentative character of the Bill, and repeated his reasons for thinking that a Central Authority ought to be created in advance of the Local Authorities. He regretted that the Archbishop of Canterbury had introduced the religious question, seeing that there is nothing in the Bill which proposes to change the present administration of endowments in respect of religious instruction. Of course the Duke knew that this was not the precise point with the Archbishop and the two Convocations. They desire, not simply to keep the administration as it is, but to make a step in advance, and secure a greater provision of religious instruction. It is their duty to desire that, just as it is the duty of the State to secure equal treatment, respect for conscience, and education unobstructed by controversies. As for the general scope and policy of the Bill, the Archbishop had nothing but what was good to say of it.

THE BISHOP OF WINCHESTER expressed an opinion which agrees precisely with that of the majority of schoolmasters, and with that which has been often stated in these columns. He said that it was a most perilous thing to deal with secondary organization at all, but that it was a peril which had to be faced, and which could not be faced wisely without moving slowly. And he added that, if this particular measure was not heroic, it was at least practical. With respect to the Consultative Committee, the Duke of Devonshire postponed any detailed explanation until the next stage of the Bill. Nevertheless, he made a somewhat important statement. The Government do not propose that the Consultative Committee shall have any statutory character: "its functions are to be such as the Minister on his responsibility may entrust to it, and upon him will rest the responsibility for its action." Theoretically, that is right enough. The presumption is that, when you have a responsible Minister, you can make him do what you want. But the practice is often different from the presumption. At all events, the responsible Minister ought to be in the House of Commons, where representative men can get at him.

WELSH education has lost a sympathetic friend in the person of Mr. T. E. Ellis, M.P., who was Warden of the Guild of Graduates of the University. The late Mr. Ellis did much, on the political side especially, to bring the University itself, and notably the Guild of Graduates, into existence. Owing to the exigencies of the case, Wales tends to attach great prominence to men who aid the cause of education on the political side, and in Mr. Ellis it was fortunate in having a man who, by his education at Aberystwyth and at New College, Oxford, as well as by his experience for some time as a private tutor, had some practical acquaintance with educational difficulties. His successor as the representative of Merionethshire, Mr. O. M. Edwards, M.A., Fellow and Tutor of Lincoln College, Oxford, though in many respects a very different man from the late Mr. Ellis, has had a much more brilliant academic career than any of the other Welsh members of Parliament, and, indeed, than most men in the House of Commons. If he proves equally capable as an administrator and a man of affairs, he may well hope to achieve further distinction.

WHATEVER decision may be finally reached as to the proper capacities, faculties, and qualities of the sexes, he will be a bold man who will deny that Woman possesses a high degree of courage. The approaching International Congress of Women affords an excellent illustration. "International" is a large word, and men who have conducted international congresses on any single subject, such as labour, arbitration, temperance, have been known to faint and grow weary by the way. But Woman's International Congress will embrace not only one great theme, but five sections—to wit: Educational, Professional, Legislative and Industrial, Political, and Social. Educationists rarely find a common ground for a conference; they split into secondary (headmasters, headmistresses, &c.), elementary (Board, voluntary), technical education, and so on. We are far from saying that this is the only way to confer, although, perhaps, a conference on education in general might have proved what is vulgarly called "a large order." The second, the professional section of our International seems an even larger one, for

medicine, art, science, the drama, music, literature, journalism, agriculture, nursing, women as inspectors, clerical work, horticulture, handicrafts, are all drawn out before our rolling eyes. We can only say: "*Tout, tout est là,*" and wish the promoters a happy issue out of this great synthetic effort.

To those interested in education, and especially in co-education, a recent article in the *Spectator*, entitled "Women and Science," must have proved of more than common interest. Mrs. Ayrton's paper, before the Institute of Electrical Engineers, on "The Hissing of the Electric Arc," causes the writer of the article to observe that he understands the admiration the lecture elicited better than the surprise. He asks: "Why any surprise? The whole educational history of the last thirty years shows that women have a distinct proclivity towards science and mathematics, finding them less exhausting and easier than either history or classics." The writer then goes on to say that women, so far from being incapable of studying the exact sciences, have a natural capacity for comprehending them; that women draw deductions with singular rapidity and accuracy, leaping to conclusions which have caused acute observers to credit them with a special faculty of insight, differing not only in degree, but in kind, from that of men; that the feminine interest in details should make women acute observers, and that their thought runs best on concrete and not on abstract bases—"they think along a groove, so to speak, better than men." The feminine defect is, according to this writer, not lack of the power of rigid thinking, but deficiency of imagination and creative force. "They take everything too hard." A Laplace or a Lord Kelvin will appear more readily among women than a Paul of Tarsus or a Shakespeare. But we hardly agree with our contemporary's statement that there is not a Board school in the country where inspectors do not find that girls beat boys as arithmeticians. We rather think that the contrary is the experience, not because of the inferior ability of girls, but because they spend less time on the subject, in order to make room for sewing and cookery. It is at least certain that our stock notions of the relative capacities of the sexes need clearance or rearrangement.

Is it possible that the old-fashioned notion of girls being more deft and neat-fingered than boys will ere long disappear? It was expected—not unreasonably—that much practising at the piano and sewing of samplers and garments had made the girls specially deft. As in past days very few persons taught both sexes, and they were often themselves not acute observers, the statement passed without question. But now, at polytechnics, technical schools, and chemical laboratories, men who have been trained to observe and compare tell us that girls are far more awkward than boys in dealing with delicate chemical and scientific apparatus; they break and throw out of order; measure carelessly and inaccurately; and are easily beaten in delicacy of manipulation by boys. Who could have expected it? We suggested to the Doctor of Science who made the comparison that perhaps his girl pupils were "new" girls, who did not sew. But it was found that they devoted three hours weekly to the subject; and, besides, similar evidence is now coming from other quarters. Probably some measure of the boys' superiority will be traceable to better muscular development by

means of games. It would be interesting to learn the opinions of other natural-science professors who have opportunities for comparison.

An important principle in University administration is involved in the "strike" of Russian students which is now going on. It is calculated that twenty thousand students are implicated, representing all the higher educational institutions in St. Petersburg, four in Moscow, two in Kharkov, three in Kiev, and one in Odessa. Very briefly stated, the disturbance arose in this way. The Rector of St. Petersburg University, who had made himself unpopular among the undergraduates, was hissed at the official celebration of the University anniversary on February 20. That day is usually marked by celebrations in honour of the University by students and officials alike. This year, rather less than a week beforehand, the Rector issued notices forbidding any students to take any part in gatherings of their own under penalty of punishments *laid down in the General Penal Code and imposed by the Justices of the Peace*. That is to say, the Rector deliberately associated himself with the police by calling in their help in the matter of University discipline. This is a serious step, since the jurisdiction of the Rector does not extend beyond the limits of the University, and the general police measures do not apply within those limits. Hence the hissing.

WHAT happened next was this: Most of the undergraduates left the University at about one o'clock by the back doors; but the minority, who belonged to the well-to-do classes, left by the front doors, and found the ice by which they should have crossed the river cut, and the Palace Bridge held by a detachment of mounted police. Other people joined the students, making a crowd of about five hundred people. These, without any show of violence, turned quietly to another bridge, when they were set on by the police and brutally assaulted with heavy Cossack whips. This lasted for nearly an hour. Many of the students and four of the professors were seriously injured, and one woman student and one peasant have since died of their injuries. Every one confesses that the students behaved with remarkable self-control, and refrained from retaliation. It is not claimed that they were in league with any political agitators outside, and the action of the police has for once raised an almost universal indignation in the Russian Press and among the general public. Next day large indignation meetings were held by the undergraduates, and it was resolved to discontinue all attendance at lectures until satisfactory assurance was given to the students that they should enjoy personal security and freedom from such injustice in the future. Similar resolutions were arrived at by the students of the other Russian Universities mentioned above, and the issue of this widespread disaffection is being awaited with much interest. The Czar has expressed his sympathy with the movement in favour of greater freedom for the Russian students, and has admitted that it will be a bad day for Russia when her students submit silently to horsewhipping. Meanwhile, the whole affair is being investigated, and the conduct of the police is to be carefully judged. It is sincerely to be hoped that the Russian students will have justice done to them, and that this incident may lead to greater freedom in the future.

THE last report of the Swanley Horticultural College shows that there is again an increase in the number of women adopting gardening as a profession; and it shows, further, that their prospects are distinctly bright. It is a pleasure to know of a calling in which the demand is still greater than the supply, which seems to be the case here. Skilled women of scientific training are desired both for public institutions and for private houses. At the present time, there are thirty-three women students at the College. The training course lasts for two years and costs £70 a year, which secures board and residence in a separate house near the College, with a lady superintendent at the head. Scholarships are given by the County Councils of Essex, Kent, London, and Berkshire. Among other appointments of former students the following may be mentioned. One girl is a sub-foreman at Kew; another is head-gardener in a private establishment, with several men under her; and a third is at Miss Dove's School, Wycombe Abbey, where she superintends a number of men, and teaches the girls to manage the geraniums and artichokes which they grow on their little garden plots. Altogether, thirty-eight past students are earning their living in private or public gardens. The curriculum at the College includes scientific lectures, the growing of fruit, flowers, and vegetables, management of beehives, making of bouquets, decoration of tables. Though most of the students are English, there are several Scottish girls at the College and a few Irish, whilst one comes from Holland and another from Sweden.

SUMMARY.

THE MONTH.

THE Board of Education Bill was read a second time in the House of Lords on April 25. We comment upon the discussion in our Notes for the month. The Duke of Devonshire, replying to certain criticisms, said:

He assumed that the alleged inadequacy of the Bill consisted in the fact that it did not propose to deal in any way with the constitution of the Local Authorities. The Government had attempted to deal with it in the Education Bill of 1896, but he could not say that that proposal received any very enthusiastic support. As he pointed out when he introduced the Bill, the Government had thought it would not be wise to deal with Local Authorities before they had constituted the new Central Authority. But he saw no insurmountable reason why a measure dealing with the Local Authorities should not be introduced next Session. As to the inspection of schools, he on the first reading had guarded himself against the erroneous assumption which had got abroad as to the nature of the complete and systematic inspection of all secondary schools, public, endowed, proprietary, and private, which might desire inspection. There were eight hundred public schools, and not less than five thousand private and proprietary schools. For anything like an adequate inspection, even of the eight hundred public schools, a large and highly paid staff would be required, and for financial reasons the Government thought it was not likely for some time that such a staff would be placed at the disposal of the Education Board. But there were provisions in the Bill by which in the future the Central Authority might devise a scheme which would inspire general confidence, and induce Parliament to supply the funds necessary for a complete and systematic inspection of all secondary schools. Of course, in the case of instruction which was aided by the State, inspection was an absolute necessity.

THE Secretary of the London University Commission, Mr. T. Bailey Saunders, informs us that the Commissioners are prepared to consider applications from duly qualified teachers and lecturers giving instruction of a University type in public educational institutions situate within a radius of thirty miles from the University buildings, who desire to be recognized as teachers of the University. By a "public educational institution" the Commissioners understand to be meant an institution for general education, or for any special kind of education, which is not carried on for private gain or profit. Applications, stating the applicants' qualifications, should be addressed to him, at the

office of the Commission, 32 Abingdon Street, Westminster, S.W., on or before Saturday, May 13, 1899. It will be convenient if teachers and lecturers in physics, chemistry, or other subjects the effective instruction in which requires laboratories and expensive apparatus would state what resources of that character they have at their disposal. Teachers or lecturers on whose behalf applications have already been made by their colleges or schools need not repeat them.

UNDER the final scheme of the Charity Commissioners for the future management of Dean Colet's foundation a school for girls will be established, which will be controlled by a governing body of thirteen members, to be nominated as follows, viz., seven by the governing body of St. Paul's School, two by the London County Council, two by the School Board for London, and two by the general body of the girls' school. Three of the governors are to be women. The school is to be erected on a site within or in the immediate neighbourhood of the administrative county of London, and accommodation is to be provided for about four hundred girls. The headmistress is to receive a yearly stipend of £200, with a capitation grant of not less than £2, and not more than £3, a year. Exhibitions of the value of £500 are to be established, and, in addition, scholarships, entitling the holders to exemption from the payment of tuition fees, are to be maintained at the rate of one scholarship for every ten pupils. As far as St. Paul's School is concerned the scheme practically follows the lines of the one under which the school has been conducted of late years. The provisions with reference to the girls' school are, of course, new.

THE Committee appointed by Her Majesty's Treasury—familiarly known in scientific circles as "Lord Rayleigh's Committee"—to consider the desirability of founding a National Physical Laboratory had been invited to formulate a scheme of organization and administration. The matter has proceeded so far that Government will now ask Parliament for a grant of £4,000, to be continued for five years, and, as well, to make provision for a sum of about £12,000 for the erection of suitable buildings and laboratory equipment. Discussion of the question showed that it would not be feasible to establish an institution of so extensive a character as the well known Berlin Reichsanstalt, but a middle course was suggested which met with approval. It is intended to enlarge and adapt the existing Kew Observatory, situated in the Old Deer Park at Richmond, to some of the needs of the scheme, and, further, to erect new buildings on Crown land in the vicinity of the Observatory, these to form laboratories for research. While the initial expense of building and furnishing must of course be heavy, the taxpayer will probably not grumble at this serious attempt to stem the tide of foreign competition. It may be expected that makers of delicate scientific apparatus will in future send them to Kew to be adequately tested, instead of to Germany.

At a meeting of the Liverpool City Council, in the first week of April, the Lord Mayor submitted the following resolutions, passed at a conference of representatives of educational authorities in Liverpool, held on March 6. The resolutions were referred to the Technical Instruction Committee:—

(1) That it is desirable to appoint an advisory or consultative Committee, to consider the question of the correlation of the various educational bodies in the city, and the steps which may be taken for the promotion of an effective system of secondary education. (2) That it be respectfully recommended to the City Council to reorganize the Technical Instruction Committee, so that it shall include representatives nominated by the School Board, University College, and the secondary schools, in the following proportion:—a majority by the City Council, one-third by the School Board, and the remainder to be co-opted by those already chosen, and that such body consist of thirty-one members, and be the Committee appointed for these purposes. (3) That the Technical Instruction Committee, constituted as in the preceding resolution, apply to the Science and Art Department for recognition under Clause VII. of their "Directory" as an organization for the promotion of secondary education.

All the great towns seem to be agreed on these general lines of organization.

On April 5 the Aberdeen School Board had Mr. Bryce all to themselves for the purpose of a conference on various educational subjects. Dealing with the question of the secondary authorities under future legislation, Mr. Bryce said:

The English question was very different from the Scotch question

In England the School Boards dealt only with elementary education, whereas in Scotland the whole field of education was within their province in the burghs. In England, therefore, the problem presented itself in a different form. The Royal Commission on Secondary Education, over which he had the honour to preside, recommended a compromise so far as England was concerned. They said there were two or three authorities concerned in education. There was the County or Borough Council, which had control of the money under the Act of 1890; there were also the School Boards; and the Commission proposed a system in which there should be an authority to control secondary education in England composed of three equal parts, one part elected by the Burgh Council, which had control of the money; another part elected by the School Board, and the third part chosen by the other two, giving representation to persons of educational experience. He should like to guard himself against expressing a positive opinion as to what would be the best solution for the case of Scotland, because something must depend upon what they could pass, and how it would be found possible to deal with those who had the funds now in their hands, and who might consider they had a claim to the fund under their disposition—he should like to consider how these bodies might be dealt with. As he had said, he thought the claim of the School Boards in Scotland was decidedly stronger than those in England, and he thought, as a matter of principle, School Boards ought to be the principal authorities on secondary education in Scotland.

At the meeting at Bristol University College on April 13, presided over by the Bishop of Hereford, the following resolutions were passed:—

(1) This meeting being of opinion that the memory of Edward Colston should be perpetuated, not only by political or other societies, whose chief object is the giving of annuities and doles, but also by promoting the cause of higher education in the city, it is hereby resolved that such a society be formed, bearing the title, "University College Colston Society," and having for its object the endowment of Colston Chairs in connexion with University College, Bristol, or assisting University College, Bristol, in such other manner as the Committee of the Society may approve. (2) That the Committee consist in the first instance of the Council of Bristol University College, with power to add to their number, and that one-third of the Committee retire annually; that this Committee appoint a treasurer and an hon. secretary, who shall also be members of the Committee; that annually a president be elected, whose duty it shall be to preside at a dinner (which this year shall be held on November 21) and to collect subscriptions.

THE London County Council has delegated to its Technical Education Board such new powers and duties as it has acquired by receiving recognition under Clause VII. of the "Directory of the Department of Science and Art" (page 498). The Board is communicating with the various schools and institutions which are in receipt of grants both from the Board and from the Department, with a view to making the necessary arrangements for carrying out the provisions of Clause VII. The new Board recently appointed consists of twenty representatives from the London County Council, three from the London School Board, two representing the City Parochial Charities Foundation, three appointed by the City and Guilds of London Institute, three from the London Trades Council, and one each from the Incorporated Association of Headmasters and the National Union of Teachers. There are in addition two co-opted members. The Board has decided to introduce some important changes into the regulations for intermediate county scholarships, and the alterations will take effect in the examination to be held in June, 1900.

THE *City Press* learns, on excellent authority, that some good result is likely to attend the action taken by the Corporation in connexion with the allegation that the School Board for London has been illegally spending the ratepayers' money upon secondary education. The School Board has been directed to prepare a statement of its case in order that the matter may be thoroughly sifted by the authorities. It is almost impossible, our contemporary says, for even the most enthusiastic supporters of the Board to contend that education is being kept within limits, and consequently not a little difficulty will be experienced in returning a definite answer to the question put. "Not only has the Board been instructed to reply to the contention of the Corporation, but we hear that the Committee of Council on Education have given directions for the members to prepare a statement showing what part of the expenditure falls within what can be regarded as elementary education, and what has been incurred on the teaching of subjects of a more advanced standard."

THE Secretary of Truro College writes to say that, "as there appeared to be some uncertainty as to the position of our middle-class schools in relation to eligibility for aid from the technical education funds," he asked the Secretary of the Cornwall County Council Committee to be good enough to procure definite information on the point, and the following reply was received from the Department of Science and Art:—

In reply to your inquiry, I am directed to inform you that no minute has been issued relative to aid being given out of technical education funds to secondary schools carried on for profit with dividends restricted to 5 per cent. per annum, and that it appears to this Department that such aid would be contrary to Section 1 (1) (f) of the Technical Instruction Act, 1889. The Department understands that, if, instead of share capital, debentures limited to 4½ per cent. were raised, the school would be held by the Local Government Board auditors as eligible for aid under the Technical Instruction Act. In this connexion your attention is drawn to the opinion given in the fortieth annual report of the Department, page 54, section 6.

THE new Principal of St. John's Hall, Highbury, is the son of Mr. W. T. Greenup, A.C.P., of Mount House School, Ryde. He has made a special study of the Semitic languages, and is one of the Examiners for the Cambridge Theological Tripos. The *Record* says:—

Mr. Greenup comes to his new work with academic distinctions of the highest order. He was Hebrew Exhibitioner, Foundation Scholar, and Hughes History Exhibitioner of St. John's College, Cambridge. He won the Carus University Greek Testament Prize, the Hebrew Prize, and first Jerome Septuagint Prize. He was Naden Divinity Student of St. John's College, and Tyrwhitt Hebrew Scholar. He took his B.A. (Part I. Theological Tripos) in 1889, and in the following year he took a First Class in Part II. of the Theological Tripos, distinguishing himself in Old Testament (Hebrew and Septuagint). He proceeded to his M.A. in 1893, and in the following year he took an *ad eundem* M.A. degree at Dublin. In 1893 he became a member of the Royal Asiatic Society, and in 1894 of the Asiatic Institute of Paris. Ordained deacon in 1890 and priest in 1891, he held his first curacy at St. Matthew's, Cambridge, proceeding in 1893 to a curacy at Culford, Suffolk. In the same year he became chaplain to the Earl of Cadogan. In 1897 he was presented by his college to the living of Alburgh, Harleston, Norfolk. He is the author and editor of "Short Commentary on Lamentations" (1893); "The Targum on Lamentations," translated into English, with Notes, 1893; "The Commentary of Rabbi Tobia ben Elieser on Eschah" (edited for the first time, with Introduction and Notes), 1896. As a younger man, Mr. Greenup worked under clergy of assured Evangelical sympathies in Cambridge, and in his present parish he has been taking up the cause of the C.M.S. and the Bible Society.

WE regret to record the death of Sir Monier Monier-Williams, K.C.I.E., Boden Professor of Sanscrit in the University of Oxford, which took place at Cannes from pneumonia supervening on influenza. He was born at Bombay in 1819, his father having been an officer in the Royal Engineers, who was Surveyor-General of the Bombay Presidency. His twin brother was killed in a border war in India when he was twenty years of age. He was educated at King's College, Haileybury, and Balliol College, Oxford, of which he was a Fellow, and in 1843 was elected Boden Sanscrit Scholar at Oxford. His linguistic powers were marvellous, and alike at Cheltenham and Haileybury his teaching was the talk of the day. He founded an Indian Institute at Oxford, the foundation stone of which was laid in 1883 by the Prince of Wales. His journeys in India to secure fresh support for the Institute, his membership of most of the Oriental societies of Europe and India, his great Sanscrit English Dictionary, his edition of the Sanscrit drama of the "Lost Ring," all testified to his interest in the one subject to which he devoted his life.

MR. ALMARIC RUMSEY, Professor of Indian Jurisprudence at King's College, London, and formerly assistant-solicitor to Her Majesty's Customs, died on Saturday, at his residence, at Balham, in the seventy-fourth year of his age. He was educated at Rugby and Oxford, and was called to the Bar at Lincoln's Inn, practising as an equity draftsman and conveyancer. From 1868 to 1875 he was assistant-solicitor to Her Majesty's Customs, being retired on the reorganization of his department in 1875. In 1880, on the establishment of the Chair of Indian Jurisprudence at King's College, London, he was appointed the first Professor, and has ever since occupied the position. Prof. Rumsey was well known in the literary world as a reviewer in various periodicals and journals, and in the legal as author of several standard works.

In a circular issued to associations under the Voluntary Schools Act recently, Sir George Kekewich expressed the satisfaction of the Education Department at the numerous reports testifying to the improved appearance and equipment of the schools which have resulted from the aid grant. "My Lords" have also been glad to notice the good work that has been accomplished by some associations in making better provision for the training of pupil-teachers and the promotion of centres for cookery and manual instruction. They believe, too, that association has widened and quickened the interest in voluntary schools. On the other hand, they have noticed, with regret, that in some districts (urban more commonly than rural) voluntary subscriptions have shown a marked tendency to decline.

OUR Welsh correspondent writes:—The Annual Collegiate Meeting of the Guild of Graduates of the University of Wales was held this year at Bangor. The news of the death of the Warden (Mr. T. E. Ellis, M.P.) arrived during the morning meeting. The chair was occupied by Prof. Anwyl, M.A. A paper on "Geoffrey of Monmouth" was read by Prof. W. Lewis Jones, M.A., and another, on "Technical Instruction in Schools," was forwarded by Mr. W. Lewis, B.A., Headmaster of Llanelly. Both papers were followed by interesting discussions, in which Prof. J. E. Lloyd, Principal Reichel, Prof. D. M. Lewis, M.A., and others, took part. Owing to the death of the Warden, it was decided to postpone the afternoon meeting for the election of officers to another date.—On April 17 the Old Students' Association held a reception in the College Library. The new President, in place of the late Mr. Ellis, is Mr. D. E. Jones, B.Sc., one of the Inspectors for the Science and Art Department, South Kensington. Mr. Jones is an old student of the College, who took the degree of B.Sc. in the University of London with First Class Honours. He was subsequently Professor of Physics at Aberystwyth, and has acted as Clerk to the Guild of Graduates with marked success.—The Annual Extra-Collegiate Meeting of the Court of the University was held at the Guildhall, Swansea, on April 21. Votes of sympathy were passed with the families of Lord Herschell, one of the honorary graduates of the University, and the late Warden of the Guild of Graduates. The business was mainly academic.—The Court of Governors at Bangor has passed a resolution, already foreshadowed some time ago in these notes, petitioning the University Court to put into force the clause of the Charter which states that theology may be made a subject for the Degree of the University in Arts, notwithstanding the fact that the constituent colleges cannot, by their charters, teach theology. Provision is made in the Charter that, in the event of theology being recognized as a subject for the degree of B.A., one year of the qualifying period of residence at a constituent college may be compensated for by a term of residence of two years at an approved theological college. This petition will probably raise points which will have a profound influence upon the future of the University.—The Executive Committee of the Central Welsh Board for Intermediate Education met at Shrewsbury on April 13 and 14. Another meeting was held at Welshpool on April 28.—A meeting of the Central Welsh Board for Intermediate Education was held at the Council Chamber, the Town Hall, Welshpool, on April 28. The financial report of the Executive Committee was presented, and also the regulations for the annual examinations of 1900, including the regulations for the award of certificates. The new regulations (in accordance with the view recently expressed in your columns) that such would probably be the case, lay special stress upon the importance of making such subjects as history, translation, and the like, means of teaching the children of the Welsh county schools to express themselves in clear and idiomatic English. The regulations state that, throughout the examination, special importance will be attached to handwriting, orthography, and composition. It is the aim of the Central Welsh Board to make the county schools into genuine educational centres in the fullest sense, and not places for the acquisition merely of crude and undigested knowledge. It is the policy of the Board to lay more and more stress upon the ethical and the æsthetic, as well as the intellectual, sides of school life.

UNIVERSITIES.

THE readers of this journal will probably have seen London. the public announcements of the appointment of the Earl of Kimberley to the Chancellorship of the University. The appointment was, according to usage, notified by

the Premier to the Vice-Chancellor, and was announced by him to the Senate on April 19. In this instance there is a reversion to the older practice of appointing a great noble who has held high political office—the numerous posts occupied by Lord Kimberley having mostly been of the very greatest importance or dignity next to the Premiership. Lord Kimberley was appointed a Fellow by the Crown as far back as January, 1859, and his warrant of appointment bore the same date as that of Mr. Osler, who was the first Fellow appointed, under the revised Charter of 1858, on the nomination of Convocation, and who is still a Fellow. The elevation of Lord Kimberley leaves a vacancy in the body of the Senate which will have to be filled up by a Crown appointment.

Another vacancy in the Senate has been caused by the lamented death of Sir William Roberts, M.D., F.R.S., whose serious illness was reported last month. Sir William was comparatively young as a Fellow, having only been appointed (by the Crown) in April, 1892, and the appointment of his successor will also devolve upon the Crown. Sir William was recently appointed representative of the Senate upon the General Medical Council, in succession to Sir Samuel Wilks.

It is rumoured that the Inns of Court, after standing silently aloof from the long-continued movement for reforming the University, are now inclined to join in under the Cowper scheme, as modified by the University Act and the Statutory Commission. It is highly desirable that they should do so, and should thus place themselves at the head of the Laws Faculty. The University examinations in Laws as at present organized are but an indifferent success; partly because they give no professional privileges, whereas the M.B. degree gives an independent licence to practise medicine; and partly because the regulations, which still stand pretty nearly as when last revised (1865), do not meet present requirements. The Senate and Convocation, indeed, had rival schemes of revision before them for two or three years, and a draft of the final form of the regulations was laid before the Senate in January of this year; but it was resolved to reserve them "for the consideration of the authorities of the reorganized University." One detail, however, was adopted, and is of importance to intending candidates—the series of examinations will be held, for the last time, in January (as at present) in 1901; thenceforward they will begin on the third Monday in October, beginning with October, 1901, so that two series of examinations will be held in that year.

THE LAW AND THE SCHOOLMASTER.

IV.

THE confidence placed in the English schoolmaster by the general consent of the community is well illustrated by the fact that in the whole extent of legislation dealing with education—Endowed Schools, Elementary, and Welsh Intermediate Acts—Parliament has not thought it necessary to legislate with reference to the punishment or expulsion of pupils. The law as to this is simply that contained in the common law of the country as declared by judicial decisions. Consequently, the judges, with the recollection of the Orbilian system of punishment prevalent in their schooldays, do not, as yet, incline to rose-water discipline. Clear principles defining the right and limitations of punishment have, however, been established.

The right of a schoolmaster to punish a pupil is derived from the parental authority delegated to him by the parent. By this delegated authority, the schoolmaster, as already explained, is placed *in loco parentis*, unless it is expressly limited. As the law justifies a parent in inflicting corporal punishment on his child, when he honestly considers such correction necessary, it similarly justifies a schoolmaster. The right is not limited to corporal punishment, but extends to detention and restraint, and any other reasonable means. Therefore, unless qualified by special contract, the master has the power of judging when and to what extent a punishment is required. The general law is thus declared in the judgment of Mr. Justice Field in *Hutt v. Governors of Haileybury College*—a case decided in 1888.

So much, indeed, is self-evident from the mere statement of the measure of the master's authority. It is the application of the law to particular facts which is often difficult; but, as long as a reasonable discretion is exercised, after taking the offence and the pupil's age and power of endurance into consideration, the law will not interfere.

For the purpose of drawing attention to an important declaration of the law as to excessive punishment, I must refer to the extremely painful case of *Reg. v. Hopley*, tried in 1860 before

Chief Justice Cockburn. In this case Hopley, a schoolmaster, was indicted for manslaughter. He had written to the father of his pupil—admittedly an obstinate boy—complaining of his obstinacy, and stating that, if the boy were one of his own, he would work a cure by severe thrashing. The father wrote back approving of the suggested treatment; whereupon, as the evidence showed, Hopley caned the boy one night with a thick stick for nearly two hours, and again after the boy had been taken to bed. The poor lad was found dead in the morning. It was clear, from the marks on the body, that he had been the victim of fiendish cruelty, which was the immediate cause of his death. The jury found a verdict of manslaughter, and Hopley was sentenced to four years' penal servitude. In his summing up to the jury, Chief Justice Cockburn thus stated the law: "By the law of England a parent, or a schoolmaster, who for this purpose has the parental authority delegated to him, may, for the purpose of correcting the evil in the child, inflict moderate and reasonable punishment; always, however, with this condition, that it is moderate and reasonable. If administered for the gratification of passion, or of rage, or if immoderate and excessive in its nature and degree, or if it be protracted beyond the child's powers of endurance, or with an instrument unfitted for the purpose, and calculated to produce danger to life or limb, in all such cases the punishment is excessive, the violence unlawful, and, if death ensues, it will be manslaughter." Indeed, the law might be put even higher: it would be manslaughter at the very least, and, if the punishment was inflicted merely for the gratification of passion, regardless of any consequences, the offence would be murder. The law does not prescribe either the instrument or the method of punishment, although in the case of *Gardner v. Bygrave*, in the year 1889, the magistrate fined a schoolmaster for caning a boy on the hand, because he thought that caning on the hand, however inflicted, was necessarily attended by risks of serious injury. However, on appeal to the High Court, Justices Mathew and Wills quashed the conviction, saying, in their judgment, that, as no injury had in fact been caused, the punishment was properly inflicted, and that there was nothing in the law of England which made caning on the hand illegal.

In addition to the right which a schoolmaster has to punish a boy for what are strictly school offences, it is well to note that this right extends to cases of misconduct on the way to or from school, as was decided by the case of *Cleary v. Booth*, in the year 1893.

In considering the law as to expulsion, the principle of delegation has no application. The right to expel a boy—whatever it may be—is the right to put an end to the *contract* entered into between the schoolmaster and parent, and governed, therefore, by the ordinary law of contract. Now, it is an implied term of every contract that one party should not make its performance by the other impossible. For this purpose the pupil is identified with his parent, and consequently impliedly undertakes to be of good behaviour. A contract, however, may not be put an end to at pleasure, but only for good cause. So that a schoolmaster must always be prepared to show the existence of a reasonable cause for the exercise of his right of expulsion. A less discretion is given to masters in respect of this right than in that of punishment, as the consequences are more serious to the boy (*Hutt v. Governors of Haileybury College*). The law is much the same as that of master and servant in this respect, and it is well to understand that, if there be good cause known to the schoolmaster, the dismissal is justifiable, though the cause relied on is not that which has been alleged at the time.

A curious and interesting case, in which the law as to expulsion is clearly stated, is that of *Fitzgerald v. Northcote*, tried before Chief Justice Cockburn, in the year 1865. It was most strenuously fought, and has the distinction of having engaged the services of Sir William Harcourt, Lord Russell, the present, and Lord Coleridge, the late, Lord Chief Justice, as counsel. Fitzgerald, the son of an Irish judge, was a lay student at an English Roman Catholic college, where there were also clerical students. For some reason, which was thought to be the social difference between the two classes, much ill-feeling was shown by the lay towards the clerical students. This culminated in the formation of a secret society, of which Fitzgerald was the promoter, known as the "A. B. C." (Anti-Bunker Confederation) for the purpose of obtaining and circulating information as to the antecedents of the clerical students, who were known as "bunkers" by their polite fellows. A note-book, containing the collected information, was forcibly taken out of Fitzgerald's possession when confined to a room as the principal offender, and he was expelled.

The action was not brought by the father for wrongful expulsion, but by the boy (suing, of course, by his father) for assault and imprisonment, and he actually obtained a verdict for £5 damages from the jury. The case, although nominally brought for assault and imprisonment, practically resolved itself into a question of whether expulsion could be justified, as the Chief Justice ruled that it was proper, under the circumstances, to take the note-book forcibly in order to obtain light on a matter connected with the welfare of the college. To understand the result, however, it must be observed that, at the trial, the defendants, the college principals, based their defence on the ground of the existence of a secret society *injurious to the interests of the college*.

Although, if proved, that would be a good defence, the jury negatived its existence; by which they must have meant that the society, which undoubtedly existed, was not seriously injurious, and that other means than expulsion might have been used to maintain discipline. In this case there was clearly a long course of breaches of discipline on the part of the boy, other than his connexion with the secret society, which would have justified his expulsion if made on that ground; but, by the manner in which the case was conducted, such a defence was waived, and it became necessary, in order to make the defence relied upon effective, not only to prove the existence of the secret society, but also its injurious influence.

In summing up to the jury, the law as to expulsion was stated by Chief Justice Cockburn to the following effect:—"The power of expulsion is not a discretionary power, but only when reasonable cause can be shown. In judging of the cause, however, great regard must be had to the schoolmaster's necessary discretion as to the enforcement of discipline. The wilful breaches of its reasonable rules may be sufficient cause, and the repetition of acts of disobedience—each, in itself, separately insufficient—may be sufficient as showing a persistent disregard of discipline and a habit of disobedience."

The above statement doubtless lacks definiteness; but the effect is that either a serious, deliberate breach, or a continued course of minor breaches, of discipline would justify expulsion, and that, provided a schoolmaster uses his discretion honestly, in the interests of the general discipline of his school, considerable latitude will be allowed him in its exercise.

ARTHUR E. HUGHES.

THE GROWTH OF THE CHILD-MIND.

At the Members' Evening Meeting of the College of Preceptors on April 19, the Chair having been taken by Mr. James Wilson, Professor Woods Hutchinson, M.A., M.D., delivered a lecture on "The Growth of the Child-Mind."

Dr. HUTCHINSON said that any attempt to make education natural and rational must be based upon a knowledge of the child-mind. The great service of Pestalozzi and Froebel was an attempt to make formal education harmonize with the instinctive or natural method. Their instinct and intentions were most admirable, and their results immensely beneficial; but their knowledge of the actual nature and growth-tendencies of the child was defective, as might have been expected in an age when there was no rational physiology, and a scientific psychology had not even been dreamed of. And their successors and disciples have improved upon their original defects in a remarkable way. At last it became obvious that a painstaking study of the child himself was absolutely necessary to furnish a basis, and the now famous "Child-Study" movement sprang up. If the child could no longer be regarded as simply a fractional part or smaller copy of an adult, some other parallel or standard for his course of growth was needed. This had been supplied in the "Culture Epochs" theory, by the growth of the mind of the race. The theory had a wide and distinguished parentage: Goethe, Rousseau, Herbert Spencer, and Herbart, all having suggested it independently. The Herbartians, Ziller and Rein, were however the only ones who had attempted to give it a practical application by constructing a scheme of school-work based upon it. Ziller divided the child's development into eight epochs, each corresponding to a stage of civilization. The central subjects for the successive years of the curriculum are: (1) Fairy Tales, (2) "Robinson Crusoe," (3) The Patriarchs, (4) Judges in Israel, (5) Kings in Israel, (6) Life of Christ, (7) History of the Apostles, (8) History of the Reformation. Each of these occupies one school year, from the sixth to the fourteenth. Arbitrary, and in some respects

irrational, as the arrangement obviously was, chiefly valuable as an ingenious working plan, it had decided advantages. It met the interests of the child, it provided an orderly and rational succession of subjects of study, and it found an abundant supply of ready-made material in each grade. As, however, the problem had never been worked out from the point of view of the anthropologist, the lecturer a few years ago began an attempt to follow it out along this line—first, by a year's course of lectures to teachers upon anthropology, and then organizing ten or twelve of those teachers into a *Seminar* for the study of the corresponding history of the child-mind. Although little more than a beginning was made in the two years of two meetings a week, yet some interesting results were reached. The conclusion was irresistible that there was a sound physical basis for the alleged parallel, although no hard-and-fast lines could be drawn between the successive stages. After careful deliberation, it was decided to adopt the different methods of food-getting as the basis for division into stages, as least open to objections and most uniform in its results. The stages passed through upon this basis appeared to be five:—

1. Root and Grubs Stage	Birth to 5 years	Height, 3rd year
2. Hunting and Capture Stage	4-12 years	" 7th "
3. Pastoral Stage.....	9-14 "	" 10th "
4. Agricultural Stage	12-16 "	" 12th "
5. Shop and Commercial Stage	14-40 "	" 18-20th "

The stages are by no means mutually exclusive; indeed, they might be best compared to a series of ascending steps, each of which rests upon the broader basis of all those below it. As to the existence of a "root and grubs" stage of the child's existence, in which the chief criterion for everything is his mouth, and his sole classification of the universe into "nice" and "nasty," no argument was needed. They had all seen it and laughed at it scores of times. The hunting and capture stage was equally clearly marked. Stealthy methods and stalking come first, then open chase and direct attack. The first group was well-illustrated by the child's first and favourite game, "Bo-Peep," which preserved the joys of the approach, the ambush, the surprise. The curious persistence of fear of strangers, a fear which had absolutely no basis in experience, and the roundabout "stalking" methods of approach to them, was also most characteristic. Then came the sub-stage of pursuit and attack, illustrated by such games as "Hide-and-Seek," "Blackman," "Prisoner's Base," and the mimic sieges, assaults, and wars. The formation of local "gangs," with recognized territory, formal signals, and "war-whoops" was also suggestive. The curious indifference to pain, merging often into positive cruelty, so distressingly noticeable in children of this age, was another savage survival, apparently a necessary by-product of their normal development. Give them heroes of the "fightingest" kind, who are also men of honour, truth, and gentleness, and they would soon outgrow it, but don't dose them with the lives of the saints. The pastoral stage—characterized by fondness for pets, fondness sufficient to spur him to feed them regularly, desire to have "something of his own," to build huts and houses, and dig caves—was less striking but equally real. Then the agricultural—marked by a passion for gardens, for adding bed to untidy bed, and acquiring landed property generally, with its restraint in the matter of digging up seeds to see if they're growing, of waiting for a crop, developing foresight, of watching the weather-signs. Finally, the commercial stage—the age of "swapping" and selling and "trading," of bulging pockets, of demanding pay for services. Here was the first real recognition of the value and "sense" of arithmetic. If the sacred multiplication-table were reserved till this stage, it would be keenly enjoyed instead of hated as a "grind," and mastered in no time. As to the use of these successive stages as a basis for a course of study, another series of *Seminars*, with experienced teachers, would be necessary, but it gave promise of highest value.

The Rev. J. O. BEVAN considered that one specially valuable feature of the lecture was that the method had been set before them in a scientific manner, while at the same time the lecturer had avoided the use of technical terms. He gathered from the lecture that there were three stages in the development of the child's mind—the development of observation, of judgment, and of will. In the earliest stage the child would have to consider such things as form and colour; but the lecturer had reminded them that judgment was the product of a later stage, and the effort of will to determine between right and wrong, good and evil, would come last. What the lecturer had said as to the

state of religious feeling in Germany somewhat surprised him. His own experience during a recent visit to Germany was that considerable numbers of men attended the religious services, and took a great interest in them. He could not follow what the lecturer said as to the disposition of the child with reference to the infliction of pain. It was well known that boys were indifferent to the pain they inflicted upon lower animals, and also upon their fellows; but such an attitude of mind ought not to be allowed to remain without correction. It seemed to him that this indifference was due to lack of experience on the part of the child, and it was the teacher's duty to make the child understand the nature of pain in order that he might know that what was hurtful to himself was equally hurtful to others.

Mr. MORANT observed that, if the various stages which had been described by the lecturer were essential to the true development of the child's mind, it was obvious that the life of children in large towns must be extremely artificial. The series of stages submitted by the lecturer was a distinct improvement on that of Ziller. In the latter the several stages were mutually exclusive, but in the lecturer's series every stage, instead of being supposed to vanish after its period of predominance was passed, was recognized as continuing through the life of the child, although not in so prominent a degree. This series was more in accordance with known fact, and consequently offered a more rational basis for the grading of studies. The value of the lecturer's views for every teacher must depend to a large extent upon individual notions of right and wrong. That the natural appetites were only expressions of normal phases of the child's development could not be reconciled with the doctrine that these appetites ought to be fought against and suppressed. With regard to the question of cruelty, experience showed that children who had suffered pain were not on that account less willing to inflict it, as readiness to inflict pain resulted, not from ignorance of its operation, but from absolute indifference to the feelings of others.

Miss FINDLAY gave an interesting account of a plan somewhat similar to the lecturer's, which had been tried with much success in Chicago. The plan was based on the struggle for life, and aimed at making the child as far as possible dependent upon his own exertions.

Mr. ORCHARD thought that the lecturer had succeeded in making interesting a somewhat hackneyed subject. There was much ingenuity in the five stages arrangement. Unfortunately, that arrangement did not seem correct. In the cases of some children, it might be difficult to discover, for instance, a "hunting stage." The lecturer had, he thought, been misled by a false analogy. Carpenter had refuted the notion of parallelism between the development of the race and that of the individual. Evolution was an imaginary theory; it was not science, and was opposed to the facts of nature, which must not be confounded with the speculations of certain naturalists. The lecturer had referred to the "primeval savage"; but it had been shown conclusively that the earliest men were very far removed from savages, and Niebuhr had pointed out that no example could be brought forward of an actually savage people having independently become civilized. A remark had been made to the effect that the polytheistic form of religion preceded the monotheistic. Recent investigations by Sayce, Pinches, and others, proved that the contrary was the fact; polytheism being always a corruption of pre-existing monotheism. He protested against the idea that the four or five years old object of experiment was nothing but a thing of "roots and grubs." The little child knew the law of love and the difference between right and wrong, and should be taught the saving truths of Christianity as soon as he could apprehend the meaning of the terms expressing them. With regard to cruelty in a child, the cause was sometimes thoughtlessness, sometimes selfishness. The sin should be pointed out from the first, and be followed by judicial, and judicious, correction. He cordially concurred with the lecturer as to the child having certain growth-tendencies of his own, the teacher's proper aim being to fit the education to the child, not the child to the education.

The CHAIRMAN expressed a hope that the lecturer would on some future occasion have an opportunity of giving them his views as to the appropriate studies for each stage. He had elucidated in an interesting manner a point of view which was not familiar to English teachers. If it were assumed that the mental development of the child corresponded with the mental development of the race, then he did not see why a beginning should be made at the comparatively late period which was identified with the hunting or pastoral stage. Nor would it be sufficient to go back to the earlier time when man's progenitors were hairy animals of arboreal habits. But it would undoubtedly increase the teacher's difficulty very greatly to have to provide for those additional stages. In dealing with this subject there was some danger of creating an imaginary child for the sake of argument, just as political economists created an economic man for the purpose of explaining their theories. He thought it was a mistake for teachers to allow themselves to be fettered by the theories enunciated by men of past and unscientific times, however able these might be. Rather should they consider the facts of life as they bore on the present, and construct for themselves methods which should be in accordance with the principles that underlay all successful education.

Dr. HUTCHINSON having replied to the remarks of the various speakers, a vote of thanks to the lecturer concluded the proceedings.

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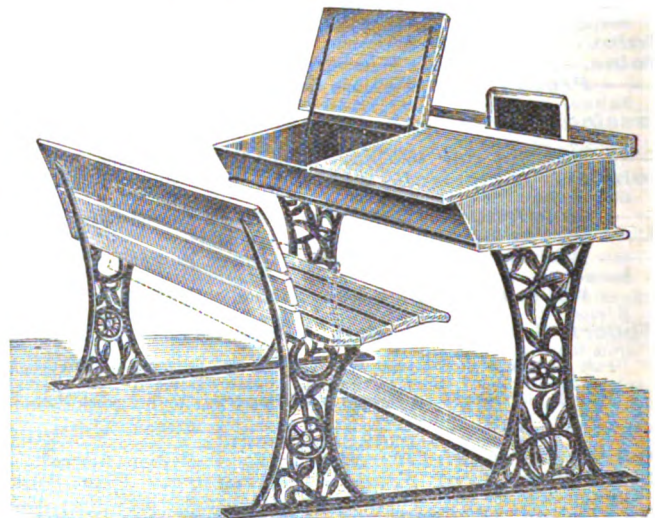
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FORECASTS AND COMMENTS.

May 1, 1899.

• PROFESSOR SILVANUS THOMPSON will give two Fixtures. Tyndall Lectures at the Royal Institution on May 2 and 9, his subject being "Electric Eddy Currents."

* * *

ON May 6 Sir John Lubbock will preside at the annual gathering at the Mansion House of students of the London Society for the Extension of University Teaching. Dr. Hill, Vice-Chancellor of Cambridge University, will deliver an address. On the same day the Bishop of Stepney will take the chair at the annual meeting of the London Society for the Teaching of the Blind.

* * *

ON May 10 the Bishop of London will lay the foundation stone of the new school and institute on Sir John Cass's foundation.

* * *

THE Parents' National Educational Union will hold its third annual conference at the Portman Rooms on May 9 to 12. The Secretary, Miss Blogg, of 28 Victoria Street, S.W., will be happy to supply further information.

* * *

EIGHT free scholarships at the Training School for Teachers of Domestic Economy at the Battersea Polytechnic are offered for competition in July by the Technical Education Board of the London County Council. The names of candidates must be sent to the Secretary of the Board (marked Domestic Economy Department) not later than Saturday May 6, on forms which will be obtainable on application at the Board's offices. The Board will require evidence that the candidates are not in a position to provide their own training without such aid as the scholarships are intended to afford.

* * *

TWO courses of five lectures each are being given under the auspices of the University Extension Society, at Gresham College, E.C., and the Tuesday lectures, on "The Napoleonic Epoch," are delivered by Mr. E. L. S. Horsburgh, who will deal, among other subjects, with Napoleon's Russian campaign, his fall, and escape from Elba, the whole course finishing with Waterloo, the lectures being specially illustrated. The subject of the Friday lectures is "The Modern History of London," Mr. H. B. Wheatley F.S.A., being the lecturer. Further particulars of these courses may be obtained of the Secretary, University Extension Office, Charterhouse, E.C.

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THIS year the University Extension Summer Meeting will be held in Oxford, and will, as usual, be divided into two parts. The first lasts from July 29 to August 9, and the second from August 9 to August 23. The main courses of study will be, (1) history, literature, science, and fine art of the period 1837-1891; (2) Hellenic studies in the nineteenth century, a course designed to summarize the results of recent research in the history, literature, art, and archæology of ancient Greece, and intended especially (though not exclusively) for teachers in secondary schools. There will be also lectures and classes on the history and theory of education in physiology, geology, biology, in English language, in Greek and Latin, and moral philosophy. The inaugural discourse will be delivered on

July 29, by Sir William Anson, D.C.L., Warden of All Souls' and Vice-Chancellor of the University.

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THE London Geological Field Class, conducted by Prof. H. G. Seeley, F.R.S., began their annual series of Saturday afternoon excursions on April 22. Full particulars can be obtained from the Hon. Sec., R. Herbert Bentley, 43 Gloucester Road, Brownwood Park, N. The excursions are arranged this year to cross the trough of the London Basin and the elevated structure of the Weald. The northern base of the London Basin will be seen in the Chiltern Hills at Tring, the London Clay in the Isle of Sheppey, and the Lower Tertiaries at Walton-on-the-Hill. The scenery of the Chalk will be examined about Amersham, and its rock structure and fossils at Northfleet. The beds below the Chalk to be examined are the Upper Greensand and Gault at Merstham and Dunton Green, the Lower Greensand at Redhill and Haslemere. An attempt will be made to examine the escarpment of the South Downs near Poyning and the Devil's Dyke.

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AT Bedford College, London, the entrance scholarship examination will be held on June 27 and 28. The scholarships offered are the Reid (in arts), £31 10s., and the Arnott (in science), £48. Candidates must be under nineteen years of age. Successful candidates will be required to take a full three years' course in Arts or Science, and to enter the College in Michaelmas term, 1899. Entrance forms must be returned not later than June 15.

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THE Civil Service Commissioners give notice that an open competitive examination for clerkships of the superior grade of the Civil Service will be held in August next, concurrently with the open competitions for the Civil Service of India and for Eastern cadetships in the Colonial Service. Forms of application for admission to the examination will be ready for issue in a few days, and will then be obtainable on application by letter to the Secretary, Civil Service Commission, Westminster, London, S.W.

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By permission of the Trustees of the British Museum, Mr. W. St. Chad Boscawen has arranged to deliver a series of five Wednesday afternoon lectures at the Museum upon "The Early History and Archaeology of Egypt and Chaldea." The lectures are being delivered on Wednesday afternoons at 2.30.

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Education Gossip. THE regrettable ill-health of Professor Gilbert Murray, which has compelled him to resign his Chair of Greek in Glasgow University, will also prevent him from giving his promised course of three lectures on Euripides at University Hall, in connexion with the London School of Ethics and Social Philosophy.

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MEANWHILE Mr. Leslie Stephen has begun, for the same School, his lectures on "The English Utilitarians." On April 20 and 27, Mr. Stephen lectured on Jeremy Bentham, and on succeeding Thursdays he will give two lectures on James Mill and two on J. S. Mill. The first lecture of each pair will be mainly biographical and historical. The second will deal with the theories of each in turn, touching more or less upon their relation to contemporary speculation. The lectures of this course will not be followed by the usual discussion class, and there will be no paper work required from students.

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THE new member for Merioneth—if we may anticipate the unopposed return of Prof. Owen Edwards—may be regarded as specially representing in Parliament the historical side of higher education. He was Brackenbury Scholar of Balliol, and took a first in the History School. He won successively the Stanhope, Lothian, and Arnold Prizes; but he was disqualified from taking the Arnold Prize, which is open only to graduates, whereas

Prof. Edwards at the time was travelling on the Continent, and had not taken his degree. After graduating he was elected Fellow and Tutor at Lincoln College, Oxford, being Tutor also at Trinity and Corpus Christi Colleges. At present he is one of the Examiners in the Final School of Modern History.

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THE London Technical Education Board have recently introduced some important changes into the regulations for their intermediate county scholarships. The alterations are the result of the recommendations made by a special sub-committee which was entrusted with the duty of revising the regulations, and it is hoped that the changes will prove beneficial to the numerous schools which prepare candidates for these scholarships. The sub-committee contained representatives of both secondary and elementary schools; and the syllabus which is the outcome of their deliberations is sufficiently comprehensive to embrace all the various types of schools that exist in the Metropolis. The new regulations, which will not come into force until June, 1900, are published in full in the *London Technical Education Gazette* for March.

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THERE is prospect of another polytechnic in London. A meeting has been held to further a scheme for erecting a technical institute on a central site in Hammersmith. The gathering was held under the auspices of the Committee of the Hammersmith Vestry and School of Art, which has been formed for the purpose of establishing an institute estimated to cost £25,000. Sir Joshua Fitch presided, and was supported by Major-General Goldsworthy, M.P., Dr. William Garnett, and others. The chairman commented on the benefits young people may derive from attending polytechnic institutions, which are becoming centres of civilization, intellectual life, and happy companionship. The meeting resolved to support the movement for providing a technical institute for Hammersmith.

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A SCHOLARSHIP for proficiency in the Russian language has been founded at Caius College, Cambridge. This is not, as has been said, the first scholarship offered at Cambridge or Oxford for students of modern languages; but it is none the less satisfactory.

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PREPARATIONS are being made by the British Astronomical Association for the organization of two expeditions to observe the total solar eclipse of May 28, 1900—the one to Portugal, Spain, and Algiers; the other to the United States. That these negotiations may be successfully carried out, it is necessary that members and their friends who hope to take part in one or other of these expeditions should communicate at once with the secretaries of the Eclipse Committee. Mr. E. W. Maunder is director of the European expedition, while the Rev. J. M. Bacon will have charge of the American party.

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MR. YARNOLD, who occupies the first place on the Queen's Scholarship list, is also the winner of one of the Drapers' and Clothworkers' scholarships awarded by the Toynbee Hall Pupil-Teachers' University Scholarship Committee. Seven others, within the first fifty names, have also competed for and won scholarships to take them to the Universities. Of these, two have obtained scholarships at Emmanuel College, Cambridge, and another has won a scholarship at Brasenose College, Oxford. The attraction of the Universities as a means of training for elementary teachers seems to be steadily increasing.

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BEDFORD COLLEGE, London, will celebrate its jubilee on June 22—as Queen's College, Harley Street, did last year. A similar celebration is contemplated by the Women's Department of King's College, London, and it is said that the students are making energetic efforts to celebrate that event by paying off the College debt. The Council of the College is marking its approval of the good work done by this department by throwing open all scholarships and prizes, as well as the

Associateship of the College, to the women students, who will in future compete on equal terms with the men.

THE Earl of Kimberley has been nominated by the Crown to the Chancellorship of London University, in succession to the late Lord Herschell.

THE Professor of Greek in Glasgow University, Mr. G. G. A. Murray, has been compelled to resign his chair for reasons of health. Professor Murray is of Australian birth, and was educated at Eton and New College, Oxford, where his career was exceptionally brilliant. In 1889, at the age of twenty-three, he was elected Professor of Greek in Glasgow University in succession to Prof. Jebb. Except Lord Kelvin, he was the youngest professor ever appointed to Glasgow. In the same year he married Lady Mary Howard, daughter of the Earl of Carlisle, and about the same time produced his novel "Gobi and Shamo." Last year he published his "History of Greek Literature." The income of the chair is about £1,400 a year.

THE Queen has been pleased, on the recommendation of the Secretary for Scotland, to appoint Mr. J. Arthur Thomson, M.A., Extra-Mural Lecturer on Zoology, Edinburgh, to the Chair of Natural History in the University of Aberdeen, vacant by the death of Prof. Nicholson.

DR. ROBERT MUIR, Professor of Pathology at St. Andrews, has been elected to the corresponding chair at Glasgow.

MR. J. BARNES, assistant-master at Truro Grammar School, has been appointed Headmaster of St. John's College, Frome.

MR. JENNINGS, of Newton's School, Leicester, has been appointed Headmaster of Ashby-de-la-Zouch Grammar School.

THE Headmastership of Rich's Grammar School, Lambeth, is vacant by the death of Mr. John Hernaman, A.K.C., who was one of the founders of the National Union of Teachers.

MR. C. J. HUGHES, B.A. London, has been appointed Headmaster, and Miss K. A. Scott, B.A., Senior Mistress, of Aberayron Intermediate School.

MR. W. H. HILL, B.Sc. Lond., L.C.P., has been appointed Headmaster of the Yarm-on-Tees Grammar School, in succession to Mr. R. Reynolds, M.A.

MR. ANGUS M'LEAN, B.Sc., C.E., has been appointed to the post of Principal of the new technical college at Paisley.

MISS L. M. ROBERTS, formerly Warden of the Hall of Residence for Women Students in connexion with University College, Liverpool, has been appointed Principal of the Hostel for Women Students at Durham.

Literary Gossip. AMONGST the memorial celebrations of the month of April was that of a former Chancellor of Oxford University, known to fame as Olivarius P., otherwise Oliver Cromwell. Cromwell was a Cambridge man—they have his portrait at Sidney Sussex—but he seems to have done more for Oxford than for his own University. He issued a warrant for the founding of Durham University; but Oxford and Cambridge maintained that there was no need for a third University, and insisted on their vested interests in the conferring of degrees. So Durham had to wait.

In Scotland Cromwell bestowed some of the confiscated Church lands on Edinburgh University, established by James VI.

When the unfortunate Charles I. was at Glasgow, in 1633, he promised a donation to the University, but the money was not forthcoming. Twenty-one years later the Protector had the grim satisfaction of redeeming the monarch's pledge. On the whole, it would seem that Cromwell deserves a kindly thought on his tercentenary from the friends of education.

THERE is an interesting note in the *English Historical Review* for April on "Hereditary Madness in History," a *propos* of a treatment of that subject in Prof. Lorenz's "Genealogie." The Professor seems to have included John of Gaunt amongst his madmen of royal blood; and his critic aptly says:

If Dr. Lorenz can prove that John of Gaunt was mad, we can tell him how he may lighten his labours. All the reigning houses in Europe are descended from the Duke of Lancaster, so that whenever he meets with a case of insanity in a royal family he can at once point to John as the source of the evil. He will thus be enabled to account for the insanity of the Kings of Bavaria, and he will then be provided with a proof of a case of pathological atavism almost as remarkable as the one he fancies he has found in the House of Brunswick.

In the same *Review* there is a very good instance of historical research on unfamiliar lines in "The Origin of the Japanese State" by the Registrar of London University.

THE British Museum has received a windfall of £50,000 under the will of the late Mr. Vincent Stuckey Lean, who desired that the money should be devoted to the improvement and extension of the Library and Reading Room.

CANON McCOLL, on whom the University of Edinburgh has conferred the degree of D.D., has been a voluminous writer, not only on theology, but also on political questions, especially on behalf of the Christian races in South-Eastern Europe. Of his theological writings published from 1868 onwards, the following were perhaps the most important:—"The Reformation in England," "Science and Prayer," "The Athanasian Creed Rationally Explained," "Lawlessness, Sacerdotalism, and Ritualism," "Christianity in relation to Science and Morals," and "Life Here and Hereafter."

THE *Paidologist*, which is to be published at Cheltenham "three times yearly," as the organ of the British Child-Study Association, made a first appearance in April. The editor boldly states that "it is intended to be unattractive to children and to those who, from lack of special interest in the topics treated of, would be 'bored' by that which the title represents." Does this shut out all hope or expectation of converting the faithless? In any case, the first number of this new magazine has plenty of interest, and we wish it well in every sense.

THE following inset leaflet in the *Paidologist* will explain itself:—

A circular, which has been sent to other members of the B.C.S.A., fell into our hands just as our first number was completed, and already in print. It makes an absolutely false statement—viz., that one of our vice-presidents vivisected a frog for the edification of the B.C.S.A. The lecturer did nothing of the kind. Before the lecture, two frogs had been killed in the quickest and most merciful way, and they had been dead some hours when the doctor used them to show the ordinary phenomena of reflex action. We do not propose to hold any further communication with persons who print accusations the truth of which they have not taken the trouble to ascertain.—EDITOR.

THE first volumes of the "British Anthologies Series," edited by Prof. Edward Arber, will shortly be published by Mr. Henry Frowde. The whole series, which the editor claims to be the first adequate attempt ever made towards an historical national anthology, will contain about two thousand five hundred entire poems and songs written by some three hundred poets. Each volume is distinguished by the name of the chief poet of the period dealt with, and the Shakespeare, Jonson, and Milton anthologies will be issued first.

ANOTHER new edition of Shakespeare is about to appear. Messrs. Bell announce the "Chiswick Shakespeare," to be printed from a special fount of type by the Chiswick Press and illustrated by Mr. Byam Shaw. Mr. John Dennis will supply a short introduction and glossary to each play. The first two volumes will be "Hamlet" and "The Merchant of Venice."

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Messrs. Rivingtons announce for publication during May the following books:—"What is Secondary Education?" a series of short essays by experts on various aspects of the problem; a "Handbook for Public Men and for Parents on the National Organization of Education," edited by R. P. Scott, LL.D., Hon. Secretary of the Incorporated Association of Headmasters; "The Book of Judges," with introduction and notes, edited by the Rev. H. F. Stewart, Vice-Principal of the Theological College, Salisbury; "The Essentials of School Diet; or, the Diet Suitable for the Growth and Development of Youth," by Clement Dukes, M.D., B.S. Lond.; and "Ivry, Book II.," edited, with maps, introduction, and notes, by A. F. Hort, M.A., assistant-master at Harrow School, forming a new volume of Rivingtons' "Middle Form Classics."

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"THE INTERNATIONAL GEOGRAPHY" is the title of a new standard geographical work which Messrs. George Newnes, Limited, have in preparation for early publication under the general editorship of Hugh Robert Mill, D.Sc., F.R.S.E. The object of the work is to give a concise and authoritative account of geographical knowledge at the close of the nineteenth century. Each section is written by a specialist of recognized authority. Among the seventy authors who have taken part in the work are: Sir Clements Markham, F.R.S.; the Right Hon. James Bryce, M.P., F.R.S.; Count Pfeil; Gen. Sir Charles W. Wilson, K.C.B., F.R.S.; Sir Harry H. Johnston, K.C.B.; Sir William MacGregor, K.C.M.G.; Mrs. Bishop; Dr. Nansen; Mr. F. C. Selous; Sir George Robertson; Sir Martin Conway; Sir John Murray, K.C.B., F.R.S.; and Dr. Scott Keltie. Many of the contributions have been translated from French, German, Dutch, Portuguese, Spanish, and Danish MS. After a concise epitome of the principles of geography, each country is described in detail, beginning with its general configuration and geology, followed by an account of the people, manufactures, commerce, important towns, statistical tables, &c. The numerous illustrations are confined to maps, plans, and diagrams, which in every case have been chosen for the light they throw on the surrounding text. There will be a voluminous index, and abundant references to standard works.

DISCIPLINE.

To the public-school master this subject is obviously one of great interest, and of still greater practical importance, and it is also one on which great diversity of opinion obtains. Some of us still hold fast by the traditional public-school system, refusing to countenance modern theories which, nevertheless, are slowly, but surely, making headway in this country, as they have long since done in the United States. Others are willing to admit that the stereotyped methods of dealing with our pupils may be capable of improvement, and it is chiefly for these that this article has been written. I have kept steadily in view the desirability of provoking thought and discussion, and it would give me great pleasure to consider more fully than is possible in the limits of this article any points which may present difficulty to the reader. My proposition, then, will be that the position which we take up on all questions of discipline will depend almost entirely on the views we hold (1) as to the extent of our duty to the parents of our pupils, and (2) as to the relationship which we wish to establish between our pupils and ourselves.

If we recall the conditions of school life twenty-five years ago, we shall probably agree that the form-master, as a rule, knew little, and cared less, as to the views and wishes of the parent. The latter, in most cases, considered that when he had duly entered his boy responsibility ceased (except so far as the payment of bills was concerned). The boy was, consequently, an unknown quantity to his form-master; there was not only no recognized means of communication between the latter and the parent, but any attempt at establishing communication—from either side—would have been deprecated, if not resented. Nowadays, the parent recognizes that, at the best, the master is but an

ally—not a substitute; he knows more than he did on educational matters, and, as a consequence of this increased knowledge, he demands more from the school. He claims to have a voice in any matter of vital importance to his boy. The master, on his side, requires of the parent such facts of his pupil's early life and surroundings as may serve to throw light on his temperament and disposition. He expects not only the moral support of the parent, but in some cases his active personal co-operation. And, lastly, he tacitly admits that educational work is so far a commercial enterprise that the parent has a right to expect his son, once admitted to the school, to be educated, and that the responsibility for failure rests primarily on the master or masters, but not, as used to be and still is too often assumed, on the pupil.

The acceptance of these views as to the relative position of parent and master necessarily involves a readjustment of the relationship between master and pupil. The aims and methods of the former are revolutionized. He regards his form as consisting of so many individuals, and he rarely attempts to legislate for them in the bulk. He recognizes that each boy requires special treatment, and that the measure of his own skill as a schoolmaster is the success with which he discovers and applies the exact treatment required for each boy in his form.

We have now cleared the ground to some extent, and are in a position to consider the practical application of the principles which I have indicated. Let us see the bearing of these as applied to the question of punishments. Broadly speaking, the form-master has to deal with two classes of offences, which I have ventured to term "natural" and "moral," and he may be said to have at his disposal three classes of punishment: impositions, detention, corporal punishment. (Expulsion, as being the prerogative of the headmaster, may be omitted.) The theory which we are to consider may be stated thus: All offences are, in the first instance, to be treated as natural, but, by repetition, all offences tend to become moral. This statement will serve to indicate an important fact—that it is quite impossible to draw any hard and fast line between the one class and the other. It will also be evident that we cannot justly mete out the same punishment to half a dozen different boys who may have committed what is, nominally, the same offence. Let me illustrate the theory by reference to (1) neglect of work, and (2) lying.

Neglect of work is, perhaps, the most frequent of all schoolboy offences. No master would dream of regarding it as a moral offence, unless and until it had become habitual. And is it not highly probable that the giving of impositions for this offence necessarily tends to perpetuate the very fault which they are intended to cure? Are we sufficiently careful to satisfy ourselves in each individual case that the boy knew exactly what he had to do, that he really knew how to do it, and that he really had both time and opportunity? Unless all these conditions are satisfied, the punishment is unjust, and there is no failing so essentially fatal to the schoolmaster as the inability to deal justly with his pupils. But, even if the said conditions were fulfilled, and a clear case of neglect established, wherein lies the virtue of an imposition? It does not remedy the evil; it certainly is not of any value as a deterrent, and it has this peculiarly unfortunate effect—that the pupil assumes that the imposition, when written, wipes out the offence for which it was inflicted. Moreover, if the offence was an isolated one, the punishment was the more certainly undeserved; while, if it was not, it is surely absurd to expect a boy who cannot (for whatever reason) get through his work to-day to get through a similar amount, plus impositions, to-morrow.

"But," it may be said, "you tell us what we ought not to do; tell us what should be done. Are we to allow our pupils to do their work or not as they please? If so, we shall soon get no work at all done." The weakness of this retort lies in the assumption that boys will not work except under compulsion; whereas the fact is that no amount of compulsion ever yet succeeded in getting an ounce of really good work out of a boy. Nothing is more certain than this—that, if a boy is keen, anxious to get on, and interested in his work, he will do well; whereas, if the contrary be the case, the fault is, in nine cases out of ten, the master's and not the boy's. It is our duty to interest, to stimulate, to encourage, and I firmly believe that the vast majority of boys are amenable to such treatment, and that in the few cases where they do not respond they require patience, perseverance, and still more encouragement on our part—not reproof and penalties.

Let us now consider the offence of lying, which is not at all on the same plane with neglect of work. This offence, which includes prevarication, excuses, insincerity, deception of every kind, has its rise in fear, and, as long as this instinct is the cause of the offence, it is difficult to see how the latter can be treated as an infraction of the moral law. Regarding lying as the most serious school offence of which a boy can be guilty, I always allude to it at the beginning of each term, making it quite clear to the boys that dishonesty in word or act will be the one unpardonable offence. But then I never punish a boy for neglect of work. I never allow him to offer an excuse, nor do I ever question or cross-examine a boy in such a way as might lead him to convict himself or any others of any offence. With such treatment lying is practically non-existent, because the fear of punishment for ordinary offences is removed, while, at the same time, the habit of truthfulness is being cultivated. I think, by-the-by, that we

are apt to overlook the fact that these qualities of truth, manliness, industry, and the like are not necessarily natural, but in many cases acquired; that they are capable of development in just as great a degree as are the memory and the understanding.

One further point requires notice. There will from time to time arise abnormal cases, as, for example, of inherent illness, of lying without motive, or of bullying, for which no rule can be laid down. Such cases must be dealt with on their merits, or demerits. My own opinion is that corporal punishment should be reserved for these and the like. They may usually be traced to faulty early training, and to that extent the offender is clearly entitled to pity. But we have a duty to society—the society of school—and its interests are paramount, and must not be imperilled by any palliation of crimes which, if allowed to remain unpunished, would inevitably result in disaster.

HERBERT M. RANKILOR.

BRITAIN'S YOUNGEST UNIVERSITY.

FOR the present, and until such time as Birmingham shall achieve a University, "Wales" stands in the position of Britain's youngest University. The three constituent Colleges had been at work some years before the University was constituted, in 1893. Of these Colleges, the University College of Wales, at Aberystwyth, was opened in 1872; the University College of South Wales and Monmouthshire, at Cardiff, in 1883; and the University College of North Wales, at Bangor, in 1884. Aberystwyth is the pioneer and premier College. It has the handsomest buildings, the longest stretch of history behind it, the largest number of University students, although in this last respect Cardiff runs very close. When Aberystwyth College had been ten or twelve years in existence, a Commission was appointed to inquire into the question of University Colleges for Wales. The Commission recommended that there should be two Colleges, for North and South Wales respectively, that the College then at Aberystwyth be removed to Bangor; that a new one be founded at Cardiff, and that £4,000 per annum of the public money be allotted to each institution. But Aberystwyth clung to its College. It preferred to support the institution rather than dispense with it. As a result of many and strenuous efforts, an additional grant of £4,000 was allotted to Aberystwyth, and in this way Wales has one College more than some might think strictly necessary, especially when one considers her population. Each of the three Colleges has a Training Department for men and women, thus bringing the elementary school teachers into close touch with the University. Cardiff has Schools for Mining and Civil Engineering; Bangor and Aberystwyth have Departments of Agriculture and Rural Economy. In all, in this small country of one and a half million inhabitants, there are now more than a thousand students at work. They are, however, by no means all Welsh; a very large majority of the men are Welsh; amongst the women there is a considerable number of students who belong to the "adjacent peninsula."

If primogeniture counts for anything, Aberystwyth has a natural right to take precedence, and a brief description of the College may not be out of place. It is built on the south side of the town, with a great number of class-rooms and lecture-halls overlooking the sea. The north, or main building, with two towers, which somewhat recall the tower of Pisa to those who know Italy, is now the oldest part; the science wing on the south side is decorated with mosaics more curious than admirable. This wing and the main building were long connected by an ancient and inconvenient block, which was pulled down a short time ago and replaced by the new central block formally opened in the autumn of 1898. The block cost £15,000, exclusive of furniture and equipment; it is not as handsome and distinctive in its architecture as the buildings it connects, but is doubtless light, convenient, and, above all, necessary for the expansion of the work. The main building contains what the students call "The Quad," but what is really a handsome covered hall, affording a meeting ground for professors and students. A few photos, three small Turners and other pictures, some by Lord Leighton, Dante Rossetti, Sir E. Burne-Jones, adorn the walls, and some cases of pottery and so forth run down the centre of the hall. It is surrounded by an inner balcony, on which a large number of professor's class-rooms open. Other notable features are the Library, with a fine sea view and beautiful fixtures, presented to the College by American Welshmen and Welshwomen; and the Examination Hall, with a small stage, which suggests that the drama is not unknown at Aberystwyth. The College is built on a very small space, close to the pier and sea-front; indeed, it intercepts the right of way along the sea-front. At the back it leaves a pavement of shabby width and a narrow roadway. After the fire of 1884, the question was discussed whether it might not be advisable to remove the College further from the town, and obtain a larger space; but proximity has also its advantages, and these were considered to outweigh the disadvantages.

The town numbers eight thousand inhabitants. It is a fashionable watering-place during the summer and early autumn months. The method of disposing of the students is certainly convenient for lodging-house keepers, a class with which Aberystwyth abounds. All the women, to wit, 177, are gathered into a hall of residence, Alexandra Hall, at the extreme north of Marine Terrace; men students, on the

other hand, live in lodgings. Five shillings a week is not an uncommon figure for lodging, and two men together pay 4s. each. A professor assured me that the weekly bill of one of his students came to 11s. 6d., and on this sum he was in the habit of entertaining friends! Fifteen shillings or 18s. a week is quite a common sum for board and lodging, and, as the tuition fee for the College is £10 per annum, it is evident that at least there is the chance at Aberystwyth of reaching a different class from the general run of undergraduates at Cambridge or Oxford. Where a man enters for a scientific course requiring a great deal of chemical paraphernalia, a laboratory fee might make his expenses mount to £15 inclusive, but it never exceeds this sum unless special coaching be necessary. The number of students at the beginning of the 1898-99 session was 407, and of these 190 were women.

It is interesting, at a time when such fierce attacks are being made on the classics as a branch of study, to note how many students devote their time to them. The figures are as follows:—Greek, 154; Latin, 287; English, 245; History, 187; Welsh, 48; French, 138; German, 13; Hebrew, 16; Elementary Logic, 129; Philosophy, 29; Mathematics, 231; Chemistry, 95; Physics, 63; General Biology, 24; Botany, 35; Zoology, 6; Geology, 18; Agriculture, 8; Agricultural Chemistry, 8; Political Economy, 2; Education, 5; Veterinary Science, 8; together with some other subjects with smaller figures attached. It is thus evident that even in a College of yesterday the classics do more than hold their own.

There exists a general impression, vague yet real, that the constitution of a University, its powers and functions, are almost beyond mortal comprehension: none should lightly undertake such a task. I diffidently commit to paper what the College Registrar, Rev. T. Mortimer Green, told me of these abstruse matters, or, perhaps it should be phrased, what I understood the Registrar to say. Wales is the most democratic University that the mind of any man, except, perhaps, an American, has yet conceived. It is more democratic than the Scottish Universities.

Each University College is happy in possession of a Court of Governors. Out of these is selected a Council. Moreover each College has a Senate, mainly composed of the teaching staff. The Senate has charge of all academic matters, such as the framing of Schemes, discipline, and so forth; the Court must sanction everything; the Council is greatly concerned with finance.

The University also possesses a trinity of (1) University Court, including twelve representatives from each College; (2) a University Senate composed of the heads of departments of the three Colleges; and (3) the Guild of Graduates, composed of all the graduates and the three staffs. Members of the Guild become so two years after graduation.

After matriculation, the student must take up a minimum of ten subjects, including elementary logic. Of these, five may be carried to the intermediate stage, and in one a student must specialize. If a student passes in Honours, this is allowed to count as two. The degree course is different from London, in that a student of the latter may take the course in two years, whereas Wales, approving slow assimilation, demands three years.

The University is too young to have specialized; its aim, so far, is general culture. But, though it offers no speciality, the circumstances already referred to have developed two departments which are of first-class importance—the Training Department and Agriculture.

The former is mainly for elementary teachers, although a few secondary students are pursuing their studies at Aberystwyth, practising in the elementary schools just as the elementary students do. The Government course in a training college is for two years, but the Education Department now looks with a more favourable eye on general culture for teachers, and grants encouragement and money aid to all who will work for a third year. This fits in admirably with the degree course, so that a vast majority of the students are working for the degree, whether or not they complete their third year. The great difficulty in this department is that a number of students have matriculated before coming to the University, and others are only ready to matriculate after a year's work. University colleges, from financial and other considerations, cannot always pursue the wisest policy, which, in this case, would be to accept no student below the matriculation standard. The Training Department numbers 110 students, of whom 50 are women. Of the first year, only 2 out of 20 men students had not matriculated; out of 28 women, 12 had not matriculated. The reason why the women fall below the standard is that the Queen's Scholarship does not require mathematics, and women devote much time to domestic economy and sewing. Two years ago it would have been impossible to find so many as twelve matriculated women, so that the standard is rising.

As regards the degree, for which many students are working, men incline to classics, mathematics, natural science; women to English, French, German, history. The love of science receives a fillip from the grants which teachers earn from South Kensington. A degree in English history and literature is an admirable foundation for the elementary school teacher to erect his structure upon; and, perhaps, to Wales, as much as to any other University, is due the idea that the degree is not only for the secondary teacher. Moreover, it is highly useful for elementary teachers to rub shoulders with a world outside

the narrow one of the training college, one of the worst features of which is the development of a self-satisfaction that cannot be shaken, and a poor, mean ideal too soon reached and rarely disturbed by comparison with greater attainment. The Queen's scholars often enter college after four years of pupil-teaching, dull, dazed, mechanical, overworked; happily the recuperative power of the mind is great, and, at the end of the course, many students have been mentally re-made, their horizon widened, their ideal altered. Most of the men are Welsh, and some have a pretty strong accent, since they come from rural districts. The women, on the other hand, are urban, and, generally speaking, come from a higher social class than the men.

The Agricultural Section is of more recent date than the Training Department, and cannot boast such large figures. But it is a solid and practical development which has proceeded from the people's necessities. It is associated with six County Councils, which subscribe £1,200 per annum towards its maintenance. In a recent report, Principal Roberts claimed for it that it is effecting a silent revolution in Welsh agriculture. The Board of Agriculture has also come to its aid, granting at first a subsidy of £250, now increased to £800 per annum. Landowners and farmers are co-operating, and, at great expense, test practically the methods expounded in class-rooms. Theorists, that is, unpractical theorists, would need to tread warily when tests are applied in this way. Farmers can now get access to scientific information and guidance in a way undreamed of before. The Department works in four ways, determined to cast the seed into all sorts of soil. It would be many years before anything could be achieved if Wales waited until farmers could go through the agricultural degree course. There are, therefore, four courses of instruction provided: (1) An elementary seven weeks' course is provided for farmers during the winter months. (2) An advanced course lasting sixteen weeks, and mainly for those who have profited by the first course, begins in October. Both these short courses deal with the essentials of agriculture, and are intended for those who have already practical knowledge of the subject. In both courses students take agricultural chemistry, since it is the basal science of modern agriculture. (3) The diploma course lasts for two full sessions, and is chiefly for boys who have left school and who have had a good preliminary education. Such subjects are studied as botany, physics, mathematics, zoology, in the first year; agricultural engineering, surveying, geology, entomology, veterinary science, in the second. The diploma a student earns is "Associate in Agriculture." (4) The fourth is the degree of B.Sc. in the University of Wales, lasting three sessions, with specialization in agricultural science during the last two sessions, as well as in two or three branches of pure science. Thus agriculture is as well provided for in Wales as anywhere in the kingdom. This is the Aberystwyth College programme in Agriculture; come there, and you will be served with a course. Numbers of people, however, will not do this, and Aberystwyth sends out an Extension lecturer and dairy instructors to catch the farmers in highways and hedges and compel them to learn. Seven hundred lectures have been given in this way between 1891 and 1897 to audiences of 50,000 persons. The travelling dairy schools have had 1,900 pupils. During the summer months, 150 women have come to Aberystwyth to get instruction in butter and cheese-making, and, though, practically, Welsh visitors only get bad and very salt butter, there is always the hope that the leaven will yet leaven the lump. During the 1897-98 session, 51 men were agricultural students—44 took short courses, and 7 the full course. Young Welshmen are likely to benefit by the Agricultural Department; they are enterprising and go-ahead, like the Scotch, not so much rooted and grounded in their ancestors' methods as the average English farmer. It is significant that a Chair of Agriculture was founded at Edinburgh University in 1790; in Wales, 1890-91.

Space fails to tell of the pleasant social life of the College, shared by both sexes, and including debates, lectures, concerts, dramatics, and other social entertainments. The staff may be said to be mixed, since one lady has a post in the Training Department and another teaches needlework. The sexes are almost on an equality, and attend the same classes without distinction or difference. Saving a few students who reside with parents or relatives in the town, the women are all resident in Alexandra Hall, under the care of Miss E. A. Carpenter, of whom it is only fair to say that the great expansion of the College on the women's side is due to her. When she assumed the post of Superintendent in 1887 there were eleven women students. House was added to house under her able management until, in 1896, Alexandra Hall, a handsome structure facing the sea at the north end of the Parade, was opened, accommodating 150 students. Even this has not proved sufficient, and in 1898 a new wing was added, so that the entire building can now hold 207. At present the number is 177.

General studies, used by those who have cubicles, face the "melancholy ocean," as do a large number of study-bedrooms, the dining room, and library. Students obtain board and lodging for a sum varying from 30 guineas per annum for a cubicle, to 40 guineas for a study-bedroom. The completeness of the service arrangements, the excellence of the food, the large amount of liberty accorded, would require an article to themselves. Most people know the unbending rigidity of life in an institution; yet the tired student (not a sick person) at Alexandra Hall may have any meal except dinner in her own room, if

a student will carry the meal upstairs. If the reader add 30 guineas and the college tuition fee of £10, it becomes evident that a young woman can obtain an excellent education for a little less than £42 per annum. This explains why so many Englishwomen flock to the Welsh colleges. It only remains to be said that Aberystwyth air is as fine as the scenery, so that even a pretty severe course of study does not injure, but rather improves, the health of the students.

It is not so well known as perhaps it might be that a Cambridge B.A. in Honours becomes a full-fledged M.A. by the simple process of paying £30 sterling as a contribution to the University chest. You put the money in the slot and out comes the M.A. In Wales this is not allowed. He who would be an M.A. is presented with a list of subjects for theses, from which he must select one and write a dissertation containing internal evidence that he has done original work on his own account. If he has not previously taken his B.A. degree with Honours, he has to pass a special examination in addition.

C. S. BREMNER.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held at the College, Bloomsbury Square, on April 15. Present: Dr. Wormell, Vice-President, in the chair; Mr. Barlet, Mr. Baumann, Mr. Bidlake, Rev. A. W. Boulden, Mr. Brown, Mr. Butler, Mr. Charles, Mr. Harris, Miss Jebb, Mr. Montgomery, Mr. Pinches, Mr. Sergeant, Mr. Armitage Smith, and Mr. Walmsley.

The minutes of the last meeting were read and confirmed.

A memorandum on the statements in the Report which was adopted by the Medical Council in November last, was approved, and the Secretary was directed to forward it to the President of the General Medical Council, with a covering letter, setting out the grounds for revision of the Report.

The Report of the Finance Committee was adopted.

The following persons were elected members of the College:—

- Mr. E. Garnett, A.C.P., Newtown School, Waterford, Ireland.
- Mr. E. W. Harris, 27 Saxon Road, South Norwood, S.E.
- Miss E. R. Peckston, A.C.P., Convent of the Ladies of Mary, Croydon.
- Mr. L. R. Sapat, 1 Grove Villas, Muswell Hill, N.
- Miss L. M. Stoneman, 67 London Road, Croydon.
- Mr. F. M. Walker, B.A. Lond., A.C.P., 16 Surrey Street, Ryde, Isle of Wight.

The following books had been presented to the Library since the last meeting of the Council:—

- By the AGENT-GENERAL FOR NEW SOUTH WALES.—Annual Report of the Department of Mines and Agriculture, New South Wales, for the Year 1897.
- By MR. F. B. KIRKMAN.—Kirkman and Pécoul's Les Gaulois et Les Francs.
- By ALLMAN & SON.—Public School Writing Book, No. 4.
- By BLACKIE & SON.—Downie's Macaulay's Essay on Milton; Keene's First Oration of Cicero against Catiline.
- By the CAMBRIDGE LOCAL EXAMINATION SYNDICATE.—Report on the Local Examinations, December, 1898.
- By MACMILLAN & CO.—Cotterill's Macaulay's Essay on Milton.
- By OLIVER & BOYD.—Dick's Rudiments of English Grammar; Fairgrieve's The Child's French Grammar; Le Harivel's Principles of French Grammar.
- Calendar of King's College, London.

REVIEWS.

HISTORY A HANDMAID OF SCIENCE.

A History of Physics in its Elementary Branches, including the Evolution of Physical Laboratories. By Prof. Florian Cajori, Ph.D. (Macmillan.)

The development of every art and every science has been progressive and cumulative. Later discoveries have proceeded from, or have arisen in the consciousness of, those that were earlier; and it follows that there must be some correspondence, though not absolute, between the history of knowledge and its natural development. In other words, the mastering of an art or a science must be greatly facilitated by a knowledge of its history. It has been urged by more than one contemporary writer that a great defect in our present scientific education is the absence of the historical sense, and a want of knowledge of the main researches upon which the edifice of science rests. Prof. Cajori has written his survey of the progress of physics in the hope of remedying the defect. The necessary chapters of such a history were well marked out in advance. A preliminary chapter, indeed, might deal with indications of physical discovery and knowledge before the time of the Greeks, or in Asia and Africa up to the beginning of the Christian era. The materials for such a chapter would be scanty, and Prof. Cajori has not attempted to write it. Amongst the Greeks—who excelled in mathematics, metaphysics, literature, and art, there was com-

paratively little achievement in natural science; but, still, they had the elements of mechanics, light and sound, meteorology, and even magnetism. Slender, but at the same time very interesting, are the physical records of Rome and Arabia. It was not until the civilized northern and composite nations of Europe began, slowly and with difficulty, to reduce into possession the intellectual patrimony of Greece and Rome that the physical sciences gradually expanded with new sap, and put forth vigorous branches and foliage. From the Renaissance down to our own days the history of physics is more and more exact and progressive.

It is unnecessary to say that this volume, which brings together a multitude of scientific details from a great number of sources, is one of very considerable interest. All the notable inventors are here, by virtue of their inventions; and, if we had space for much in the way of extract, we should scarcely trouble ourselves to select where almost every page seems to be specially attractive. The interest is due to the facts rather than to the manner in which they are set forth. Prof. Cajori often does himself an injustice by hasty translation or quotation, when a paraphrase in his own words would have served his purpose far better. Here, for instance, is an anecdote execrably told, and, though it purports to be taken from a book published in London, it clearly ought not to have found its way into print again:—

Oersted tried to place the wire of his galvanic battery perpendicular (at right angles) over the magnetic needle, but marked no sensible motion. Once, after the end of his lecture, as he had used a strong galvanic battery in other experiments, he said: "Let us now once, as the battery is in activity, try to place the wire parallel with the needle." As this was made, he was quite struck with perplexity by seeing the needle making a great oscillation (almost at right angles with the magnetic meridian). Then he said: "Let us now invert the direction of the current," and the needle deviated in the contrary direction. Thus the great detection was made; and it has been said, not without reason, that "he tumbled over it by accident." He had not before any more idea than any other person that the force should be transversal. But, as Lagrange has said of Newton on a similar occasion, "Such accidents only meet persons who deserve them."

The author's account of successive experiments in what may be called competitive invention, is commendably exact and, so far as we have noticed, impartial. Speaking of the famous race for the electric light, he says:—

Lane-Fox, in 1879, being convinced that platinum and iridium were useless as bridges in lamps, used carbonized vegetable fibres. Swan, in February, 1879, made a public exhibition of a lamp with a carbon filament in a vacuous tube. Swan's success led Edison to abandon platinum and iridium; and, in October, 1879, he had constructed a vacuum lamp with a filament of lampblack and tar carbonized. In January, 1880, Swan prepared filaments from cotton twine, prepared by immersion in sulphuric acid and then carbonized. Edison sent out explorers into South America and into the Far East in quest of suitable fibres for lamps, and in 1880 employed a flat strip of carbonized bamboo for a filament. Most of the modern lamps have filaments prepared from parchmentized cellulose, afterwards carbonized.

The final chapter, on the gradual development of laboratory work in physics as an instrument of scientific education, is very much to the point, and fitly concludes a book which has many excellent features.

MORE "ARUNDINES CAMI."

Cambridge Compositions, Greek and Latin. Edited by R. D. Archer-Hind, M.A., and R. D. Hicks, M.A. (Cambridge University Press.)

This collection of classical verse and prose from Cambridge scholars is intended to meet the practical needs of schoolmasters, and it is admirably adapted for an advanced course of composition. The English pieces are, for the most part, simple and straightforward; the fair copies are always neat, and often very happy. It is all that a new Florilegium should be. In any case, we will forbear to criticize, and offer instead the tribute of free quotation.

These are Dr. Munro's first eight lines of "Fear no more the heat o' the sun":—

Immodicum solis fuge formidare calorem
nec faciat brumæ vis furibunda metum :
omne peregristi pensum mortale, larique
reddita mercedem sedulitatis habes.
aureus ipse puer, par a fulgine furvis,
et virgo fati foedere pulvis erit ;
triste supercilium fuge formidare potentum,
in te præventast plaga minacis eri.

Here is the beginning of Prof. Butcher's version of Wordsworth's Ode, from

Our birth is but a sleep and a forgetting
down to

Heaven lies about us in our infancy :—

Neo nos nascendo nisi somnum et pocula Lethes
ducimus ; ille animus qui se nascentibus astrum
extulit, ex obitu longinqua a sedo profectus
hic iterum exoritur ; non funditus illius aevi
gens oblita adeo, non denudata venimus ;
nubila nam trahimus longo splendentia, Patrum
linquentesque domum : caeli circumvolat annos
lux teneros.

Tennyson's "Eagle"—

He clasps the crag with hooked hands—

rendered by Mr. Postgate in a couple of sapphics :—

Sole qua fulgent propiore terrae
alta desertae, digitis reducibus
haeret ad rupem, mediumque cingunt
caerula caeli.

desuper rugas simulante lapsu
ire Neptunum specula superbus
respicit summa ; ruit inde praeceps
fulminis instar.

The famous Elgin epitaph—"Life is a city full of streets":—

Urbs est vita hominum : stat plurimus undique vicus :
est ubi conveniat tota caetera forum :
mors cluot : at si vitam emeres, neque vivere posset
servolus, et dominus nollet obire diem.

Here are a couple of verses from Heine, with Mr. W. G. Headlam's rendering in elegiacs :—

Es liegt der heisse Sommer
Auf deinen Wänglein ;
Es liegt der Winter, der kalte,
In deinem Herzchen klein.

Das wird sich bei dir ändern,
Du Vielgeliebte mein !
Der Winter wird auf den Wangen,
Der Sommer im Herzchen sein.

Nūn θερὸν μὲν σῆσι παρήσει θάλλος ἐπανθεῖ,
χειμῶν δ' ἐν κραδίῳ ψυχρὸς ἔτ' ἐρδίδει.
θάρσει μὲν, τὰ δ' ἐνάλλα γερήσεται, αὐτίκα δ' ἔσται
χειμῶν ἐν χροίῃ καὶ θέρος ἐν κραδίῳ.

The θάρσει scarcely appeals to us—but we said we were not going to criticize. Let us end our quotations with Mr. Archer-Hind's version of a stanza of Shelley's :—

Forget the dead the past ? O yet
There are ghosts that may take revenge for it :
Memories that make the heart a tomb,
Regrets which glide through the spirit's gloom,
And with ghastly whispers tell
That joy, once lost, is pain.

τῶν τότε, τῶν φθιμένων ἐπιλάσαι : ἀλλ' ἔτι γὰρ τοὶ
δαίμονες εἰσιν ἰσως οἱ ποτε τισόμενοι
μῦθαι σοὶ θήσουσι τάφρον περικάρδιον ἐντός,
κῆσονται θυμῷ τῷ σκοτούεντι πόθοι,
ἐν δ' ὀμφᾷ δύσφαιμος ἔσω στέρνων τὰδε φωνεῖ
τίκτει πῆμ' ὀπίσω τέρψις ἀποιοχόμενα.

THE ART OF GARDENING.

Wood and Garden : Notes and Thoughts, Practical and Critical, of a Working Amateur. By Gertrude Jekyll. (Longmans.)

It is not to be questioned that flower-culture and the love of gardening have received a great stimulus in the past few years, and the book before us comes as a timely and noteworthy illustration of the fact. It is so pleasantly natural and unconventional, and it has been so warmly welcomed as the unpretentious work of an enthusiastic practical gardener, that it stands in little need of further recommendation; but it may serve as a pretext for repeating what has more than once been said in these columns on the value of horticulture—and, more widely, of nature-study—as a medium of physical and moral, if not of mental, education. Horticulture does not make much of a figure in elementary codes or secondary curricula, unless it be in the technical programmes of some of the most rural of English counties. We have, indeed, our horticultural colleges, like the admirable institution at Swanley, and more than a few secondary schools in country districts where gardening is recognized as a serious pursuit, on the principle that a boy or girl should be taught to do well what in after

life he or she is certain to do somehow. We receive from time to time a sensible and well-written German publication called the *Schul- und Haus-garten*, which bears witness to a systematic attempt to encourage and assist the love of flower-culture; and from Ithaca, New York, we have a sheaf of papers describing the work of the College of Agriculture in the Cornell University. At this college they have, in addition to the director, professors and teachers of horticulture, gardening, botany, chemistry, entomology, sugar-beet culture, maple-sugar culture, dairy husbandry, and nature study. In New York State they do things very thoroughly when they take them up at all; and we observe that the Ithaca College prints a capital illustrated series of "Teachers' Leaflets," intended "for use in the public schools." There is perhaps nothing in England quite so comprehensive as this, though most of the subjects mentioned above may be found as adjuncts to the ordinary course of the agricultural colleges. One of the Ithaca publications is a collection of "Hints on Rural School Grounds," and it shows by many examples and pictures how the managers of rural schools, with or without the practical assistance of their scholars, may convert a bald acre or two into a flowering and even romantic environment.

What Miss Jekyll does for us is to describe how she converted her own few acres of ground into a wild and beautiful landscape garden. Her lines were cast for her in pleasant places, and she proceeded to make those places still more pleasant. She had the land, the leisure, and the taste; and by adding the indispensable labour she seems to have made the wilderness blossom like a rose. Her book chronicles her ordinary garden-work for a year, taking it regularly month by month; and it supplements the chronicle with a dozen chapters on "large and small gardens," "beginning and learning," "weeds and pests," and so forth. It is not, of course, designed for the formal work of teaching horticulture, nor does it enter into all the details which a serious student of gardening would have to master. But the book is none the less a wise teacher of the art and method of gardening. It shows how to make the best of opportunities, great or small, how to beautify a corner and tidy up a neglected patch. And in these days, when more and more women are taking to horticulture as a vocation and means of livelihood, it is good to have a plain account of what has been done by a practical woman in the way of decorative gardening. From this point of view Miss Jekyll's "Wood and Garden" is distinctly educational. There must be many a landowner and occupier of a fair-sized estate who would be glad to see a few wild acres converted as Miss Jekyll shows us how to do it, and who would commission a competent woman to set about the task. The difficulty is to introduce the competent woman to the sensible landowner.

A PRELIMINARY SKETCH.

An Outline of the History of Educational Theories in England.

By H. T. Mark, B.A. Lond., B.Sc. Vict. (Sonnenschein.)

Mr. Mark rightly takes a broad view: he extends his examination of educational theories to the point of origin in the national development. He pushes back beyond the Renaissance, taking advantage of the various results of recent investigation, and following the glints of the light of learning that have been discovered even in "the dark ages." The effects of the Renaissance itself he carefully analyses, giving particular prominence, of course, to the schools and educators and the general educational progress in England during the sixteenth century. Erasmus and Ascham are well known names; Mulcaster is scarcely so familiar; but, unreadable as his style is, he is very properly put forward by Mr. Mark as a man of ideas. Thus:—

On many points this Elizabethan schoolmaster is abreast of the thought of the nineteenth century. . . . The aim of education (according to him) was to be the development of all the faculties. . . . Precocious children should not be forced. . . . School hours were too long. . . . He introduced also for school use a set of systematic and carefully graduated physical exercises. But it is even more striking to find in him the pioneer of the modern application of psychology to education. . . . When Mulcaster says that things should be so taught that that which goes before may lead on to that which follows, he is only stating in other words Herbert Spencer's dictum, that the child, in learning, must, of necessity, pass "from the known to the unknown." And, again, in the statement that things should be brought under the observation of children in such way as to appeal to the senses, we have the spirit of Herbert Spencer's rule to proceed "from the concrete to the abstract."

And there are still more modern points in Mulcaster, who was simply a man with a strong head—the very kind of man needed for a teacher. Better if European educationists had taken their

cue from him than from Sturm, "the typical Renaissance school-master," whose too narrow and formal system Mr. Mark explains concisely and usefully in an appendix.

In subsequent chapters Mr. Mark reviews the English theories of physical education, from Bishop Latimer and his bow down to Manchester and its football shield competition; of intellectual education, in the varieties of method and gradual expansion of subjects; and of moral education, with the various and variously accentuated means of training character. Wherever Mr. Mark interposes among the authorities a modest opinion of his own, he seems to us to indicate a generous breadth of view and a sound judgment. Happily he does not spare to criticize the great masters, some of whom have laid down tolerably confident theories, without a tittle of his practical experience. One wonders how many of our teachers will con Mr. Mark's pages. Those who do will find them full of interest, and will probably be stimulated to go more deeply into the history of educational processes. If this volume meet with the encouragement it deserves, Mr. Mark may be expected to fill out the sketch into something like a history. He professes no more than an "outline," and this he has executed with great discretion and care. But he has no space to go beyond generalities, except on the leading points; and it seems desirable to deal in larger detail with all the main subjects of the schools. He would find a mine of suggestions in Prof. Bain's "Science of Education," though it is not historical, except occasionally and incidentally—a book he does not, we think, once mention. Fundamentally, the making of the teacher is the making of the man, and the original endowment is the prime factor; but, after all, the best of us is capable of being made better by due meditation on the opinions and examples of theorists and of practical teachers alike. We hope, therefore, that Mr. Mark's little book will be widely read, and that he will be encouraged to expand the treatment to a scale worthy of the matter and of the interests involved.

THE ART OF THE ORATOR.

Rhetoric and Oratory. By the Rev. J. F. X. O'Connor, S.J.

(London: Isbister; Boston: Heath.)

The strict subject of Dom. O'Connor's excellent volume is oratory, and rhetoric comes in only in so far as it bears directly upon the main theme. "The aim of this book," says the author, "is to give precepts for the building of a speech, and, at the same time, to place under the eye of both professor and student the speech built according to these precepts." That is to say, he sets forth the rhetorical principles applicable to oratory, and illustrates them by copious examples of the best quality. Mr. O'Connor justifies the prominent position he assigns to rhetoric by drawing a distinction between "rhetoric" and "the study of style," narrowing rhetoric to "the intelligent and scientific method of training the mind in the best way to build up a speech in accordance with the character of the human mind, in which the intellect follows the light of truth and the will seeks for truth as a good, and acts in harmony with the persuasiveness exerted." We do not see the necessity or the propriety of the distinction; but Mr. O'Connor makes it, and we take him on his own lines.

In Part I., the author handles successively what he calls the "parts of rhetoric"—namely, invention, disposition (or orderly distribution of materials), elocution, memory, and delivery. Incidentally he drags in certain elements of logic when he is expounding the principles of argumentation and refutation, and he dips into psychology and moral philosophy when he is treating the moving of the feelings. We will not quarrel with the mixture in view of the author's intention to concentrate all the materials and means of successful oratory. But we may remark that he gives (in another part) but scrappy elements of "the study of style," which operate in practice with just as much efficiency as logical discrimination or insight into human character. Perhaps also the full treatment would require him to enlarge his borders still further to meet Emerson's dictum that "there is no true eloquence unless there is a man behind the speech." But the line must be drawn somewhere, and Mr. O'Connor gives value for the money anyhow.

Part II. is a well selected series of examples taken from American and British orators to illustrate the different parts of a discourse as expounded in Part I. It is pleasant to see passages from Joseph Warren, John Hancock, Henry Clay, Daniel Webster, John C. Calhoun, Edward Livingston, James Wilson, Joseph Story, and Thomas Addis Emmet, alternated with passages from Chatham, Burke, Erskine, Curran, Grattan,

O'Connell, and Sheridan; while John Bright and Wendell Phillips supply the longer illustrations. Then, in Part III., comes the "application of precepts." Here the author offers a large collection of very sensible comments and suggestions gathered from a wide body of sources as well as from his own judgment, and illustrated from the practice of Greek and Roman and French, as well as American and British, orators. We do not know whether any of the great orators of the world ever heard of a "chria"—whether "verbal" or "historical" or "mixed"—but the budding orator of the future will be equipped with this knowledge if he study faithfully Mr. O'Connor's precepts. The final part contains short short biographical sketches: a couple of dozen of the more famous orators of all times and of all countries. The book is a thoroughly practical one, and cannot fail to be useful to all who wish to make an effort to rise to a distinctive ability in speech-making. But the effort is not to be put in practice without much personal discrimination under pains and penalties. There was once a personage called Dardalus. We leave aspirants to work out the "chria" by way of additional example.

A NEW HISTORY OF SCOTLAND.

"Cambridge Historical Series." Edited by Prof. G. W. Prothero.—*History of Scotland, Vol. I., to the Accession of Mary Stewart.* By F. Hume Brown, M.A., LL.D. (Cambridge University Press.)

There is, admittedly, ample room for a new and compendious history of Scotland. We certainly should not have expected to see the need supplied in Prof. Prothero's series, which was designed "to sketch the history of modern Europe, with that of its chief colonies and conquests, from about the end of the fifteenth century down to the present time." There is, however, no need to question the discretion of the editor in introducing, at his own risk, a work far more comprehensive than we had been led to expect, and starting with the very origins of the Scottish nation—or, to be more precise, with the Roman occupation of North Britain. The incongruity will be forgiven by most of those who possess the remainder of the series, in view of the unquestionable advantage of securing a complete, well told, and comprehensive history of Scotland by a competent writer.

This first volume of Mr. Brown's "History" carries us to the end of the reign of James V. The Battle of Flodden virtually marked the close of a long period of struggle between the Scottish kings and the old nobility. The period which follows is occupied by the sharp opposition of the French and English influences in Scotland.

In his preference of France to England [James V.] was supported by the clergy, but opposed by most of his barons; and the progress of events confirmed him in the policy he had adopted from the first. His two French marriages widened the breach between him and his nobles, and made him still more dependent on the Church. The quarrel of Henry VIII. with Rome had likewise an influence on Scotland which cannot be measured by any accumulation of details—the example of England being, in truth, a great fact that touched men's minds at a thousand points, and influenced them unconsciously to themselves. By the close of the reign of James V. two alternative courses lay clearly before the nation; and the fact that these alternatives had arisen distinguishes that reign from those that went before it. The course that commended itself to James and his ecclesiastical advisers was the continuance of the traditional policy of alliance with France and fidelity to Rome. To an increasing number of the laity, both nobles and commons, however, the wiser course seemed to be to throw in their lot with England, as a policy dictated by nature herself. Ambition and self-seeking, in the case of both parties, obscured the issues that had thus been opened up; but these issues were such as could not be put aside, and the overthrow of Mary Stewart at Langside, twenty-six years after Solway Moss, gave the definite victory to Protestantism and the English alliance.

The extract is a fair example of Mr. Brown's style. It is not rhetorical, and not very incisive; but it is adequate to the requirements of a straightforward narrative. We must defer anything like a critical estimate of this new history of Scotland until we can consider it as a whole.

SOME SOCIAL PROBLEMS.

The Foundations of Society. By J. Wilson Harper. (Ward, Lock, & Co.)

The title of this work does not adequately express the subject-matter of the author's labours. It would suggest an inquiry into the nature of the fundamental principles of physical and intellectual existence governing the action of the forces that

bind men together in societies. It is, however, of the effect of those various forces—ethical, economic, political, and religious—when in active operation that Mr. Harper treats. Without any claims to originality or fresh treatment, the book is a useful and complete survey of the conclusions of the most important modern writers who have dealt with the problem of the evolution of society, and it shows convincing proof of wide reading and careful analysis in every chapter.

It may be recommended as particularly useful to students who have passed their text-book days, to extend the horizon of their intellectual sympathies. The many instances given of the divergent views of great thinkers when dealing with the less surely ascertained facts of primitive civilization will be some protection against the dogmatism of specialists. All the principal unsolved or insoluble riddles of life, from that of the intellectual and moral condition of prehistoric man down to the latest problem of psychological research and current politics, are duly noted. Although, on the whole, the book is written in a fairly philosophical spirit, there are occasional lapses into vague generalizations and statements involving undefined terms, which detract largely from its true scientific value. It may be that "a revelation which contains a message of grace is necessary if man is to respond to the claims of conscience." Such considerations, however, do not tend to simplify the problem of a true adjustment of the claims of individualism and socialism, into a discussion of which they are brought. Ruskin's definition of wealth as "the things which make for life," requiring for its examination ethical considerations, is scarcely fitly illustrated by mere material economics.

The chapter on the political basis of society is perhaps the least satisfactory, being hardly more than a cursory treatment of modern views of the true limitations of government. The author's contention that it is the duty of Government to see that only fair contracts are legal is either a truism or dangerous. Lord Eldon has lived in vain if contracts unfair in the legal sense of fraudulent or inequitable are still enforceable by English law. The difficulty lies in the definition of "unfair," and money-lending contracts, to which the author refers as an example, are seldom unfair. They may be hard; and it is towards mitigation of their harshness that the investigations of the Special Commission are directed. In dealing with this social problem the author would have done well to include a discussion of the true place of State or municipal loan banks. The prevention which is better than the cure may perhaps here be found without that interference with the freedom of contract which is the basis of all industrial prosperity, and the keystone of a stable jurisprudence.

GENERAL NOTICES.

CLASSICS.

The Homeric Palace, by N. M. Isham (Providence, U.S.A.: Preston & Rounds Co.), is a very interesting "attempt to gather together the main facts about the palace of the Homeric time, and to explain them by illustrations." The drawings are "grouped in such a way as to facilitate and invite comparison, not only between the different examples of the Mycenaean time, but between those examples and the forms in use in other periods." The monograph will be found well worth perusal by all students of Homer. The author contrives to bring before the reader the Homeric stronghold as an actuality, not a mere fancy thing constructed out of books. He shows us a castle as imposing and as effectively protected as the great piles of the middle ages. Both as scholar and architect he is thoroughly equipped, and his book should become a standard work of reference on the subject.

The Seventh Book of the Odyssey, edited by C. W. Bain (Boston, U.S.A.: Ginn & Co.), is the right sort of book to interest those who are beginning to study Homer. There is abundance of information on archaeology, mythology, and literature; the illustrative quotations are specially noteworthy, while the grammatical points are sparingly dealt with. The editor has put a large quantity of work into the little volume, and we trust that the book will meet with due appreciation. It is certainly superior to the elementary editions of Homer in use in this country.

Vergil, Æneid IX., by A. Sidgwick (Cambridge University Press), belongs to the "Series for Schools and Training Colleges." It contains notes from the editor's complete edition, a vocabulary, and a brief introduction. The book is thoroughly satisfactory, and Mr. Sidgwick fully maintains the reputation he has won as an editor of elementary classics.

The First Oration of Cicero against Catiline, by C. H. Keene (Blackie), is in the publishers' new "Series of Elementary Classics." With its introduction, variant readings, notes, specimen of translation, exercises,

vocabulary, and illustrations, the book is remarkably complete. Indeed, if there is any fault in the editing, it is that Mr. Keene has overdone the thing a little. As arranged and "glossed" by him, the "First Catiline" looks a somewhat formidable undertaking for the juniors.

Easy Latin Passages for Translation, by F. Ritchie (Longmans), adds one more to the long list of collections of "Unseen Passages." Mr. Ritchie has collected upwards of two hundred and fifty passages from prose and verse. We decidedly do not agree with Mr. Ritchie that all the passages can fairly be described as "easy." Some of the verse passages are certainly hard enough for the fifth form. We may instance Horace, "Odes" III. xxiv., "O quisquis volet impias," which Mr. Ritchie does not make easier by putting a full-stop in place of a note of interrogation at the end. "Easy" is a relative term; but Mr. Ritchie interprets it to mean something above the standard ordinarily accepted by the teachers of middle forms, and far above the standard of the University passman.

A Primer of Latin Grammar: Accidence, by W. Modlem (Rivingtons), appears in a second edition. We spoke in terms of high favour of the book when it first appeared, and we need only add that a nearer acquaintance has confirmed the good impressions we then formed of it.

MODERN LANGUAGES.

French Conversations. By Mlle. Dohors de St. Mandé. Books. III.-VI. (Swan Sonnenschein.)

We have already noticed the first two books of the series. These are arranged on the same lines, and cover a great deal of ground. The various sections are brightly written, and in the hands of an energetic teacher they will be very useful in supplying pupils with an extensive vocabulary of the words required in everyday life. The booklets are well printed, but the price (a shilling for thirty-two pages) seems rather high. It should be added that these books are not suitable for classes of boys.

French Review Exercises. By P. B. Marcou, Ph.D. (Isbister.)

A volume in Heath's "Modern Language Series." The book may be useful in America, where Prof. Whitney's and Prof. Edgren's French Grammars are in use, to which constant reference is made. The exercises consist of sentences "written in French, and then done into English as literal as seemed consistent with intelligibility." The result is "English" of this kind: "Now we exhale (the) honesty a league off"; "Let us take, then, a carriage"; "No, all that will end before long by a new war." It will be seen that little more than word for word translating is required, and that is an exercise of very doubtful value.

French Selections for Advanced Sight Translation. Compiled by T. F. Colin, Ph.D. (Isbister.)

A cheap and handy selection of forty-four passages, taken from French writers of note, chiefly of the present decade—e.g., J. Lemaitre, R. Doumic, G. Rodenbach, Fr. Coppée, P. Loti. The book is correctly printed in clear type.

Goethe, Iphigenie auf Tauris. Edited by H. B. Cotterill, M.A. (Macmillan.)

A careful edition, but undoubtedly inferior to Dr. Brou's, which we noticed last month. The introduction contains much interesting information about the myth of Iphigenia in Greek literature, the inevitable comparison of Euripides' treatment of the story and that of Goethe, and a sketch of Goethe's life. The notes have been conscientiously compiled: we add some remarks on details. Note on line 24: cp. the "schriftdeutsch" von and auf seiten. Note on line 62: entgegen-tragen, -führen, -halten also take the accusative. Note on line 1,458: is einmal ever pronounced émal? If we are not mistaken, the abbreviated form is mal in the North and emol (with "neutral" e and accented long open o) in part of the South. The third appendix contains passages bearing on the subject-matter of the play, taken or adapted from such books as Holm's "History of Greece," Scherer's "History of German Literature," Lewes's "Life of Goethe." This is undoubtedly an improvement on the "passages for translation" in other volumes of Mr. Siepmann's series. The fourth appendix contains an interesting chapter on German words of foreign origin. On page 177 *crucem* should have been given as the source of *Kreuz* rather than *cruz*. The form *liege* on page 178 is misleading, and the original *legem* might have been added. *Sack* (page 182) is not derived from the Greek.

Kleist, Prinz Friedrich von Homburg. Edited by J. S. Nollen, Ph.D. (Boston: Ginn.)

This capital edition of Kleist's fine play deserves to be welcomed by all teachers of German who have been wishing for dramas adapted for class use, and not written by Schiller, Goethe, or Lessing. They will find here a good introduction, dealing fully with Kleist's life and his place in German literature, and with the play. The notes, also, are eminently satisfactory; due attention is paid to the literary aspects of the text, and very numerous parallels are quoted. The notes on grammar are brief, and happily leave unnoticed all that advanced students may be expected to know. We do not like "polyphonic dialogue" (page 128). Could editors of school texts not come to an agreement to cut down to the best of their power the large number of terms taken from Greek? That would save us from "onomatopoeia,"

"euphony," "protasis," "monopody," and many other superfluous expressions.

Grillparzer, Sappho. Edited by C. C. Ferrell, Ph.D. (Boston: Ginn.)

We are glad to find that in America, also, the works of Grillparzer are receiving attention. Mr. Ferrell, who complains in his preface (dated October, 1898) that not one of them has yet been edited in America or England, has not seen Mr. Rippmann's edition, which appeared early in 1898. The introduction gives a short account of the dramatist's life and of the exquisite play which he wrote at the early age of twenty-six. Mr. Ferrell believes that Grillparzer owed a good deal to Franz von Kleist, which was disproved some years ago. The notes are satisfactory on the whole, except for the renderings, which are in somewhat infelicitous English—e.g., "It is very uneasy standing on the heights of human greatness"; "It must be done after all"; "It moved with gentle undulations, also, in her breast."

The Easiest German Reading for Learners Young and Old.

By George Hempl, Ph.D. (Boston: Ginn.)

This well printed volume contains many familiar English nursery rimes translated into German, with questions for drill in speaking and writing, a vocabulary, and an introduction on the teaching of language. Mr. Hempl's introduction contains judicious and sound remarks; he has evidently studied the subject of the early teaching of modern languages with care. It is a little surprising to find that he has been led to consider translations of nursery rimes suitable for this purpose, for the English words must constantly present themselves, and interfere with the rapid acquisition of the *Sprachgefühl*. We notice also that "it is taken for granted that the learner has a start acquired in some other way—that is, he knows the meanings of a few words." Surely it would have been better to have given some elementary exercises containing the "few words." It cannot be denied that the book makes very amusing reading. We quote one of the passages:—"Hompte Dompte sass auf einer Gartenmauer; Hompte Dompte machte einen grossen Plumps. Alle Pferde des Königs und alle seine Leute könnten Hompte Dompte nicht wieder hinaufsetzen." The German is idiomatic throughout. Perhaps, however, Jack Horner would not have said: "Was ich für ein guter Junge bin ich!" but rather "Was ich für ein guter Junge bin!" or "Biu ich aber ein guter Junge!" We were not prepared to find in the vocabulary "Kroosoway" as representing the German pronunciation of Crusoe.

German Selections for Advanced Sight Translation. Compiled by Rose Chamberlin. (Isbister.)

A parallel volume to the "French Selections" noticed above, and also deserving praise. The thirty-eight passages are taken from Th. Fontane, E. von Wolzogen, Sudermann, R. zur Megede, and other recent writers.

MISCELLANEOUS.

Macaulay's Essay on Milton. Edited by John Downie, M.A. (Blackie.)

In this text-book, specially prepared for the Teachers' Certificate Examination, the editor has given his chief attention to the literary style, and appends a list of trifling alterations (sometimes only a matter of punctuation) made by Macaulay in his Essay, to serve as an exercise for the student in discovering the reasons for such changes. This is, perhaps, laying too much stress on mere niceties of style, considering the ignorance of literature on the part of a reader who is supposed to require a note as to how Agag died and who Othello was. The introduction on the life of Macaulay, the subject-matter and style of the Essay, are interesting, and thorough enough for the purpose in hand, and the specimen questions will no doubt help the private student.

Macaulay's Essay on Milton. Edited by H. B. Cotterill, M.A. (Macmillan.)

The value of Macaulay's Essay on Milton lies more in the intellectual vistas it opens up than in the finality of its criticisms and judgments. Mr. Cotterill has borne this continually in mind in writing his preface, general remarks, and notes, all of which, together with a list of books to be read in connexion with the Essay, are intended to stimulate to further study. The Chronological Summary is marred by the common mistake of noting a great man's birth, instead of the chief event of his life—e.g., it is misleading to associate John Locke with the date of Milton's M.A. degree. The notes are thorough and free from trivialities, but occasionally too condensed to be clear, and overloaded with quotations.

The Sir Roger de Coverley Papers from the "Spectator". Edited by Mary E. Litchfield. (Boston: Ginn.)

This little volume fulfils the first essential of a reprint of a literary treasure—it is attractively set forth. The print is good, the introduction briefly puts the reader into the atmosphere of the time; the notes are neither pedantic nor trivial, while dry facts for mere reference are given in smaller type. This edition will be found useful for older forms who are studying the same period in History as a basis for a few light half-hour lessons, or for private reading.

The Story of London. (Edward Arnold.)

London school-children will be interested in this reading-book. The short and clear accounts of the great streets and buildings, of the City

Companies, the parks, the Temple, and so forth, will certainly assist the growth of that intelligent pride in their city which most young Londoners feel. The map of Roman London is a happy illustration, and a very simple one of modern London on the same scale might have been added with advantage, for the ordinary maps of London are too full of detail for educational purposes. The poetical extracts and most of the notes would be better omitted.

De Quincey's "Confessions of an Opium Eater." Edited by G. A. Wauchope, M.A., Ph.D. (Isbister.)

Here we have a great deal in a small space: a life of De Quincey, an appreciation of his style, references in biography and criticism, hints to teachers who have no ideas of their own, copious notes, and an index. The editor has shown discretion in his choice of the text. The text is given as it originally appeared, and, where necessary, extracts are added from the expanded edition subsequently printed. In this way the author is allowed to annotate himself. We could wish that the editor had omitted some of his own notes. "Custos Rotulorum" is not an officer of the English Parliament.

A Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools. Issued by the Medical Officers of Schools Association. (J. & A. Churchill.)

We are glad to record the publication of the fourth and enlarged edition of the most useful "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools," issued by the Medical Officers of Schools Association. The chief alterations in this edition are in the appendix on disinfection, and in the reduction of the "quarantine periods" allotted to scarlatina and to smallpox. The Code, based as it is on the collective experience of the medical officers of nearly all our leading schools, has long been regarded as the standard popular work on the subject of the diseases of children. Some years since, we are told, its more important recommendations were adopted by the Minister of Public Instruction in France, and officially applied by him to the management of the public educational establishments throughout that country. The volume is published in a neat form for eightpence. It seems hardly necessary to say that no schoolmaster or schoolmistress, and, indeed, no parent of young children, should be without a copy.

German Higher Schools: the History, Organization, and Methods of Secondary Education in Germany. By James E. Russell, Ph.D. (Longmans.)

Dr. Russell, of Columbia University, has done for his countrymen, and contingently for ourselves, what Mr. Sadler and others have recently done for English readers. He gives a sketch of German education (going scrupulously back to Charles the Great and Alcuin), and then takes a thorough survey of the existing provision of schools and professional training. The work has been very well done, and, though it is not necessary for us to indicate the general results of Dr. Russell's inquiry, which are by this time fairly familiar to students of comparative education, we can warmly recommend his volume as supplementary to those referred to above.

"Heroes of the Reformation." Edited by Dr. S. M. Jackson.—*Philip Melancthon, the Protestant Preceptor of Germany (1497-1560).* By J. W. Richard, D.D. (Putnam's Sons.)

The life of Philip Schwartzerd—a name which his fastidious friends, on the suggestion of Reuchlin, trimmed down into Melancthon, though he rarely called himself by the softer Greek word—is a natural complement to the life of Luther, who was the last reformer dealt with in this series. The two men were generally friends and condutors, but they had some differences in later life. One of their most striking collaborations was the truly papal dispensation which they issued to Philip of Hesse in 1539, permitting him to have two wives. After a while, the thought of what he had done nearly killed poor Philip Schwartzerd; he refused to eat, and, if Luther had not stood over him with a threat of excommunication, he would have starved himself to death. Dr. Richard tells us all this and a good deal more in his very acceptable volume.

Domestic Economy for Schools. By H. Major, B.A., B.Sc. Stages I., II., and III. (O. Newmann.)

These are three handy little paper-bound books of some sixty-four pages each, adapted to meet the requirements of class subjects of these stages in elementary schools. They are text-books for the use of the teacher, and, by a judicious use of italics and thick-printed headings, the subdivisions of the subject of each chapter can be quickly grasped, and the outline of a lesson can thus be sized without any difficulty. The text matter itself surprises one by its completeness and its pleasant style, and this fact, combined with the thoroughly practical way in which the subjects are handled, make these little handbooks not only useful school-books, but pleasant reading for any woman or girl who wishes to gain some knowledge of this important subject. One little defect must be noted, which is that in some cases—e.g., in Stage II., page 28—the letterpress gives no explanation of the illustration, nor has the latter any key to its different parts.

Spenser's Faerie Queene, Book V. By Kate M. Warren. (Constable & Co.)

This is a neat little volume, and it contains all that is needful for a

right understanding of the poem, though it does not enter upon critical disquisitions on the text or explain the metre. The introduction sets forth the chief characteristics of this fifth book, and embraces a careful analysis of each canto and a list of the chief persons, places, and events of the historical allegory. The text is printed clearly on a wide-margined page, and the glossary is not only a glossary, but it also contains all necessary notes, save textual ones, which arrangement is far more convenient in a little book than having them printed separately.

Shakespeare's Midsummer Night's Dream. By R. Scott, M.A. (Madras: Srinivasa, Varadachari, & Co.)

Mr. Scott's edition of the "Midsummer Night's Dream" is remarkable for its excessive length. The actual text takes 70 pages; the introductions and notes occupy no less than 330 pages. The critical portion does not seem to be justified by any originality. The notes are often of a most trivial character, as: "ll. i. 119: 'Cross her'—'Thwart her own dear.' 120: 'Do but beg'—'Only ask.'" We cannot too strongly protest that this is not the way to teach English literature, even to Indian students.

"Waverley School Series."—The Waverley Historical Reader, Sixth Book. (McDougall.)

Here we have, in three hundred octavo pages, a well written sketch of English history from the earliest times to the end of Elizabeth's reign, suitable for children between ten and fourteen years of age, as it is written in a bright style, and is replete with anecdotes and sayings. The most striking feature of the book is undoubtedly the good illustrations, all of which may deservedly be termed artistic, and many of which are copies of well known portraits and historical pictures. The biographies of eminent men are also a commendable feature. The cover would be improved, in our opinion, if the price were not printed on it in two conspicuous positions. We presume that it is purposely put there to make one marvel that such good print, beautiful paper, illustrations, maps, &c.—to say nothing of the information—can all be had for so little.

"Royal Osborne Geography Readers."—Book IV., Sea and Land. (Nelson & Sons.)

This book contains a fund of information on the chief facts of physical geography, physiography, and geology in the form of easy chapters written in an agreeable narrative style. It ought to arouse the observation and curiosity of children when in the country or at the sea-side, and teach them to use their eyes and ears. The chapters on "A Day's Fishing," "Lighthouses," and "Volcanoes," for instance, would be appreciated by any boy. Books of this stamp, with good illustrations, are calculated to give children a taste for sensible reading if they are encouraged to read them at home first, and not taught to regard them as lesson-books only.

Object Lesson Handbook of Natural History. (W. & A. K. Johnston.)

This is specially adapted to Johnston's series of "Natural History Plates"; but it can be equally well used with any natural history pictures, or even without where plates are not obtainable, as each chapter is headed by a good illustration of the animal spoken of therein. Most of the lessons are subdivided into (a) the description, (b) the habits, and (c) the uses of the animal, and hints for comparisons with other animals are suggested by remarks placed in brackets. In short, this handbook, if placed in the hands of any intelligent junior mistress, ought to enable her to give most interesting, as well as instructive, talks on natural history. At the beginning is a kind of analysis of the relation between "Education and the Child Mind" and upon "The Use of Pictures in Education."

Easy Stories for Infants. (W. & R. Chambers.)

These little tales are printed in a distinct, large type, which is the first requisite for an infant's reading-book. The collection is well adapted for its purpose.

"Pearson's School Series."—The Attractive Readers: Infants' Reader I.; Primer I.—II., and Book I. (C. A. Pearson, Limited.)

The "Attractive" Series of Readers is well named. Printed in large type, well bound, with plenty of illustrations, plain and coloured, of unusual excellence, these little books cannot fail to "attract" children. The first three volumes are in words of one syllable, with lists of words for spelling. Book I. contains some interesting stories of heroism, two fairy tales, and a good deal of verse of a higher quality than the rhyming jingle too often used in such books. Among the latter we are glad to see Lord Houghton's charming song, "Good Night and Good Morning."

"Bell's History Readers."—Early English History in Twelve Stories. (Bell & Sons.)

In many respects Messrs. Bell & Sons' "Early English History" is to be commended. In a series of twelve "readings" a clear and interesting account is given of the outlines of the history of our island from Julius Cæsar to William of Normandy, with descriptions of the social life of Britons and Saxons, and the engineering works of the Romans. The work is fairly accurate; but legendary history is not excluded, and not always noted as legendary. For instance, King Arthur is spoken of as if the facts about him were as certain as those about King Alfred. We have also the tale of Alfred and the cakes.

This is a pity. There is enough picturesqueness in the history of these eleven hundred years to make recourse to fable unnecessary. In the map of the Roman roads the Fosse Way is omitted. The Battle of Brunanburgh is located, without authority, in Yorkshire. There is a misprint of "Arthur" for "Alfred" on page 66. The book is illustrated by pictures of moderate quality and by a good deal of verse, which, with the exception of some well known pieces by Cowper and Whittier, is also of moderate quality.

The Story of the Rise of the Oral Method in America. By the late Hon. Gardiner G. Hubbard. (Washington, D.C.: W. F. Roberts.) *Address upon the Condition of Articulation Teaching in American Schools for the Deaf.* By Alexander Graham Bell. (Boston: Nathan Sawyer & Son.)

Two pamphlets on the teaching of deaf children in the United States and the recent great development of the oral method. The first is an interesting account of the labours of the Hon. Gardiner G. Hubbard from 1862, first to get his own deaf child taught to speak, and then to extend the advantages to others. Up to that date the deaf had only been taught the language of signs; and in Massachusetts there was no school for the deaf of any kind. From the first this gentleman had been convinced of the superiority of the oral method over the sign method as enabling children to receive the same degree and kind of education as others. Through his efforts the Clarke Institution at Northampton, Mass., was formed—as an oral school—and there are now ninety-five schools, with nearly ten thousand pupils. The story is compiled by the daughter on whose behalf Mr. Hubbard commenced his investigation of the subject. It is a very strong testimony to the value of the oral system—that is, the system of teaching the deaf to read from the lips of others—that this lady incidentally records that at the age of nine she had not discovered that, though stone deaf, she differed from other children. Mr. Graham Bell's address was delivered as long ago as 1892 to a conference of teachers. He enforces the importance of this system, and shows how it had recently spread by elaborate statistics from each state.

Cameos from English History. By the Author of "The Heir of Redclyffe." Ninth Series: The Eighteenth Century. (Macmillan.)

These forty "cameos" make up a very pleasant reading-book of historical word-pictures, fairly covering the annals of our history during the last century. Miss Yonge's bright and interesting chapters are not at all a bad substitute for the formal "history" when one has not to reckon with an examination in the near future. We note an occasional defect in the proof-reading, as in the following sentence: "Latterly Wesley and Whitfield were reconciled. Whitfield breathed nothing but peace in his latter years, and they came very soon, for, when Wesley met him, it was *as hock* to see how aged and worn out he looked at fifty years old."

"The Story of the Nations."—*China.* By Prof. Robert K. Douglas. (London: Fisher Unwin. New York: Putnam's Sons.)

Prof. Douglas begins his account of modern China "from the time of Marco Polo," leaving "the earlier history of the country" to appear later. That being so, his first chapter on "the early history of the Empire," its Akkadian affinities, and the teaching of Confucius, might have been dispensed with. There is quite enough of matter and interest in the last five or six centuries, and the author has given us a very readable volume, three-fifths of which deals with events of the last hundred years. This is a discursive story, and any book on Chinese history by a European writer must be more or less discursive.

"University Tutorial Series."—*The Intermediate Text-Book of English Literature. Part II.* (1660-1832). By W. H. Low, M.A., and A. J. Wyatt, M.A. (Clive.)

We have here the continuation of a very serviceable text-book, closely analytic throughout, with fairly safe judgments and adequate provision of specimens. Two more competent editors of a text-book on English Authors it would have been difficult to find.

"Golden Treasury Series."—*Rubā'iyāt of Omar Khayyām.* Translated by Edward FitzGerald. (Macmillan.)

The astronomer-poet of Persia was a great find of FitzGerald's, and in the past few years he has been a great find of English readers and publishers. We welcome this little casket of gems in the "Golden Treasury Series," and, if we are absolved from making many words on a book which has latterly been almost vulgarized by excess of wordy comment, we none the less commend it heartily to every lover of refined poetry. There are only 101 quatrains; but their quality atones for their paucity. We open the pages at hazard:—

"I sometimes think that never blows so red
The rose as where some buried Cæsar bled;
That every hyacinth the garden wears
Dropt in her lap from some once lovely head."

Again:—

"And not a drop that from our cup we throw
For earth to drink of, but may steal below
To quench the fire of anguish in some eye
There hidden—far beneath and long ago."

Oliver Cromwell and His Times: Social, Religious, and Political Life in the Seventeenth Century. By G. Holden Pike. (Fisher Unwin.)

This is one of a crop of books on Cromwell called forth by the fact that the great Protector was born on April 25, 1599, three hundred years ago. Mr. Pike's contribution to the crop is a respectable piece of book-making, dictated by a spirit of natural hero-worship, and written, no doubt, as impartially as the author's point of view would allow. The pictures would have been better away, especially two or three modern buildings, which have nothing to do with the life and times of Cromwell. The second part of the title is barely justified by Mr. Pike's hurried, but generally readable, survey.

The History of Protestantism. By the Rev. J. A. Wylie, LL.D. Vol. I. (Cassell & Co.)

It must be admitted that the republication of this somewhat venerable history is well timed in the present period of stimulated zeal. Dr. Wylie's history is straightforward, and not more one-sided than a history of a protest must of necessity be.

"University Tutorial Series."—*Practical Lessons in Book-keeping.*

By T. C. Jackson, B.A., LL.B. (Clive.)

A well arranged and well explained treatise, adapted for use in schools, and for commercial and other candidates. There are a hundred exercises, which supply a good drill in the general principles of book-keeping.

"Nutt's Conversation Dictionaries."—*English-Spanish Conversation Dictionary.* (David Nutt.)

A welcome addition to an admirable series of little phrase-books. A large number of simple sentences are given under the subject-words, alphabetically arranged. There are also a Spanish-English vocabulary and a grammatical appendix.

Handbook of Composition Exercises. (Philip & Son.)

A well selected series of anecdotes and fables for Standard V. composition, with some specimen letters and subjects for essays for the higher standards. The book seems fairly well done, but we doubt whether a pupil in English composition should be taught to say: "I have never been absent from school once with illness."

Artistic Colour and Brush Work for Higher Standards. By W. Schofield. (W. & A. K. Johnston.)

This is a series of demonstration sheets of cardboard, suitable for class teaching, and arranged in two sets, each sufficient to cover a year's work. The first set contains designs for panels, and the second consists of advanced artistic designs, intended to illustrate the practical application of brush work. The sheets are well produced, and appear to be admirably adapted for their purpose.

British Possessions and Colonies. By W. B. Irvine, B.A. (Reife Brothers.)

A good small quarto shilling atlas, with text, covering the whole of our disjointed Empire in various parts of the globe.

From Messrs. Blackie & Son we have a set of "Standard Class Maps," *England and Wales*, which will be of the utmost utility in the class-teaching of geography. There are fourteen maps, printed in colours on strong manilla paper, 37 inches by 23, and eyeleted at the corners. Different maps are devoted to different features—physical, relief, counties, industries, railways and canals; others take the counties in groups, and others show the principal river basins. It is an excellent series, and we feel safe in recommending it.

WE HAVE ALSO RECEIVED the following publications and new editions:—

Shakespeare's Handwriting: Facsimiles of the five Authentic Autograph Signatures of the Poet, extracted from Sidney Lee's "Life of William Shakespeare" (Smith, Elder, & Co.)—a most interesting brochure, which we are glad to see separately published in this popular form.

A new edition (eighteenth thousand) of *The Classics for the Million*, by Henry Grey (Sonnenschein)—a laborious and generally accurate epitome of the works of the principal Greek and Latin authors.

A Key to the Waverley Novels, by Henry Grey, F.R.B.S. (Sonnenschein.)

The Ipané, by Cunninghame Graham (Fisher Unwin)—a budget of eccentric travel sketches, the first volume of a new series under the name of "The Overseas Library."

A reprint of *Newton Forster; or, The Merchant Service*, by Captain Marryat (Macmillan)—with an introduction by David Hannay and illustrations by E. J. Sullivan.

A reprint of *Ned Myers*, by J. Fenimore Cooper (Blackie & Son). *Synopsis of English Literature*, by A. E. Rowe, M.A. Lond. (University Examination Postal Institution)—a folded chart, somewhat on the lines adopted by the late Henry Morley, showing the chief English authors from 1688 to 1760.

Decorative Designs, edited by Paul N. Hasluck (Cassell)—a serviceable little volume of simple designs.

"The Raleigh Geography Readers."—No. V., *Geography of Great Britain and Ireland* (Blackie & Son).

MATHEMATICS.

Practical Problems in Arithmetic: Course B, Standards I. and II. (Blackie & Son).
Word Building, Derivation, and Composition, by Robert S. Wood, Book VII. (Macmillan).
 "Heath's Pedagogical Library."—*The Contribution of the Oswego Normal School to Educational Papers in the United States*, by Andrew P. Hollis (Isbister).
Dryden's Palamon and Arcite, edited by W. H. Crawshaw, A.M. (Isbister).
Lessons for Beginners in Reading, by Florence Bass (Isbister).
Children's Songs, by Carl Reinecke, translated by E. D'Esterre-Keeling (Breitkopf & Härtel).
 The first volume of *The New Penny Magazine* (Cassell & Co.)—780 pages, 650 illustrations.
Seed Dispersal, by W. J. Beal (Boston: Ginn & Co.).
The Bird World, by J. H. Stickney and Ralph Hoffmann (Boston: Ginn & Co.).
Warwick Head and Hand Geographies (A. G. Dawson)—ten half-penny maps, with accompanying text.
Rational Manual of Spelling, Standard IV., by F. H. Shoosmith (A. G. Dawson).
The Methodic Memory Map Book, by Arthur T. Flux (Nelson & Sons).
The New Code and Pocket Diary for 1899-1900, for the Use of Teachers in Elementary Schools (Jarrold & Sons)—the seventeenth year of publication.

CORRESPONDENCE.

INTERNATIONAL PHONETICS.

To the Editor of the Educational Times.

DEAR SIR,—I am much obliged to your reviewer for the kind way in which he has spoken of the "Elements of Phonetics." He has commented on some details, about which I should like to make a few remarks. No one, I know, is more ready to accept correction than Prof. Viator; and I shall be glad if your reviewer will give me his own pronunciation of *holiness, memory, almoner*, in the transcription of the Association Phonétique Internationale. We are hoping before long to issue a circular, inviting expressions of opinion on many moot points of English pronunciation; and we should like to include all important words where the pronunciation of educated speakers differs. As for the "particularly unfortunate" statement with regard to "the idea of," your reviewer concedes that the slipping of the *r* "is sometimes heard even in educated speech"; we quite agree that it may be put down to carelessness. When he goes on to say that "no educated person could entirely ignore *r* in final *er* or *or*, or sound the *a* in 'idea' like the *o* in 'of,'" I cannot help suspecting that he has not listened carefully to pure Southern English pronunciation, to which these statements certainly apply, as far as I have been able to judge.—I am, yours faithfully,

WALTER RIPPMMANN.

[I must decline to disguise such simple English words as "holiness," "memory," and "almoner" in any transcript whatsoever. I contend that the first two are pronounced by educated people precisely as they are spelt—that the *e* in "holiness" and the *o* in "memory" ought to have their natural and distinct effect; that "holi-nis" is absurd, and "memery" a loose slur. In "almoner" a correct English speaker unquestionably sounds the *r*, or at the very least ends the word by disposing his tongue for the liquid consonant. Would Prof. Rippmann say "Miste Speake, Se"? I did not write that an *r* was ever slipped in between two vowels "in educated speech." Such a thing is impossible. If an educated man slips in the sound "through carelessness or a defective organ"—these were my words—he is using uneducated speech. Prof. Rippmann begs the question when he speaks of "pure Southern English." If the International Phonetic Association intends to transcribe into its forbidding symbols all the careless inexactness of uneducated speech, it may startle a few of us into a more careful pronunciation, but I fail to see what other good purpose it can serve.—YOUR REVIEWER.]

PHONOGRAPHY.

To the Editor of the Educational Times.

SIR,—Mr. P. E. Kingsford has not disproved a single statement made in our last letter relative to the gross inaccuracies contained in his communication published in February. Your readers are, happily, not dependent for their knowledge of the history and development of phonography on scraps picked by Mr. Kingsford from a long speech by Sir Isaac Pitman, presented in an entirely misleading fashion, and accompanied by equally misleading annotations.—Yours, &c.,

SIR ISAAC PITMAN & SONS, Limited.

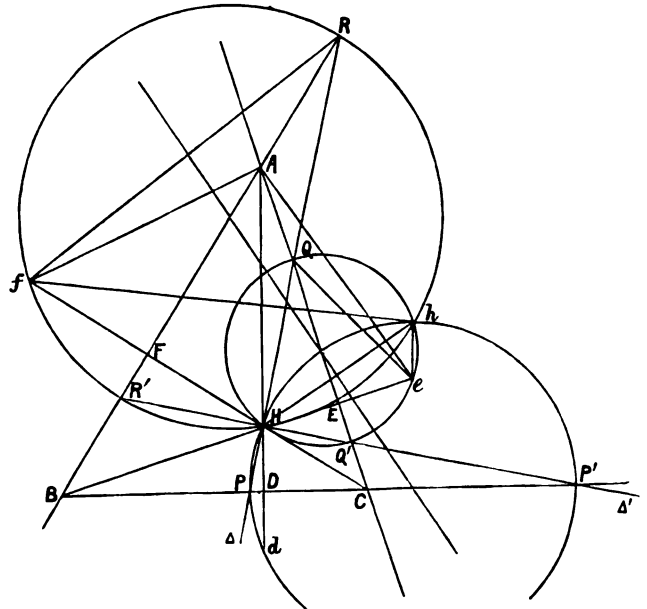
Phonetic Institute, Bath.

[This correspondence must now cease.—EDITOR.]

14111. (Professor A. DROZ-FARNY.)—Menons par l'orthocentre H d'un triangle ABC deux transversales Δ et Δ' perpendiculaires l'une sur l'autre. Il s'agit de démontrer que ces perpendiculaires déterminent sur chaque côté du triangle un segment dont les points milieux α, β, γ sont en ligne droite.

Solutions (1) by C. E. HILLYER, M.A.; (2) by Professor SANJANA, M.A.

(1) Let the transversals Δ, Δ' meet the sides in PQR, P'Q'R' respectively. Let the circles RHR', QHQ' meet again in h , and let CH meet AB in F and the circle RHR' in f , and BH meet CA in E and the circle QHQ' in e .



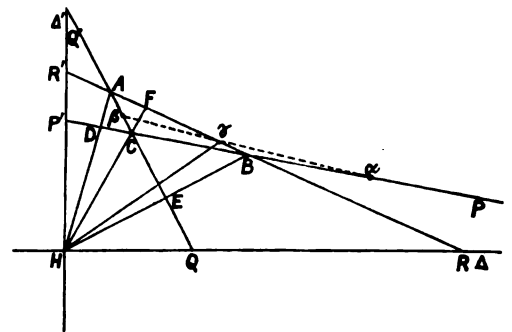
Then, since $Ff = FH$ and $Ee = EH$, e and f are on the circumcircle. Also $\angle fhH = \angle fRH = 2FRH$ and $\angle ehH = \angle eQH = 2EQH$; therefore $\angle fhe = 2A$ and $\angle fAe = 2FAH + 2EAH = 2A$; therefore $\angle fhe = \angle fAe$; therefore h is on the circumcircle.

Similarly the circle PHP' passes through the same point h on the circumcircle.

Therefore the circles are coaxial and their centres collinear.

COE.—Since the mid-point of HA is on the nine-points circle and the line of collinearity is the perpendicular to HA through this point, it touches the ellipse of which H is a focus and the nine-points circle the auxiliary circle; i.e., the inscribed ellipse with foci H and O .

(2) This proposition depends on the following important theorem, which I have not seen in print:—If three points A, B, C be referred to two axes meet in O , the intersections of BC, CA, AB with the isogonal conjugates with regard to the axes of OA, OB, OC , respectively are collinear.



In the present case, if AB meet the axes in R and R' , and the mid-point γ of RR' be joined to H , we have

$$\angle \gamma HR = \angle R'RH = \angle CHR';$$

thus $H\gamma$ and HC are isogonally conjugate. If BC, CA intercept PP', QQ' on the axes, and α, β be the mid-points of the intercepts, we have, similarly, $H\alpha, H\beta$ conjugate to HA, HB . Hence the proposition.

14104. (Professor ELLIOTT, F.R.S.)— X, Y, Z, O_1, O_2 are five points on any cubic; O_1X, O_1Y, O_1Z meet the cubic again in A, B, C respectively, and O_2X, O_2Y, O_2Z in A', B', C' . Prove that the points P, Q, R , where BC' and $B'C, CA'$ and $C'A, AB'$ and $A'B$ respectively intersect, also lie on the cubic; and that PX, QY, RZ meet in a point on the cubic.

Also prove conversely that, if O be a tenth point on any cubic of the pencil which passes through six points A, B, C, A', B', C' and through P, Q, R derived from the six as above, and if PO, QO, RO meet the cubic again in X, Y, Z respectively, then AX, BY, CZ meet in a point on the cubic, as also do A'X, B'Y, C'Z.

Solution by the Rev. J. CULLEN.

Let the lines O₁X, O₁Y, O₁Z be a₁, b₁, γ₁, and O₂X, O₂Y, O₂Z be a₂, b₂, γ₂. Then the equation of the cubic is

$$pa_1b_2\gamma_2 + qa_2b_1\gamma_1 + r\beta_1a_2\gamma_2 + s\beta_2a_1\gamma_1 + t\gamma_1a_2\beta_2 + u\gamma_2a_1\beta_1 = 0,$$

with a₁ + b₁ + γ₁ = 0 and a₂ + b₂ + γ₂ = 0.

Hence we have the intersections of the lines as follows:

$$r\gamma_2 + q\gamma_1 - t\beta_2 = 0, \quad a_1 = 0 \dots\dots A; \quad p\gamma_2 + s\gamma_1 - u\beta_1 = 0, \quad a_2 = 0 \dots\dots A';$$

$$t\alpha_2 + s\alpha_1 - p\gamma_2 = 0, \quad \beta_1 = 0 \dots\dots B; \quad r\alpha_2 + u\alpha_1 - q\gamma_1 = 0, \quad \beta_2 = 0 \dots\dots B';$$

$$p\beta_2 + u\beta_1 - r\alpha_2 = 0, \quad \gamma_1 = 0 \dots\dots C; \quad t\beta_2 + q\beta_1 - s\alpha_1 = 0, \quad \gamma_2 = 0 \dots\dots C'.$$

$$\text{Therefore } BC' \equiv t\alpha_2 + s\alpha_1 - p\gamma_2 - q\beta_1 = 0 \dots\dots\dots (1),$$

$$B'C \equiv r\alpha_2 + u\alpha_1 - p\beta_2 - q\gamma_1 = 0 \dots\dots\dots (2).$$

Now the cubic may be written in the form

$$BC'\beta_2\gamma_1 + B'C\beta_1\gamma_2 = 0.$$

Therefore P lies on the curve; in like manner, also do Q and R.

[The rest in Volume.]

14163. (I. ARNOLD.)—Given the length *l* of an inclined plane, and its height *h*. A body descends from the top of the plane. Find at what distance from the top of the plane the body will begin to describe a space equal to the height in the same time that it would have fallen perpendicularly through the height.

Solution by the Proposer; and Lt.-Col. ALLAN CUNNINGHAM, R.E.

Let *l* = length of plane AB, and *h* = AC the height; also let *x* = AD, the distance from top of plane to where the body begins to descend through DE = AC, and in the same time that it would fall perpendicularly through AC, and let *g* = gravity; then

$$\left(\frac{2(x+h)}{\sin B \cdot g}\right)^{\frac{1}{2}}$$

= the time it descends through *h* + *x* = AE;

and $\left(\frac{2x}{\sin B \cdot g}\right)^{\frac{1}{2}}$ = time it descends through *x*.

Consequently $\left(\frac{2(x+h)}{\sin B \cdot g}\right)^{\frac{1}{2}} - \left(\frac{2x}{\sin B \cdot g}\right)^{\frac{1}{2}}$ = time of descent through DE;

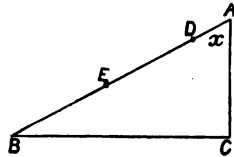
and Time through AC = $\left(\frac{2h}{g}\right)^{\frac{1}{2}}$;

or $\left(\frac{2(x+h)}{\sin B \cdot g}\right)^{\frac{1}{2}} = \left(\frac{2x}{\sin B \cdot g}\right)^{\frac{1}{2}} + \left(\frac{2h}{g}\right)^{\frac{1}{2}}$.

Whence, substituting for sin B its equal *h*/*l*, we get

$$h^2 - 2h^2l + h^3 = 4xhl, \quad \text{or } l^2 - 2hl + h^2 = 4xl;$$

therefore $x = AD = (l-h)^2 / (4l)$.



14156. (J. WATSON.)—In a given circle is a fixed chord equal to the radius, and also a point (not the centre). Describe a second circle that shall touch the given circle and the chord whilst passing through the given point.

Solution by A. E. LAYNG.

Let ABC be the given circle, CD the given chord, P the point. From O, the centre of circle ABC, draw ON perpendicular to CD and produce to meet the circumference in A and B.

Join AP, cutting CD at K. Through NPB describe a circle cutting AP at E.

From KD cut off KM such that

$$KM^2 = KE \cdot KP.$$

Through P, E describe a circle touching CD at M; this is the circle required.

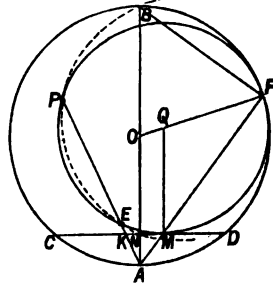
For, let Q be its centre, join AM and produce to meet the circumference of ABC at F.

Then, since ∠BFA is a right angle, the triangles BFA, MNA are similar; therefore AM · AF = AN · AB.

But, since B, P, E, N are points on a circle, therefore AE · AP = AN · AB.

Hence AM · AF = AE · AP, and F is a point on the circle PEM. Join QF, OF, QM. Then, since QM is perpendicular to CD, therefore QM, ON are parallel; therefore ∠QMF = ∠OAF.

But ∠OAF = ∠OFA, and ∠QMF = ∠QFM.



Hence ∠OFA = ∠QFM, and OQF is a straight line; therefore the circle PEM touches the circle ABC at F.

[The length of the chord CD need not have been given. Without this restriction, the question is a particular case of one of the "Tangencies," in which the given point is *within* the given circle.]

14080. (D. BIDDLE.)—Prove that N is factorizable (N = 6n ± 1) when (N-1)² - 576λ = □ and (N+1)² - 576λ = □ (α, β), provided λ > 0 and integral, of the same value in each equation. [(α) represents the square of the difference of the factors, (β) represents the square of their sum. When N is prime, both equations hold good *only* when λ = 0.]

Solution by H. A. WEBB.

Let N ≡ xy, x and y integral. x and y are both of the form 6m ± 1. Therefore

$$(x^2-1)(y^2-1) = (36x^2 \pm 12x)(36y^2 \pm 12y) = 16 \times 3l(3l \pm 1) \times 3m(3m \pm 1) = M(16 \times 6 \times 6) = M(576).$$

Therefore (x²-1)(y²-1) = 576λ,

where λ is integral, and λ > 0 unless x or y = 1. Whence

$$(N-1)^2 - 576\lambda = (y-x)^2, \quad (N+1)^2 - 576\lambda = (x+y)^2 \dots\dots (\alpha, \beta),$$

where λ is an integer.

Also, if λ > 0, neither x nor y = 1, and N is not prime. If N is prime, either x or y = 1, and λ = 0.

[The rest in Vol.]

14048. (Professor THOMAS SAVAGE.)—"No integral values of x, y, z can be found to satisfy the equation xⁿ + yⁿ = zⁿ, if n be an integer greater than 2." (FERMAT: W. W. ROUSE BALL's *Short History of Mathematics*.) Prove the truth of this when x is any prime, y any positive integer not greater than x—the proof to hold for n = 2.

Solution by H. W. CURJEL, M.A.

If xⁿ + yⁿ = zⁿ, then xⁿ = (z-y)(zⁿ⁻¹ + zⁿ⁻²y + ... + yⁿ⁻¹).

If y ≠ x and x is a prime, y cannot be equal to x, for then 2xⁿ would = zⁿ, which is clearly impossible if n > 1; therefore y < x. Also z is clearly less than x + y, since (x + y)ⁿ > xⁿ + yⁿ; therefore z - y < x, and it is a factor of xⁿ; therefore z - y = 1; therefore z = y + 1; but z > x; therefore y = z - 1 > or = x; therefore y = x, which is impossible.

14077. (Professor SANJANA.)—If the arcs joining the mid-points of the sides of a spherical triangle be each 90°, the sum of the squares of the cosines of the half-sides of the triangle shall be unity. (Suggested by Quest. 13661.)

Solution by R. TUCKER, M.A.; and Prof. A. DROZ-FARNY.

$$0 = \cos \frac{1}{2}b \cos \frac{1}{2}c + \sin \frac{1}{2}b \sin \frac{1}{2}c \cos a,$$

$$\text{and } \cos a = \cos b \cos c + \sin b \sin c \cos a.$$

Hence 2 cos² $\frac{1}{2}a$ + 4 cos² $\frac{1}{2}b$ cos² $\frac{1}{2}c$ = 1 + cos b cos c

$$= 2 + 4 \cos^2 \frac{1}{2}b \cos^2 \frac{1}{2}c - 2(\cos^2 \frac{1}{2}b + \cos^2 \frac{1}{2}c);$$

$$\text{i.e., } 2 \cos^2 \frac{1}{2}a = 1.$$

14124. (G. H. HARDY.)—Prove that

$$\int_0^{1/\pi} \log \tan \phi d\phi = \frac{1}{2} \int_0^{1/\pi} \log \tan \phi d\phi = -4 \int_0^{1/\pi} \tanh^{-1} \tan \phi d\phi.$$

Solution by the Proposer.

$$\text{We have } \int_0^{\pi/2} \frac{du}{\cos^2 u - p} = \frac{1}{\sqrt{\{p(1-p)\}}} \sinh^{-1} \frac{\sqrt{p} \sin u}{\sqrt{(\cos^2 u - p)}};$$

i.e., putting

$$p = \cos^2 x,$$

$$\int_0^{\pi/2} \frac{2 \cos x \sin x}{\cos^2 u - \cos^2 x} du = 2 \tanh^{-1} (\tan u \cot x),$$

$$\text{whence } \int_{x_0}^{\pi/2} \frac{2 \cos x \sin x}{\cos^2 u - \cos^2 x} du dx = 2 \int_{x_0}^{\pi/2} \tanh^{-1} (\tan u_0 \cot x) dx.$$

Let u₀ = $\frac{1}{2}\pi$; then

$$\int_0^{1/\pi} \log \frac{\cos^2 u - \cos^2 x_0}{\cos^2 u - \cos^2 x} du = \int_{x_0}^{\pi/2} \log \frac{1 + \cot x}{1 - \cot x} dx.$$

[The rest in Volume.]

13635. (The late Professor WOLSTENHOLME, M.A., D.Sc.)—On the sides of a given triangle ABC are erected equilateral triangles aBC, a'BC, &c.; A, a being on the same side of BC, A', a' on opposite sides of BC, and similarly for b, b', e, e'. It is well known that Aa = Bb = Ce, Aa' = Bb' = Cc'; but prove the following properties:—(1) Aa, Bb, Cc are each equal to three times the difference of the semiaxes of the maximum ellipse inscribed in the triangle ABC. (2) Aa', Bb', Cc' are each equal to three times the sum of the semiaxes of the maximum inscribed ellipse; and to the altitude of the maximum equilateral triangle circumscribed about the given triangle. (3) The straight lines bisecting the angles

between the three pairs $Aa, Aa', Bb, Bb', Cc, Cc'$ are all parallel to the axes of the maximum inscribed ellipse. In fact, if G be the centre of this ellipse, A', B', C' the points of contact (the mid-points of the sides), and if on the straight line drawn through A' at right angles to BC be taken points a, a' , such that aa' is bisected in A' , and is equal to the diameter parallel to BC , Ga is parallel to Aa and $= \frac{1}{2}Aa$; Ga' is parallel to Aa' and $= \frac{1}{2}Aa'$; and, by the well-known construction for the axes of an ellipse from a given pair of conjugate diameters, Ga is equal to the difference, and Ga' to the sum of the semiaxes, and Ga, Ga' are equally inclined to the axes.

Solution by LIONEL E. REAY, B.A.

The maximum ellipse in the triangle touches the sides at the middle points, and its centre G is the centroid. Let its principal semiaxes be λ, μ . By the construction quoted in Question [for proof see SALMON'S *Conic Sections*, § 181 (a)], the principal axes bisect the angles between Ga, Ga' , and $Ga = \lambda - \mu, Ga' = \lambda + \mu$.

Diameter conjugate to $GA' = A'a$ and is parallel to BC ; then

$$\frac{1}{4}(B'C/A'a)^2 + \frac{1}{4} = 1;$$

therefore $B'C' = A'a\sqrt{3}$;

therefore $BC = 2A'a\sqrt{3}$;

therefore $aA' = 3A'a$;

therefore Aa is parallel to Ga and $= 3Ga = 3(\lambda - \mu)$.

Similarly, Aa' is parallel to $9a'$ and $= 3(\lambda + \mu)$; therefore the lines bisecting angles $aAa', \&c.$, are parallel to the axes of the ellipse.

[The rest in Volume.]

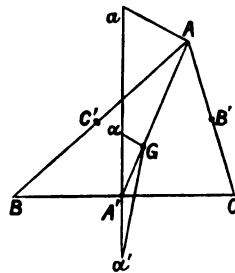


Fig. 1.

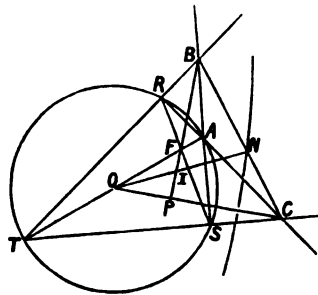
14161. (W. C. STANHAM, B.A.)—If the tangents to a conic from any point on one of its directrices intersect any fixed straight line at points P and Q , the other two tangents to the conic from P and Q intersect on a fixed straight line.

Solution by the PROPOSER.

The theorem follows by reciprocation from the following theorem:—

The straight lines— CA, CT in the figure—joining a fixed point to the extremities of any diameter of a fixed circle meet the circle again at points the join of which passes through a fixed point.

For BC is the polar of F ; therefore the pole of RS lies on BC . But, if I is the mid-point of RS , the pole of RS lies on OI ; and O, I, N , being the mid-points of the diagonals of $ARTS$, are collinear. Therefore N , the locus of which is a fixed straight line parallel to BFP , the polar of C , is the pole of RS . Therefore RS passes through a fixed point.



QUESTIONS FOR SOLUTION.

14192. (Professor CROFTON, F.R.S.)—Two points are taken at random in a triangle ABC , the line joining them dividing the triangle into two parts: show that the mean value of the part containing the vertex A is $\frac{1}{4}$ of the triangle. Hence it may be shown that the mean value of the triangular part is $\frac{1}{4}$ of the whole.

14193. (Professor G. B. MATHEWS, F.R.S.)—Given the general equation of a conic referred to rectangular axes, find the locus of (ξ, η) , first, when $x - \xi = 0, y - \eta = 0$ are conjugate with respect to the conic; and, secondly, when $x + y - \xi - \eta = 0, x - y - \xi + \eta = 0$ are conjugate. Hence show that the equation of the axes of the conic may be written in the form

$$(a - b)\{Cxy - Fx - Gy + H\} - h\{C(x^2 - y^2) + 2Fy - 2Gx + A - B\} = 0.$$

14194. (Professor FRANZ ROEHL.)—Prove that

$$S_r = q + \sum_{s=3,5,\dots}^{\infty} \frac{(-1)^{\frac{s-1}{2}} (2\pi m)^{s-1}}{x!} B_s(x) y^{r-s} \dots \dots (1),$$

where $S_r = \sum x^r, t$ divisor of $m \leq q$, and B_n denotes the "Bernoullian function" of the n th order.

$$E\left(\frac{m}{n}\right) = m + \frac{1}{2\pi} \sum_{s=3,5,\dots}^{\infty} \frac{(-1)^{\frac{s-1}{2}} (2\pi)^s}{x \cdot x!} B_s(m+1) B_s(n) \dots (2),$$

where $E\left(\frac{m}{n}\right)$ represents the greatest integer $\leq \frac{m}{n}$.

14195. (Professor NEUBERG.)—Soit $A'B'C'$ la projection du triangle ABC sur un plan faisant l'angle ϕ avec le plan ABC . Démontrer que les angles des deux triangles vérifient la relation

$$\frac{1}{2}(\cos \phi + \sec \phi) = \cot A \cot B' + \cot B \cot C' + \cot C \cot A' + \cot A' \cot B + \cot B' \cot C + \cot C' \cot A.$$

14196. (Professor THOMAS SAVAGE.)— $ABC \dots WXA$ is a rectilinear figure inscribed in a circle; the sum of A and any angle other than B or X is equal to two right angles: show that the figure is a quadrilateral.

14197. (Professor COCHEZ.)—On donne un cercle fixe O et un point A . Par A on mène une sécante variable ABC et sur BC comme diamètre on décrit une circonférence Σ . Les tangentes communes à O et à Σ se coupent en M . Lieu de M quand la sécante pivote autour de A .

14198. (Professor SANJANA, M.A.)—If p_1, p_2, p_3 be the parameters of the three parabolas which respectively touch one side of a triangle at its mid-point and the other two sides produced, then

$$\Sigma p^{-1} = \frac{1}{2} \frac{\cot \omega}{(2\Delta)^{\frac{1}{2}}} \text{ and } \Sigma p^{-2} = \frac{1}{2} \frac{\cot^2 \omega - 1}{(2\Delta)^{\frac{1}{2}}}.$$

[See Quest. 13002, Vol. LXV.]

14199. (Professor UMES CHANDRA GHOSH.)— ACB is a quadrant of an ellipse, and CP any central radius vector. If x and y are the distances of the centre of gravity of the segment BCP of the ellipse from the major and minor axes, show that

$$ay = bx \cdot \cot \left\{ \frac{2ab^2x}{3(a^2y^2 + b^2x^2)} \right\}.$$

14200. (D. BIDDLE.)—Describe an ellipse which shall touch the base of an equilateral triangle, pass through the apex, and have its foci on the two sides (one of which is inclined at an angle θ to the major axis); then inscribe to the triangle another ellipse, touching the base in the same point, and having its major axis on the join of the nearest vertex to the mid-point of the opposite side. Find the ratio between the areas of the two ellipses and the triangle.

14201. (R. TUCKER, M.A.)— P, Q, R are points on a parabola, such that PQ, QR are normals to the curve. If SP^2, SQ^2, SR^2 are denoted by r_1, r_2, r_3 , prove $(r_3 - r_1)^2 = (r_1 + r_2)^2(2r_2 - r_1 - r_3)$; hence they cannot be in $A.P.$ Show that the circle PQR is given by

$$m^2(m^2 + 2)(x^2 + y^2) - 2pqax - 4pmy + m^2(m^2 + 2)(m^2 + 4)qa^2 = 0,$$

where P is the point $(am^2, 2am)$ and p, q stand respectively for $m^4 + 4m^2 + 2, m^4 + 6m^2 + 4$. Find also when the circle passes through the focus.

14202. (H. FORTEY, M.A.)—A uniform chain is suspended by its ends from two points at the same level and at a known distance apart, and its length is such that the tension at the ends is the least possible. Find (1) the tension at the ends; (2) the length of the chain; (3) the dip of its lowest point beneath the straight line joining the points of support; and (4) the angle which a tangent to the curve at either extremity makes with a vertical line.

14203. (V. R. THYAGARAGAIYAR, M.A.)—Show that the roots of the equation $32x^5 + 16x^4 - 32x^3 - 12x^2 + 6x + 1 = 0$ are $\cos \frac{1}{5}\pi, \cos \frac{3}{5}\pi, \cos \frac{4}{5}\pi, \cos \frac{2}{5}\pi, \text{ and } \cos \frac{1}{5}\pi$.

14204. (J. MACLEOD, M.A.)— B, E are the remote points in which the line of centres of two unequal circles which intersect meets the circumferences; A one of the points of intersection of the circles; $BF = BA$; $ED = EA$; $\angle FAO = \frac{1}{2}\angle BAE$. The radius AO produced meets the circumference in G ; AD produced meets the same circumference in H , and AC meets in K . Prove $AKGH$ a parallelogram.

14205. (Rev. W. ALLEN WHITWORTH, M.A.)—If convergents to $\sqrt{3}$ be formed in the usual way by a continued fraction, show that the

$$n\text{th convergent is } \frac{(2 + \sqrt{3})^n + (-1)^n}{(2 + \sqrt{3})^n - (-1)^n} \sqrt{3}.$$

14206. (R. F. DAVIS, M.A.)—If AP bisect the angle BAC of a triangle and be a mean proportional between AB, AC , then

$$BP^2 = 2AB \cdot DP \text{ and } CP^2 = 2AC \cdot DP.$$

14207. (B. N. CAMA, M.A. In continuation of Quest. 14177.)—In the case when $\beta = \frac{1}{2}\pi$, it is evident that a parabola can be described touching the spiral at the points of contact, and having the chord of contact for a focal chord. Prove that (1) the latus rectum of the parabola is $PQ \sin^2 \phi$, PQ being the chord of contact and ϕ the inclination of PQ to the axis of the curve; (2) the angle ϕ is constant for all pairs of orthogonal tangents to the spiral, it being equal in fact to $2(\psi - \alpha)$, where ψ is as defined in Question 14177; (3) the locus of the focus of the parabola for varying positions of PQ is a copolar spiral.

14208. (Rev. T. ROACH, M.A. Suggested by Quest. 13173.)—Six circles are described, each passing through the incentre and touching one side of the triangle at one of its extremities. (1) Show that the centres of the six circles lie on the radii ID, \dots , on three circles concentric with the incircle. (2) Show that the product of the radii of three alternate circles $= 2R^2r$.

14209. (G. H. HARDY.)—Prove that

$$\int_0^{\infty} \frac{x^2 dx}{\cosh x + \cosh \lambda} = \operatorname{cosech} \lambda \int_0^{\infty} \left(\log \frac{x - \alpha}{\beta - x} \right)^2 dx = \frac{1}{2} \lambda (\pi^2 + \lambda^2) \operatorname{cosech} \lambda \quad [\lambda = \log(\beta/\alpha)].$$

Deduce the values of

$$\int_0^{\infty} \frac{x^2 dx}{\cosh x + \cos \lambda}, \int_0^1 \frac{(\log x)^2 dx}{1 + 2ax + x^2} \quad (-1 < a).$$

14210. (H. MACCOLL, B.A.)—Given that a and b denote real chances, and that k is positive, within what limits must k , a , b lie so that the fraction $k(1-a-b)/(1-b-bk)$ may denote a real chance? The limits of b are required to be expressed in terms of a , the limits of a in terms of k , and the limits of k numerically.

14211. (Rev. J. CULLEN.)—Given $\rho, \rho_1, \dots, \rho_n$, the radii of curvature at the corresponding points on a conic and its n successive evolutes, prove that the radius of curvature of the $(n+1)$ th evolute may be expressed in the form $\rho_{n+1} = \sum a_r \rho_r \rho_q \rho_t / 9\rho^2$, and in the case of a parabola $\rho_{n+1} = \sum a_r \rho_r \rho_q / 3\rho$.

14212. (G. N. BATES, B.A.)—In tripolar coordinates ($x = PA^2$, &c.) find the conditions that the general equation of the second degree should represent a conic, and additional conditions for (1) a parabola, (2) a rectangular hyperbola.

14213. (ROBERT W. D. CHRISTIE.)—If

$$A_n = m^n - n \cdot m^{n-2} + \frac{n \cdot n-3}{2!} m^{n-4} - \frac{n \cdot n-4 \cdot n-5}{3!} m^{n-6} + n$$

for all integral values of m and n , then

$$X^{2n} - A_n X^n + 1 = (X^2 - mX + 1)(a_1 X^{2n-2} + a_2 X^{2n-4} + \dots + a_n X + 1),$$

where $a_n =$ a series allied to A_n . *Ex. gr.*—If $m = 5$, $n = 3$, then

$$x^6 - 110x^3 + 1 \equiv (x^2 - 5x + 1)(x^4 + 5x^3 + 24x^2 + 5x + 1).$$

There are two other allied theorems for positive values of A_n and m ; it is required to establish them.

14214. (H. J. WOODALL, A.R.C.S.)—At A and B in the straight line AB are erected two perpendiculars AN, BM to AB . Through any point P , AP, BP are drawn to meet BM, AN in Q, R , respectively. Given the locus of P , find the envelope of QR . Also, in the case where Q' is the intersection of AP and $M'N'$, where $M'N'$ is parallel to AB and at an assigned distance.

14215. (W. C. STANHAM, B.A.)—(1) If P is any point on a rectangular hyperbola which passes through four points A, B, C, D , whose coordinates are $(x_1, y_1), (x_2, y_2), (x_3, y_3), (x_4, y_4)$,

$$P(ABCD) = \frac{(x_2-x_1)(x_4-x_3) + (y_2-y_1)(y_4-y_3)}{(x_3-x_2)(x_4-x_1) + (y_3-y_2)(y_4-y_1)}$$

(2) If A, B, C, D are concyclic, and Q is any point on the circle,

$$Q(ABCD) = \frac{(x_2-x_1)(x_4-x_3) - (y_2-y_1)(y_4-y_3)}{(x_3-x_2)(x_4-x_1) - (y_3-y_2)(y_4-y_1)} \\ = \frac{(x_2-x_1)(y_4-y_3) + (y_2-y_1)(x_4-x_3)}{(x_3-x_2)(y_4-y_1) + (y_3-y_2)(x_4-x_1)}$$

The axes of coordinates are considered to be rectangular in both (1) and (2), and $E(ABCD)$ to represent the ratio

$$(\sin AEB \cdot \sin CED) / (\sin BEC \cdot \sin AED).$$

14216. (R. KNOWLES, B.A.)— S, H are the foci of an ellipse; from S perpendiculars SY, SZ are drawn on tangents to the ellipse from the same point O . Prove (1) that HO and YZ are at right angles; and (2) show that this is also true of the parabola.

14217. (J. J. BARNVILLE, B.A.)—In the two series

$$u = 1, 3, 7, 19, 49, \dots \quad \text{and} \quad v = 1, 3, 8, 20, 53, \dots,$$

having $u_n = u_{n-1} + 3u_{n-2} + 3u_{n-3}$, &c.,

prove that the ratio $u_n : v_n$ ultimately = $2 : \sqrt{10}$.

14218. (Rev. T. MITCHESON, B.A.)—If

$$(p/q) \tan \theta = (r/s) \tan 2\theta = (t/u) \tan 3\theta,$$

then show $(p^2su)/(q^2rt) = 2 \{ 4\sum (3 \tan^2 \theta)^{n-1} - \sum (\tan^2 \theta)^{n-1} \}$.

14219. (I. ARNOLD.)—If a and b be the two parallel sides of a trapezoid, and h the line which bisects those sides, the centre of gravity G of the trapezoid is in this line. It is required to find the distance of G from a in the line h in terms of a, b , and h .

14220. (Rev. Dr. FREETH.)—Discussion is invited as to the propriety of the expression $x^2 + px + q = 0$. The q , it is submitted, is not homogeneous, and might rather be $\pm q^2$. So as to the q in $x^3 + px + q = 0$.

[Dr. FREETH desires also to correct one or two slight errors in his last Question (14174). In the note appended to that Question, for "by either trisectrix an isosceles triangle of 20° is obtainable," read "by either trisectrix an equilateral triangle, being as to 60° trisected, an angle of 20° is obtainable." Also, for "thus," &c., read "thus, an angle of 1° being quinquesectioned, there results an angle of $12'.$ "]

14221. (Professor F. MORLEY.)—Let $\sigma_0, \sigma_1, \sigma_2$ be three positions of a sheet of paper σ lying on a table σ' . Let O_{01}, O_{12}, O_{20} be the three centres of rotation in the paper; O_{01}, O_{12}, O_{20} the centres of rotation in the table. Let H and H' be the orthocentres of these triangles. Prove that, when the three positions of a point of the paper lie in a line of the table, this line goes through H' ; and that, inversely, when the three positions of a line of the paper pass through a point of the table, the line goes through H .

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

5804. (Rev. W. A. WHITWORTH, M.A.)—A man plays $3n+2$ times, for an even stake, winning $2n+1$ times and losing $n+1$ times. Show that the chance that throughout the play he is never either worse off than at the beginning, or better off than at the end, is $n/(4n+6)$.

5810. (J. L. MCKENZIE, B.A.)—Given two points P_1, P_2 on a fixed circle, and three points A_1, A_2, A_3 in a straight line. A circle is drawn through either of the points P , and any two of the points A , cutting the given circle again in H ; and a line is drawn joining the remaining points P and A , and cutting the given circle in K . Prove that the six lines HK thus obtained all cut the line ABC in the same point.

5812. (R. A. ROBERTS, M.A.)—Prove that the locus of the centroid of a triangle inscribed in one conic and circumscribed about another is a conic.

5822. (Sir W. THOMSON, F.R.S., now Lord KELVIN.)—A cylindrical rod hangs down vertically so as to be partly above and partly below the surface of a liquid resting in a large vessel. Show that its apparent weight is equal to its weight in air increased by the (positive or negative) quantity by which the weight of the volume of liquid drawn up above the plane level exceeds the weight of a quantity of liquid equal in volume to the portion of the solid below the plane level. Alter the statement to suit cases in which the solid depresses the liquid. Explain, in accordance with LAPLACE'S theory, the forces by which the equilibrium is maintained.

5825. (Professor CLIFFORD, F.R.S.)—If, in regard to a system of n quadric surfaces, the two systems of n polar planes in regard to any two points of space are projective to one another, either the quadrics have a common Jacobian or each of them is a doubled plane.

5826. (Professor BALL, F.R.S.)—A rigid body, capable of rotating around a fixed point, is in stable equilibrium. If the body, when slightly displaced from its position by being rotated around an axis, continues for ever to vibrate around this axis, this line is called a normal axis. Prove that there are, in general, three normal axes; that, when forces have a potential, the three normal axes are conjugate diameters of the momental ellipsoid, and that they may be completely determined by a geometrical construction.

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, April 13, 1899.—Lt.-Col. Cunningham, R.E., V.P., in the Chair. Ten members present.

The following were elected members of the Society:—Prof. B. F. Finkel, Drury College, Springfield, Missouri; H. T. Kelsey, M.A., The Grammar School, Leeds; Prof. E. O. Lovett, Ph.D., University of Virginia; A. L. Pedder, M.A., Fellow of Magdalen College, Oxford; and A. J. Wade-Gery, B.A., Assistant Lecturer in Mathematics, University College, Cardiff.

The Chairman briefly alluded to the loss the Society had sustained by the recent death of its foreign member, Professor Sophus Lie.

Mr. Kempe, F.R.S., having taken the Chair, Lt.-Col. Cunningham read a paper "On Conformal Division"; Major MacMahon, F.R.S., Messrs. Lawrence and Western, and the Chairman took part in a discussion on the paper.

The following communications were made in abstract:—

"Note on the Characteristic Invariants of an Asymmetric Optical System": T. J. P.A. Bromwich, B.A.

"Concerning the Four Known Simple Linear Groups of Order 25920, with an introduction to the Hyper-Abelian Linear Groups": Dr. L. E. Dickson.

(1) "On the Direct Determination of Stress in an Elastic Solid, with application to the Theory of Plates"; (2) "On the Stress in a Rotating Lamina"; (3) "The Uniform Torsion and Flexure of Incomplete Torsors, with application to Helical Springs": J. H. Michell, M.A.

"The Theorem of Residuation, Noether's Theorem, and the Riemann-Roch Theorem": Dr. F. S. Macaulay.

Impromptu communications were made by Messrs. Hargreaves, Heppel, Roseveare, Western, and the Chairman. This last called attention to the following curious properties of the number 7, viz.:

$$18^3 \equiv +1, \quad 19^3 \equiv -1 \quad (\text{mod } 7^2 \text{ and } 7^3);$$

$$1353^3 \equiv +1, \quad 1354^3 \equiv -1 \quad (\text{mod } 7^4 \text{ and } 7^5);$$

$$82681^3 \equiv +1, \quad 82682^3 \equiv -1 \quad (\text{mod } 7^6 \text{ and } 7^7);$$

but these properties do not extend to 7^8 and 7^9 .

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THE EDUCATIONAL TIMES,

AND
Journal of the College of Preceptors.

Vol. LII.] New Series, No. 458.

JUNE 1, 1899.

(Price to Non-Members, 6d.
By post, 7d.)

COLLEGE OF PRECEPTORS.—
The Half-Yearly GENERAL MEETING of the Members of the Corporation will be held at the College, Bloomsbury Square, W.C., on Saturday, the 22nd of July, at 3 p.m.
C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—
EXAMINATIONS FOR 1899.

1. **DIPLOMAS.**—The next Examination of Teachers for the Diplomas of the College will commence on the 4th of July, 1899.—At the Midsummer Examination, persons who have previously passed in Theory and Practice of Education at the Diploma Examination may be examined practically for Certificates of Ability to Teach.

2. **CERTIFICATE EXAMINATIONS.**—The Midsummer Examination for Certificates will commence on the 27th of June.

3. **JUNIOR FORMS EXAMINATIONS.**—The Midsummer Examination will commence on the 27th of June.

4. **PROFESSIONAL PRELIMINARY EXAMINATIONS.**—These Examinations are held in March and September. The next Examination will commence on the 5th of September, 1899.

5. **INSPECTION AND EXAMINATION OF SCHOOLS.**—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

PRIZES.

Diploma Examination.—In addition to the Doreck Scholarship of £20, the following Prizes will be competed for:—Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Natural Science, £5.

Certificate Examination.—The "Isbister Prize" will be awarded to the Candidate who stands First, and the "Pinches Memorial Prize" to the Candidate who stands Second in General Proficiency. Prizes will also be awarded to the First and Fourth in General Proficiency, and to the Third and Second in the following subjects:—Classics, Mathematics, Modern Languages, Natural Sciences, English Subjects. The "Taylor Jones Memorial Prize" will be awarded to the best Candidate in Scripture History. Two Medals will be awarded to the best Candidates in Shorthand.

The Regulations of the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

PRELIMINARY EXAMINATION OF MEDICAL STUDENTS.—The COLLEGE OF PRECEPTORS will hold an Examination for Certificates recognised by the General Medical Council as qualifying for Registration as a Medical Student, on the 5th, 6th, and 7th of September, 1899.

The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

Examination Fee, 25s.

Regulations and Entry Forms may be obtained on application to the Secretary of the College of Preceptors, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.—

EXTRACT FROM THE BY-LAWS.

Section II., clause 5.—"The Council may grant the privileges of Membership, without payment, to holders of Diplomas of the College, as long as such persons are engaged in teaching in Secondary Schools."

Holders of the College Diplomas who are not Members of the College are requested to send their Addresses to the Secretary of the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary*

COLLEGE OF PRECEPTORS.—
(Bloomsbury Square, W.C.)

The next Monthly Evening Meeting of the Members will take place on Wednesday, the 14th of June, when H. E. MALDEN, Esq., M.A., will read a Paper on "Historical Examination Papers: how to Set and Answer them."

The Chair will be taken at 7.30 p.m., and a discussion will follow the reading of the Paper.

Members have the privilege of introducing their friends.

C. R. HODGSON, B.A., *Secretary.*

COLLEGE OF PRECEPTORS.

THE CALENDAR FOR 1899

is now ready, and may be obtained from Mr. F. HODGSON, 89 Farringdon Street, E.C. Price, see by post,

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The Calendar contains, in addition to the Lists of Members, and of Schools sending in candidates to the Certificate Examinations, the Regulations respecting the Examinations to be held in 1899, &c., and the

EXAMINATION PAPERS

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The Educational Times.

The Crux of Inspection. PUBLIC business in the House of Commons is in such a forward state, and the hands of the Government are, speaking comparatively, so free, that it would surprise nobody if the Board of Education Bill were moved into Committee before the end of June. Though we scarcely suppose that the House will be as quick about its work as this would imply, we will take the opportunity of making one or two observations on the Bill whilst it is in a state of suspended animation between the two Houses, when the Lords have said their last word about it, and the Commons have not yet taken it into consideration.

The Bill which the Duke of Devonshire introduced into the House of Lords represented, as far as it went, the result of long deliberation, conclusions arrived at with much difficulty, and not without a certain compromise of opinion and a balance of interests which had finally commended itself to most of the professional experts. An instrument under such circumstances is wont to be of a somewhat delicate construction, easily disturbed and thrown out of gear. It is no new thing for either House of Parliament to unsettle by a chance vote or a snatched division the terms of an arrangement which has been accepted before the drafting of a Bill by those whom the Bill is more or less seriously to affect. The only important thing which the House of Lords has done with the Board of Education Bill is to disarrange it in this fashion, and to disturb a balance which had been very carefully adjusted. We do not believe that the Lords, or the majority of six lords, intended to disturb the balance. The little rally which took the Duke of Devonshire by surprise in Committee and put him in a minority had a definite intention; but the intention was not quite so definite as the effect of the vote. It is easy to demonstrate this.

The third clause of the Bill runs as follows:—

3.—(1) The Board of Education may, by their officers or by any University or other organization approved in that behalf by the Board, after taking the advice of the Consultative Committee hereinafter mentioned, inspect any school supplying secondary education and desiring to be so inspected, for the purpose of ascertaining the character of the teaching in the school and the nature of the provisions made for the teaching and health of the scholars, and may so inspect the school on such terms as may be fixed by the Board of Education with the consent of the Treasury.

Lord Spencer's amendment, carried against the Government by a combination of peers of both parties, secured the omission of the words "or other organization approved in that behalf by

the Board." Now, the combination aforesaid was brought about by a little pulling of the strings outside the House, and those who pulled the strings have been good enough to tell us why they did so. The words of the clause, they say, were so vague that, if they had been enacted, there would have been nothing to prevent the Board from approving a score of different organizations as inspecting bodies, and we might have witnessed a wholesale delegation of authority such as has already taken place under Clause 7 of the "Science and Art Directory." The object of Lord Spencer and his friends was to render this impossible. Not long before the date on which the Standing Committee of the House of Lords met the following resolution had been passed by the National Education Association—a body of which we will only say that it was not without influence on some of the peers who voted with Lord Spencer:—

That the incidental delegation of powers of inspection in Clause 3 prejudices the important question of the constitution of Local Authorities; fails to define such Authorities; and leaves too great latitude to the Department's power of delegation; and we recommend that the provision should be omitted from the Bill, and the matter should be dealt with specifically in a separate measure.

The object was clearly to guard against a supposed danger of indiscriminate delegation. The Duke of Devonshire, as will be seen from our summary of the discussion, said that, so far as he knew, the College of Preceptors was the only body contemplated in addition to the Universities. By a special proviso he has recognized the Central Welsh Board as another. But the words under which the College could have been approved by the Board as an inspecting authority are gone; and, if what we have called the disturbing of the balance is to be remedied, it will be necessary in the House of Commons to move the insertion of fresh words in Clause 3 for that purpose. We have no doubt that the Government will be prepared to accept them.

The inspection of schools in England, as the text of the Bill now stands, may be undertaken by inspectors directly nominated by the Board of Education, or, with the sanction of the Board, by the Universities. The clause applies to "any school supplying secondary education and desiring to be so inspected." Now, it is to be presumed that the wish of the Government and the nation, of those who drafted the Bill, and of Parliament, which is considering it, is that as many schools as possible shall desire and be encouraged to submit to inspection, and shall thus come within the legislative scheme of secondary organization. Do they suppose, or would Lord Spencer and his friends suppose, that the schools which retain the option of coming into the scheme or remaining outside of it will be encouraged to

choose the former alternative if they are told that their methods and circumstances, "the provisions made for the teaching and health of the scholars," must be submitted either to a Government inspector or to an Oxford or Cambridge man, who may never have had the opportunity of tempering his academic theories—not to say prejudices—with the experience of the more comprehensive and judicious world without? Most of the schools which would retain the option of accepting or rejecting inspection under the new Act are private and proprietary. Many of them have been inspected by the College of Preceptors for the satisfaction of their headmasters, or of the parents of their scholars; but, rightly or wrongly, they would not be much disposed to call in a Government inspector, or a resident M.A. of Oxford or Cambridge, freshly nominated to inspect under a Government scheme. The reason is easy to understand, whether we hold it a wise reason or an unwise one. The inspectors of the College, we need hardly say, are men not only of proved attainments, but also of wide experience; and their decisions have for many years been recognized by the Commissioners who exercise control over endowed schools. Their work as performed for the College is in every respect as thorough and efficient as that of any other set of inspectors in the country; but they are men with an exceptional knowledge of all classes of non-endowed secondary schools. Is it—we repeat the question—to be supposed that these schools will be attracted to the new organization if they are alarmed to begin with by what they may consider an increase of stringency, though in fact it would be nothing of the sort?

This is only one of the considerations which are raised by the Lords' amendment of the third clause. It points, we do not hesitate to say, to a distinct menace of danger in the prospects of the Bill now before Parliament, which would lose a great deal of its value if it were made less equitable in its scope, and less generally acceptable to the various sections of the profession of secondary teachers. We do not wish, and we are sure there is no need, to labour this point any further. No one has a better grasp of the whole situation than the Duke of Devonshire, Sir John Gorst, the officials of the Education Department, and we cannot doubt that the Government will do all that lies in their power to remedy the mischief which was introduced by Lord Spencer's too sweeping amendment.

NOTES.

WE have no clear or satisfactory statement as to the future location of London University. Appearances still point to its being boarded out in the Imperial Institute; in which case, inevitably, one of two things will happen: either the University will be permanently crippled, or it will gradually swallow and assimilate the Institute, converting it into a sort of faculty of empire-knowledge. That would be a consolation for such as do not like the boarding-out plan. For our part, we do not agree with those who think that South Kensington is no place for a University. The *Daily News* says that there are two buildings outside Burlington Gardens which would be much more suitable in every way than the Imperial Institute for the requirements of the University. One is University College, in Gower Street; the other is King's College, in the Strand. "It is intended that both these Colleges shall be integral parts of the Teaching

University, and all possible use should be made of them. One of them is near the British Museum, the other is in the centre of London. The Imperial Institute stands just where a University ought not, and is in all respects unsuitable." This is going too far. The museums and colleges lying near the Imperial Institute are already magnificent, and they will soon be more so. All that is necessary is that the University of London shall be supreme in its own house.

MR. CHAMBERLAIN has certainly been a good friend to Birmingham, and to the Birmingham University in particular. Also he has shown to some of the rest of us how to evolve "pious donors," and how to raise six-figure funds for the endowment of education—namely, by creating an idea, and setting up a standard, and disseminating faith and confidence. The raising of a Quarter of a Million Fund has been a kind of endowment "by suggestion," and Mr. Carnegie is only the latest of the hypnotized. There are two theories as to the other, and anonymous, donor of £50,000—one that it is Mr. Chamberlain himself, and the second that it is a compatriot of Mr. Chamberlain's wife. Whoever it may be, his stipulation that the quarter of a million shall be stretched into £300,000 is shrewd enough. There is nothing like striking while the iron is hot.

THE offer of the Government to Ireland in the new Agriculture and Industries Bill seems to be very liberal. The handing over of the Irish section of the administration of the Science and Art Department is in itself an educational revolution, and we imagine that Irishmen will be eager to profit by this concession. It is recognized that, if the Bill becomes law, the great interests connected with industrial applications of science and of art will be looked after in Ireland by an Irish Department closely in touch with Irish opinion as expressed by elected representatives of the people, seeking constantly to study their needs and having abundant opportunities of doing so. It will inherit the funds, the buildings, the equipment, and the experience of the South Kensington Department, and it will inherit them at a period when the South Kensington staff in Ireland, as we see is admitted by the Dublin daily papers, is at a high pitch of efficiency and zeal for the public service.

THERE is still, apparently, no satisfaction for the students of the Russian Universities. Higher education in the dominions of the Czar is, to a great extent, paralysed, and one of our latest items of news is to the effect that nine professors of the St. Petersburg University have resigned their posts, with an expression of sympathy for the grievances of the students. It is stated that M. Witte, one of the most liberal-minded Ministers of Nicholas II., witnessed the original whipping scene on the banks of the Neva, and "sympathized altogether" with the victims; but still there is no *amends*. At Tomsk, in Siberia, the students have been rusticated *en masse* for a year, and are taking the opportunity of putting in their term of military service. This is a quiet and business-like way of taking their punishment; and, in fact, the Russian students are decidedly more moderate over their treatment than French or German students would be.

A CORRESPONDENT writes to us as follows:—There will, as usual, be a Holiday Course for modern language teachers at Marburg this year. Those who took part in previous courses held in this charming University town need not be told of the many advantages offered. The list of lectures to be delivered promises many good things. Thus, M. Paul Passy will discourse on Phonetics, and Prof. Victor has promised to lecture on Method. The English section will be much more strongly represented than in former years; Prof. Herford, Prof. Moore-Smith, and Dr. Heath are all expected to help, either during the whole course, or for the second part. The course is to consist of two series of lectures, each complete in itself; the first lasting from July 17 to 29, the second from August 2 to 15. A detailed prospectus is now ready, and can be obtained of Mr. Lipscomb, of University College School, Hon. Secretary of the Modern Language Association. The Hon. Secretary of the Marburg Committee is Herr Privatdozent Dr. Finck (Frankfurterstr. 20), to whom those should apply who wish to take part in either or both of the courses, or who desire to have any further information.

An excellent example is being set to other counties by the Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded. The fact is that feeble-minded children are a serious danger to the community, and one which is likely to increase if they are allowed to grow up without proper supervision, and to perpetuate the evil by marriage. It is a matter of experience that mental deficiency and moral weakness go hand in hand, and that our criminal classes are largely recruited from these unfortunates. As a result of Miss Mary Dendy's inquiry into the number and condition of feeble-minded children in the Manchester Board schools, it was decided to start special classes on their behalf on the model of those already existing under the London School Board. But it was strongly felt that these classes stopped short of being a sufficient remedy for the existing evil. Permanency in the care of such children is a necessary element of such a remedy; otherwise the work already done would be hopelessly wasted. Miss Dendy's words at the recent meeting in Manchester put the case very simply and forcibly: "We stand here for the recognition of a great new principle—for the recognition of our duty to the future. We demand the stoppage of the transmission of a terrible evil to the future; an evil in which all other evils are involved. We ask you to let us take care of these children *for always*, so that they shall not become the fathers and mothers of children as wretched as themselves." The plan by which this end is to be attained is the establishment of boarding-houses, into which the worst cases will be drafted from the special classes under the Board. Here they are to be helped to live and work and play for the rest of their natural lives. It is suggested that in the first instance a boarding-house shall be established to accommodate about fifteen boys, and one for a corresponding number of girls. It is further proposed to establish a boarding-school for adults, and it is hoped that these institutions will be to a large extent self-supporting. At the present time about £2,000 has been raised to meet the necessary expense of starting the scheme; but until £4,000 is obtained the work cannot begin. If this matter is begun by individual and voluntary effort, there is no doubt that it will soon have to be recognized as a national duty,

and the Duke of Devonshire has already promised a Bill dealing with it. In the meantime action is imperative, and all success is to be desired for the pioneers of a work which so much needs doing.

THE new County Schools in Wales inaugurated by the Welsh Intermediate Education Act are rapidly covering the Principality. The last of these is the Hawarden County School, founded two years ago under the Act, and formally opened on May 18 last by Miss Helen Gladstone. Mr. Gladstone himself gave not only his warm sympathy but very substantial financial help to the scheme before his death, and the Hawarden Estate Trustees returned to the Governors £100 of the £250 for which they had sold the school site. Miss Helen Gladstone, who is a member of the Board of Governors, has rendered most valuable help in organizing the school, coming over repeatedly from Newnham College, before she left, to consult with the other members of the Board. The school, a handsome block of red-brick buildings, is designed for the accommodation of fifty-four boys and forty-four girls, and the wings are so built as to allow easily of future extension. The ceremony of opening the school was only a formal, not a real, one, as the actual buildings have been in use since January last, and for the past two years the school has been at work, using as temporary quarters the Hawarden Gymnasium and Institute.

SUMMARY.

THE MONTH.

THE Board of Education Bill has passed the House of Lords, after modification in one important particular. In the Standing Committee on May 9 Earl Spencer moved to have out from Clause 3 the words "or other organization approved in that behalf by the Board," which follow the provision that the Board of Education may inspect "by their officers or by any University." He thought that the Bill proceeded too rapidly in this matter. At present one of the most important things connected with secondary education was the question of the Local Authority, and that point the Bill did not deal with in any way. It was most desirable, therefore, that the inspection should be limited to the Department's own officers, in order to create as favourable an impression as possible among the schools to be inspected. The Duke of Devonshire said that the inspection by the Universities was a most important provision. As to the words proposed to be struck out, they were put in because in the future the Board might find it desirable to recognize some other organization as an inspecting body. There was none other that he knew of, except the College of Preceptors, which already examined and inspected certain schools. There was no intention of recognizing any other existing organization. Lord Tweedmouth said that inspection by the Universities would be generally acceptable; but inspection by other organizations, not named in the Bill, might be the reverse. It would be better, at any rate, to name specially the inspecting bodies. The Earl of Kimberley said that the objection to the words proposed to be struck out was that they anticipated what was to be done in the future. They might set up an organization which would conflict with a uniform system hereafter. The Duke of Devonshire said that inspection was not to be imposed on schools against their wishes. The clause was permissive. The omission of the words would prevent schools now inspected by the College of Preceptors from being so inspected in the future. Lord Davey urged that the words were very vague. Was it worth while introducing them in a Bill which was necessarily of a temporary and tentative character? On a division the amendment was carried by 22 votes against 16.

A MEETING of Convocation of the University of London was held on May 9. Mr. E. H. Busk, the Chairman, replying to

Prof. Silvanus Thompson, stated that he could not say that, in the ordinary use of the word, negotiations were in progress for the transference of the business of the University to the Imperial Institute. If there were negotiations in progress, they were only in a preliminary stage. The position of the matter was this: A communication was received from the Government requesting that a conference might take place between three representatives of the Treasury, three representatives of the University, and three representatives of the Imperial Institute—nine persons in all—who were to inspect the buildings and the grounds belonging to the Imperial Institute at South Kensington, and to consider whether those premises either were suitable or could be made suitable for the headquarters of the University in any way; and, if so, it was thought that the Government might enter into an arrangement with the authorities of the Imperial Institute which would enable them to make a proposal to the University. The nine representatives were duly appointed; they had inspected the building, but they had not yet reported.

On May 10, which was Presentation Day, the Earl of Kimberley presided for the first time as Chancellor of London University. After some sanguine anticipations as to the future of the University, and especially as to its connexion with secondary education and science teaching, Lord Kimberley said:

The future prosperity of this country, and its maintenance in the highest position as the greatest manufacturing country in the world, depended upon their neglecting none of those advantages which a sound education could bestow, and upon giving greater attention to economic and commercial education. The University in its new capacity would pay special attention to this most important object. They had an example of what could be done; they had the Economic School, founded under the County Council, doing a good work. Mr. Passmore Edwards had announced his intention of bestowing £10,000 upon that institution. There were some who had a sanguine expectation that that institution would have with the new University a special and close connexion. What they wanted was to bring together, as far as possible, various agencies provided for higher education in the metropolis. No nobler task could be imposed upon any institution than that imposed upon the University in this matter; and he believed that the exertions made, and the distinguished men who would be connected with the University, gave fair promise that success would be assured. With reference to the housing of the new University, the question, as they were aware, was whether they should migrate to that handsome building at South Kensington. The matter had been referred to a conference composed of three members appointed by the University, three by the Government, and three by the Imperial Institute. He had the honour to be one of the three representing the University. They were not at present in a position to make a report, but he had no doubt that it would not be long before the Senate received their report. It would be for the Senate to decide upon any proposals that might be made.

LORD JAMES OF HEREFORD, the new Chairman of the governing body of the Imperial Institute, threw a little more light on the subject of the proposed migration of the University at a business meeting of the Board on May 15. The Institute, he said, is looking forward to a new lease of life—

Those responsible for its management had been approached by the Government, who had to find accommodation for the London University. In the Institute they possessed a very great area of accommodation not needed by them, which could be devoted, with very little adaptation, for the purposes of the University. In the first place, to bring a great seat of learning under the roof of the Institute seemed to the governing body to be in accordance with the objects for which the Institute came into existence. But it was only right that he should tell them that in affording this accommodation to the London University they were receiving from the Government a very substantial return. He was not in the position to enter into any details, because all the arrangements had not yet been completed; but he might say that the negotiations were proceeding, and that by the financial return for the provision of the necessary accommodation for the University the governors of the Institute would be relieved of many burdens. The real result would be that they would have all anxiety removed with regard to the future conduct of the Institute.

The Lord Chancellor presided at the annual meeting of the City and Guilds of London Institute, held at the Mercers' Hall, and, in moving the adoption of the report, referred to the correspondence which had taken place with the London University Commission. The Institute had stated that it was willing to accept the position of a school of the University for its Central

Technical College, under conditions which included the creation of a special faculty of engineering; and, although no official information had been received from the Commissioners, they had, he believed, determined that there should be such a faculty, and also one of economics and industry. Remarking that in the past the Institute had been criticized for its expenditure, he pointed out that, whereas last year the average net cost per student in the thirteen colleges in receipt of Government aid was £26, the net cost at the Institute's Central Technical College was only £24, that at Finsbury being £26. The students at the Central Technical College continued steadily to increase, the total number attending the winter term of the current session (240) being above that of any previous complete session.

On May 17 the Queen laid the foundation-stone of the buildings which are to complete the South Kensington Museum—henceforth to be known as the Victoria and Albert Museum. The grand new façade will occupy the corner formed by Brompton Road and Exhibition Road.

In an address to students of the London Society for the Extension of University Teaching, delivered on May 6 at the Mansion House, Dr. Hill, Master of Downing College and Vice-Chancellor of the University of Cambridge, made the following remarks with reference to science teaching:—

The too early teaching of science is not productive of permanent excellence in that department. The classical boys do far better, for they approach the new subject with an intelligence well drilled, with mental sinews well exercised and developed. The true way of approaching science at school is not to prepare boys for science scholarships, but to let scientific interests run like a thin line through school life—to induce a love of Nature and beautiful objects. Experience in examining for the Science Tripos and the medical examinations is discouraging, and, astonishing as is the knowledge of facts displayed by candidates, their mental grip and conception of principle are unsatisfactory. But it is still to be remembered that a Wrangler cannot be turned into a biologist, and mathematics dealing with abstractions are not well calculated to make a man a good observer of nature. The qualities needed for a man of science are many—quickness of observation, tenacity of memory, ratiocinative power—and no one course of study can be trusted to produce those results. The individual, however, is the main element, and there is needed in the several cases presented as great variety of mental as of physical nutriment. In any case, wide sympathies are needed; the literary man would be the better for some knowledge of science, and the scientific man for a keen interest in literature.

THE International Congress on Commercial Education was opened at Venice on May 4 in the Senate Hall of the Doges' Palace. Signor Pascolato, the President, delivered the opening address. Dr. L. Saignat, representing France, gave a review of the work accomplished in the five previous congresses on commercial education, after which the Congress discussed the subject of a commercial school, its purpose, its limits, and its organization. Other cognate subjects were considered at subsequent meetings. On the teaching of modern languages, nine of the delegates addressed the Congress, and most of them recognized that the deficient results obtained in the study of languages were chiefly to be attributed, not to the method employed, but to lack of organization. On the question of the training of pupils for office duties, M. Paul Hemelryk spoke, amid much applause, of the practical instruction given in the Liverpool Commercial School. The Congress passed a series of resolutions, the more important of which were that primary instruction should be general, that youths should be trained in secondary education for immediate employment, that foreign languages should be taught by foreign professors in their own tongue, and that an international system of translation should be adopted by mercantile firms. Some of the official delegates abstained from voting. The next Congress will be held in Paris on August 6, 1900.

THE £250,000 required for the equipment of the new Midland University has now been raised, thanks to a donation of £50,000 by Mr. Carnegie, of Pittsburg, U.S.A., and of £37,500 by an anonymous donor. The latter has written to Mr. Chamberlain to say that, as the endowment of a quarter of a million, though "sufficient for a starting point," must soon be largely augmented, he will increase his contribution to £50,000 if a total of £300,000 be raised by the end of June. Counting in the original gift of

good Josiah Mason, Birmingham will start her University on a foundation of half a million sterling.

THE Endowed Schools Commissioners have appointed one of their Assistant-Commissioners, Mr. Selby Bigge, to visit Grantham Grammar School with a view to holding an inquiry into the circumstances of the wholesale dismissal of the assistant-masters, to which we referred some time ago. It seems that the Commissioners have already intimated to the Governors of the school that there is, in their opinion, no ground for the contention that the appointments of assistant-masters in an endowed school are *ipso facto* terminated by the occurrence of a vacancy in the headmastership. It will be a decided gain to assistant-masters to have this principle authoritatively laid down by the Commission, and supported, if it can be supported, by legal decision. Mr. Selby Bigge suggested May 30 as a convenient date for the opening of the inquiry at Grantham.

MR. GERALD BALFOUR has introduced a Bill to establish a Department of Agriculture and other Industries and Technical Instruction in Ireland. Describing the principal provisions of the Bill, he stated that, as far as concerned the transfer to the new Department of existing Governmental functions, the measure closely resembles its predecessor, but that to the powers and duties formerly proposed to be transferred are now allied those of the fishery inspectors and most of the functions exercised by the Science and Art Department, and the provisions with respect to technical instruction are new. For the purposes of the Bill, there will be placed at the disposal of the Department, in addition to certain moneys annually voted by Parliament, a total income of between £160,000 and £170,000 a year. Fifty-five thousand pounds are to be allocated to technical instruction of an urban character, and £10,000 will go to purposes connected with sea fisheries. The rest of the money is to be used in connexion with rural industries. The Department is to be assisted by an Agricultural Board and a Board of Technical Instruction, and only a minority of the members of these Boards will be nominated by the Government. It is to be a general rule that no money is to be spent by the Department on any local object without some contribution from local sources.

At the last meeting of Convocation of London University, Dr. H. F. Morley moved a resolution requesting the Senate to adopt for the Matriculation Examination a scheme of subjects which was in complete accordance with the scheme unanimously adopted by the meeting of delegates from the Board of Studies in the Faculty of Arts. After some discussion, the scheme of subjects was adopted in the following form:—(1) Latin (two papers); (2) English (two papers); (3) mathematics (two papers); (4) any two of the following five languages: Greek, French, German, Sanskrit, Arabic; and (5) one of the following five sciences: Elementary mechanics, elementary chemistry, elementary sound, heat, and light, elementary mechanism and electricity, and elementary botany.

MR. PASSMORE EDWARDS has intimated his intention of giving £10,000 upon trust to equip a school and building for the teaching of economics and commercial science in the new London University. The Trustees, who are to carry out the trust and offer the building when ready to the new University Senate, are the Bishop of London, Mr. Sidney Webb, and Mr. Haldane, Q.C., M.P. The work of the London School of Economics will probably be continued there. Further endowments, says the *Times*, "will, of course, be wanted for chairs of banking, commercial history and geography, commercial law, insurance, and other special subjects; and this munificent gift by Mr. Passmore Edwards should encourage other wealthy Londoners to imitate his generosity."

A MEETING of the shareholders of Bath College has resolved to wind up the company voluntarily. The work of the school will be carried on during the present term, and it is hoped that arrangements will be made for its continuance. The possibility of starting a new company is being talked of, and a scheme will shortly be considered by some of the leading citizens. Bath College has never been a "paying" concern to its proprietors,

owing to the heavy ground rent and charges for interest on mortgage.

A SCHOLARSHIP offered by Girton College, in connexion with the last Cambridge Senior Local Examination, has been awarded to Miss E. M. Newberry, Slepe Hall School, St. Ives, Hunts; the Mary Stevenson Scholarship, tenable at Newnham College, to Miss M. K. Welsh, the High School, Knutsford; and the Reid Scholarship, tenable at Bedford College, London, to Miss M. G. Fisher, Queen Elizabeth's Grammar School for Girls, Mansfield.

ON May 10, at the public meeting of the Senate of the University of London, the following students of Bedford College for Women were presented for degrees:—For the degree of M.A., Miss E. H. Whishaw; for the degree of B.A., Miss F. C. Johnson, First Class Honours French, Third Class Honours German; Miss Grace Greenwood and Miss Jennifer Turner, First Class Honours English; Miss M. Trienen, Third Class Honours English; Miss Bishop, Miss Goodes, Miss Tracy, Miss Atcherley, Miss Lloyd. For the degree of B.Sc., Miss Annie E. A. Baker; for the Teachers' Diploma, Miss R. R. Reid. Two students for degrees and four for the Teachers' Diploma were unable to be present. The usual reception was held later in the afternoon at the College, when the following were among those who accepted invitations:—Sir John Lubbock, Baron and Lady Davey, Sir J. and Lady Fitch, Mrs. Scharlieb, M.D., M.S., Dr. Garrett-Anderson, Miss Penrose, Mrs. H. Tennant, Mrs. Bryant, D.Sc., Mrs. James Bryce, Sir John Evans, K.C.B., and Lady Evans, and a large number of headmistresses of schools in London and the neighbourhood.

OUR Welsh correspondent writes: During May there have been but few events of interest in connexion with Welsh education. A meeting of the Executive Committee of the Central Welsh Board for Intermediate Education was held at Shrewsbury on May 12, and also a meeting on the same date of the Court of the University of Wales. The main business of the Central Board Executive was the preparation of the General Report of the Board for the past year. The University Court held a special meeting for the sole purpose of bringing about a modification of one of the University Statutes so as to enable the Senior Certificate Examination of the Central Welsh Board to be accepted in lieu of the Matriculation Examination of the University.—In the University of Wales the latter half of the month of May is very largely occupied with meetings of examiners (external and internal) for drawing up the papers of questions for the Degree Examinations in June. Most of these meetings have this year been held at Shrewsbury, owing to its convenience as a meeting-place of North, South, and Mid-Wales.—The opening of Hawarden School took place on May 18. The ceremony of opening the school was performed by Miss Helen Gladstone (one of the first governors of the school), who was presented with a silver key. Mr. Sidney Taylor, one of the governors of the school, presided, and the speakers included the Rev. Stephen Gladstone, the Rev. Principal Dyson, of Liverpool, Mr. Samuel Smith, M.P., the Rev. Richard Jones, Chairman of the governors, and Colonel Howard. Lady Frederick Cavendish, Mrs. Stephen Gladstone, and Mrs. Drew were also present.—The recently published Report of Mr. Legard, Her Majesty's Chief Inspector of Primary Schools in Wales, has attracted considerable attention. Mr. Legard points out the importance of recognizing frankly that, in many parts of Wales, English is practically a foreign language, and that the best methods of linguistic teaching should be adopted in teaching it. He recommends, too, that in such districts infants and the children in the lowest forms should receive their earliest teaching in the language which they understand.

(For Universities, see page 260.)

THE BOARD OF EDUCATION BILL AND SECONDARY EDUCATION.

At the Evening Meeting of the College of Preceptors, on May 17, Mr. H. W. Eve, Dean of the College, took the chair. Dr. R. P. Scott, Headmaster of Parmiter's School, read the following paper:—

Last year I had the honour of placing before the members of the College of Preceptors the provisions of a private Bill on the organization of secondary education. That Bill dealt only with a part of the subject

of education, and, in consequence, was attacked almost as much for what it omitted as for what it contained. The main attack concentrated itself on the provision which, in consonance with Continental practice, distinguished secondary from technical as well as from primary education—distinctions which then, as now, I think fundamental and essential in the interests of education and of national welfare.

To-night it is my function to open a discussion upon the Board of Education Bill, and that duty is at once more easy and more difficult than my task of last year. It is more easy because the present Bill does not explicitly raise the difficulties involved in dealing with one branch only of the subject of education. It deals with the subject as a whole, and the inevitable distinctions and delimitations are matters of administration, and (so we learn from the Duke of Devonshire) will not be set out in the Bill. My task is difficult because the organization of secondary education has become much nearer than it was last year, and, owing to a difference of standpoint, does not receive the same welcome from us all.

I need not in this meeting dwell upon the importance of education to the individual. When we ourselves look back upon our own education, and realize both where it came short and what we owe to it, or whether we look forward to the education of our children, and strive to obtain for them greater advantages than we enjoyed ourselves, we cannot but feel that for the individual no seed yields a more abundant crop for good or for evil than that which is sown at school.

But the importance of education is only matched by its complexity. The more we discuss the subject, the more this fact comes home to us. To take an instance: Is the chief aim of education acquisition of knowledge, development of faculty, or discipline of character? And, if a combination of these aims is desirable, as we shall all be ready to affirm, what is the relativity of their value, and—most important consideration of all—under what conditions can the best combinations be made effective? A question by no means easy to answer.

As if these difficulties were not sufficient, another difficulty is superadded in England: the whole subject is singularly ill-defined. There are no recognized lines of distinction between elementary and secondary, between secondary and technical, as, indeed, there are none between elementary and technical, education. Nothing of this kind is yet officially determined, nor does a legal definition exist of "public school," or "secondary school," or "school." The Government Bill—more wisely, perhaps, than the Lockwood Bill—makes no attempt to supply these definitions; it leaves the necessary task to be worked out by administration. Thus, in the manner which commends itself to most Englishmen as practical, we act first and think afterwards, a habit pleasantly referred to by our friend Alice in Wonderland—"verdict first, evidence afterwards." From this characteristic arise, in educational matters, uncertainties, misunderstandings, and excessive delays.

This is not the time, nor is this the occasion, to deal with the difficulties I have raised, but they should be borne in mind in all discussions on the Bill. As for myself, my aim is not exhortation, but exposition. I do not desire, even if it were in my power, to be eloquent, but to be clear, and to ask your consideration of this Bill not merely from the point of view of the teacher, but from the standpoint of the citizen interested in the welfare of his country.

The subject of the Board of Education Bill is educational organization—incomplete organization, it is true, and organization on a small scale, but the organization which begins, the parent of more organization. To clear our minds, then, on organization, it will be necessary to ask ourselves what is meant by the term, and what we might reasonably expect such organization to do. I use the term "organization," rather than "reform" or "systematization," because, in the mind of most persons, "reform" seems almost exclusively concerned with improvements of existing materials. "Systematization" implies, perhaps, mere machinery, a theoretic arrangement which might not sufficiently correspond with actual needs; but "organization" implies, first, a conception of the subject as a whole, and its bearing on other subjects; next, an economic use of existing materials; and always an insistence on the relationship between the various organs. Its fitting symbol is the relation of the parts in the living body—"a body which is not one member, but many: where the eye cannot say to the hand, 'I have no need of thee,' or the head say to the feet, 'I have no need of you.'"

Before discussing details it is well to ask: What is the aim of this organization? How will it affect us as individuals, and especially how will it affect us if we consider ourselves (a) as parents of boys and girls, (b) as ratepayers and taxpayers, (c) as citizens of this great Empire?

(a) A parent may reasonably ask that the State should see that a sufficient number of public or private schools are provided for its citizens, such schools being easily accessible, and not, as at present, lacking in some districts and overcrowded in others. They must be at reasonable fees, and have a curriculum or course of study planned out and made available for parents who wish to understand the course of instruction through which their children will be taken if they remain to the end of the course. And these schools must be properly linked by curriculum to the other schools of the national system, so that the

circulation of able children necessary for the welfare of individual and nation alike may become practicable. But, above all, the parent will ask guarantees from the State that the school, whether they be few or many, shall be efficient. It is round this question of efficiency that the battle of organization will be fought, for the word has a general use which for purposes of administration must be reduced to definiteness; and in that process it will be well to bear in mind the aphorism with which the French Senate once began an address to the first Napoleon. "Sire," they said, "the desire for perfection is one of the worst maladies that can afflict the human mind." We must not expect perfection; yet we must not pitch our standard of expectancy low. The subject of efficiency, technically speaking, may be regarded under three heads—the building, the teacher, the school. The building must be sanitary; its arrangements as to light and air must be satisfactory. The teacher must possess qualifications which are sufficient for the work he has to do; he must know his subjects and also know how to teach them. The school must be sufficiently staffed, so that the classes are not too large for individual attention. The results of the teaching must satisfy any reasonable test. When these conditions have been fulfilled, then, and then only, should a certificate of efficiency be forthcoming.

(b) The ratepayer and the taxpayer may reasonably ask for economy—an economy, it is to be hoped, not merely of cheapness, but of wise expenditure, which regards the quality of the work as of the first importance, but which makes use of all available material. Such a claim can only be met by stopping that waste of money which is produced when two sets of Local Authorities attempt to do the same work. This claim will also require the recognition of private and proprietary schools as part of our national system, provided only that they be efficient. Such recognition would imply the same amount of local protection as may be extended to public schools, and a sharing of any central grant that might become available for secondary education.

(c) The citizen will reasonably ask that a wise education policy shall be adopted, to stop the waste of living material which is now going on to an incredible extent. To do this, it is necessary to look upon national education as a whole, to endeavour to realize all the needs of the nation—industrial, commercial, and professional alike—as far as education can meet them. Primary education, secondary education, technical and commercial education are not rivals from this aspect, and, though different, are all necessary to the good of the body politic. It is little short of a disgrace to England that the hand-to-mouth policy in educational matters should have been so long continued. We want, in fact, an educational Budget which, from year to year, will tell us how much the nation is spending upon the various branches, and will enable us to compare the expenditure of England with that of other nations. If this be done, we shall soon realize why other nations are forging ahead in the race for the markets of the world. We shall find that our national expenditure both on technical education proper and on secondary education proper is miserably inadequate for the respective services which these branches of education, and these alone, can perform for the nation.

But, besides this, the conception of education as a whole would lead, in time, to a recognition of the higher aims of education. It will be recognized that, if the school does a good service to the State in making good business men, it does a still higher service in making good citizens and good men and women. I cannot better summarize the aim of national education than by quoting from Mr. Sadler's preface to the "Handbook of the Education Section of the Victorian Era Exhibition":—"Education, it is often said, is one line of national defence, and, like a strong navy, good education is a costly thing. But its worth cannot be simply measured in terms of money, though money is indispensable to its maintenance. Its real value turns not merely on equipment or apparatus, but on the worth of the teachers who impart it; on their attainment and width of culture; on their skill, experience, and *esprit de corps*; but still more on their insight and sympathy; on the elasticity of their spirits; on their personal example and moral influence; on their love for their work and for the children committed to their care. True education, as we know it in its best tradition, is not cram, but discipline. It does not merely aim at imparting information or at the gymnastics of the memory, but it seeks, while training the body in healthy and noble exercise of varied powers, to touch the temper of the mind; to mould principle and character; to purify and deepen belief. And on education in this sense depends not the welfare only, but the very existence, of a free State."

Having discussed the aim of organization, we may now ask what framework of organization is best calculated to realize these aims, and our best guide is the Report of the Royal Commission on Secondary Education, which sets out as the essentials for complete organization the establishment of the following:—(a) A Central Authority under the charge of a responsible Minister; (b) Local Authorities; (c) Authoritative tests of efficiency applied to schools and to teachers; (d) Proper linkages between the different parts of the national system.

It is clear that it is not necessary to set up all four things at once, and, as a matter of fact, some have held that it would be sufficient to begin with the registration of teachers; but there is, I think, general agreement that the Government has been well advised both in not proposing to set up a complete organization at once, and in not con-

tenting itself by an attempt to deal with the registration question alone.

We come now to a consideration of the Board of Education Bill, and the four above-named essentials in organization provide the touchstone by which the scope of the proposed measure can be tested.

(a) The Bill provides a Minister of Education. If it did nothing more than this, it would be worthy of our support because, for the first time in our history, the State assumes some measure of responsibility for the whole of education, and, in the interest of the nation, assigns to a single person the responsibility of looking at education as a whole. Further, it establishes a Central Authority by bringing together at once the Education Department and the Science and Art Department, and by arranging that the educational powers of the Charity Commission shall be taken over in the new Office as occasion may arise. It is to be hoped that in this matter occasion will soon arise, so that the inconvenience which schools may experience of being placed under one authority for education, and under another authority for finance, will be of short duration. Furthermore, the Bill makes provision that the Central Authority shall not err for want of knowledge. A Consultative Committee is to be appointed to advise.

(b) The Bill leaves over the constitution and powers of Local Authorities as a difficulty not yet ripe for solution. There can be no doubt that in so doing the passage of the Bill through Parliament has been made more easy. This omission has been regarded by some as a wasted opportunity on the part of the Government. It is objected, and with truth, that organization cannot be largely effective until Local Authorities be constituted; but, before completeness, a preliminary survey of the educational field is desirable; such a survey needs time, guidance, and care, and it seems wiser, though perhaps less heroic, to deal with these educational difficulties one by one.

(c) The Bill arranges for the making of tests for teachers and for schools. It explicitly gives power to the Consultative Committee to frame regulations for the registration of teachers which the Education Office is to carry into effect. Implicitly it arranges for the registration of schools, under Clause 3, which empowers the Board to inspect secondary schools which desire to be inspected. The effect of this inspection cannot fail to be of the utmost value to efficient secondary schools. It will give a guarantee to parents and to the public, and will thus serve to strengthen public confidence in secondary schools. If the confidence generally accorded at this time to secondary schools of the middle type is not of a particularly robust kind, the fact is largely due to the lack of authoritative certification. It is not possible at present to distinguish among schools between the good and the not so good; schools lack the stimulus which would be afforded by right inspection. It is this certificate of efficiency which will protect private schools from over-zeal on the part of Local Authorities in establishing new schools. The results of the preliminary survey to be made by the Inspectors of the Education Office and to be communicated to Local Authorities will make clear what provision for secondary education actually exists and can be made available; it may then be hoped that private schools will, in general, accept this inspection and so make firm their claim as an integral part of the national system when completed.

I cannot leave this subject of inspection without expressing a regret that the amendment proposed by Lord Spencer, to limit the power of appointing inspectors to the State and the Universities, was carried in the House of Lords. The House of Commons must be pressed to reinsert in Clause 3 the phrase "other organizations approved in that behalf by the Board of Education," in order that the College may continue its inspection of schools. This phrase, the Lord President explained, had exclusive reference in his mind to the College of Preceptors, and he urged the retention of the words. After such a testimonial, the College may well press for the reinsertion of the phrase, not only because of its importance to the College, nor because of the claim on the State which in this respect the College has established for excellent work in the past, but because there is every reason to believe this work of inspection would, under the regulations of the Board, be thoroughly well done in the future. The claim of the College in this particular seems to me largely to correspond with the claim of the private school in the national system, and in so far as it is a claim based on public service, on efficiency, and on freedom of equivalent options, it is, I believe, indefeasible.

(d) With regard to the necessity of a proper organization to deal with the linkages between the different parts of the national system, it might appear, on a casual reading of the Board of Education Bill, that no such provision is made; but a more careful study will show that this question is implicit in the administrative arrangements which the Bill will set up. The Office will have a permanent secretary at its head, but under him will be assistant secretaries for the various sections of the Office. It is important to know whether there will be, as the Duke suggested in August last, three principal sections for primary, secondary, and technical education respectively, or, as some suggest, only two—one for primary and one for higher, the latter being subdivided, according to those who favour this view, into secondary and technical. In the one case, there would be three co-ordinate assistant secretaries; in the latter, two assistant secretaries and two sub-assistants—an arrangement expressly contrived, it would

appear, to set up friction and to foment official rivalries. The Lord President refuses to give assurances on this point, but has declared that he will abide by the decision of the Treasury Committee which will be appointed in due course to recommend which arrangement is the more desirable. But in either case it is clear that reasonable lines of demarcation must be laid down, or the working of the system would be impossible. The former arrangement seems to me to be the only reasonable one. It is essential that there should be three inspectorates, since the aims of each branch of education and their criteria of excellence are absolutely distinct. The inspectors must be responsible to one branch alone, and, further, the post of assistant secretary for the suggested higher education branch demands an impossible combination of qualities: he must be equally competent in scientific and in classical learning; he must not, in his zeal for simplicity of administration, sacrifice the school to the adult class, or *vice versa*, or general development to over-specialization. It is true that secondary and technical have much in common, and that it is not easy (except administratively) to separate them. But so, also, have primary and secondary much in common, and all adjustments between possibly conflicting claims should be made by the head of the Department in consultation with the officers concerned.

Thus the Bill, dealing as it does with a great subject in an undefined and tentative way, is by no means a small Bill. It is true that it does not arrange for a public grant to secondary schools, nor for any rearrangement of grants, and the officers it appoints (except the new inspectors) are presumably already in the public service. Thus the Bill seems to do little, but it prepares the way; and, although it does not seem to excite public interest, yet it is a Bill of the first degree of importance. Its importance is one not of actuality, but of potentiality, a potentiality in the sense used by Dr. Johnson, when, as executor, he sold the brewing business of Mr. Thrulo: "We are not selling a parcel of tubs and vats; we are selling the potentiality of growing rich beyond the dreams of avarice."

But even in actuality it appoints a Minister of Education, and brings all schools under supervision from one centre. Let no one envy the new Minister of Education his task, for, taking into account what must be done, what exists, and what means are likely to be at his disposal, that task will be neither easy nor simple. He must be content to innovate gently, and to persuade at every step; he must evolve order out of confusion; he must create an organic and yet intelligible system; he must take into consideration the diversified needs of a complex community. He will have, in fact, many responsibilities, but, at the outset at least, will find it difficult to secure that liberal financial support which most civilized nations accord to secondary education, and which, even in England, is not denied to primary education.

But these will not be his only cares. As an administrator, he will have to insist that the broad external uniformity necessary for intelligibility shall be accompanied by the elasticity of detail necessary for individuality; he will have to make large use of the experience of teachers and of officials, but he will have to form his own judgment; he will have to devolve largely upon local bodies the details of administration, but, in the interests of the nation, he will have to firmly retain in his own hands the direction of educational policy; and, hardest task of all, he must endeavour to create a wide and intelligent interest in education, in order that the system as it grows into completeness may be thoroughly and continuously tested.

No individual statesman, perhaps, will do more than build a single story of an edifice which requires at least fifty years' labour for its completion; but the mere planning it out on a noble scale would ensure for him an undying reputation and constitute a lasting claim on the gratitude of his fellow-countrymen.

The danger of the Bill lies in the fact that it remains largely an outline. Whether, educationally speaking, its effects will be satisfactory or otherwise depends almost entirely upon the practical application of the large powers which it confers upon the Education Office when re-organized; and, apart from assurances as to the interpretation which the Government intends to place upon its more important provisions, it is impossible to say whether the potentiality which it undoubtedly possesses will prove ultimately to be for the national welfare or not. But in this we are fortunately able to rely on the wisdom and sympathy of the present heads of the Education Department and on their constant readiness to adjust the practice of administration to the real needs of the scholars and the schools.

The points in the Bill which to me seem specially worthy of consideration are:—

1. Clause 4, which deals, in a general way, with the constitution and powers of the Consultative Committee. The clause provides that a Consultative Committee of a permanent and representative character shall be appointed, and that it shall advise the Minister on all points referred to it, and that in particular it shall have charge of the regulations for the registration of teachers. The clause does not indicate the number of persons who shall compose this body; it is to consist "as to not less than two-thirds of persons representing Universities and bodies interested in education." But the Lord President, in answer to the Bishop of Winchester, has told us that probably the Committee would consist of not less than twelve and not more than about twenty-five persons. The Registration of Teachers Bill of 1898 is

evidently to be the model for this Committee. The number of persons nominated by professional bodies to represent the profession proportionately to the nominees of the Crown remains unchanged, and there can be no doubt that at least those educational bodies specified in the Registration Bill to act in the first instance will be included in the Order in Council which appoints the Committee.

It will be agreed that the Consultative Committee is an extremely important part of the proposed machinery of the new Education Office. It is not too much to say that the teaching profession has been encouraged to welcome the Board of Education Bill largely in consequence of assurances that the Consultative Committee will be regarded by the heads of the Office as a really important means of ascertaining and focusing educational opinion on the many difficult matters which will come up for settlement. English secondary education is so complex that any reorganization of it will necessarily call for diplomatic rather than coercive methods. It will be much easier to persuade interests which might otherwise stand aloof to fall into a general scheme of reorganization if the heads of the Office can learn the details of the present state of things, good and bad, in confidence from a representative of the Committee, and the friction inevitable in reform will be minimized if the sections of opinion represented on the Committee can be indirectly convinced through their representatives.

Such a Committee is admittedly an experiment, an experiment which is due to the peculiar relations which exist between the State and education: relations which have been thus lucidly set forth in the Report of the Royal Commission (Vol. I., Part 3, page 190, paragraph 107):—"The fact is that the body of teachers must necessarily occupy a somewhat anomalous position in the economy of national life. The service which they render is one over which the State must in self-defence retain effective oversight; the provision of teaching and the conduct of education cannot be left to private enterprise alone. Nor, on the other hand, do the teachers stand in the same relation to Government as does the Civil Service. Education is a thing too intimately concerned with individual preference and private life for it to be desirable to throw the whole of it under Government control. It needs organization, but it would be destroyed by uniformity; it is stimulated by inspection, but it would be crushed by a code. In the public service, where the chief object is administrative efficiency, the individual officer is necessarily subordinate: in education, where a chief object is the discovery of more perfect methods of teaching, the individual teacher must be left comparatively free. Every good teacher is a discoverer, and, in order to make discoveries, he must have liberty of experiment."

It cannot be doubted that the experiment involved in the establishment of the Consultative Committee will be narrowly watched and freely criticized, and it will be a bad day for teachers and for education if the experiment be discredited in the official mind through difficulty in working it. The Committee offers a splendid field for the display of sweet reasonableness on the part of the teaching profession, whose knowledge and experience will thus for the first time be brought to bear at the centre of most influence and in the most effective manner. But the influence and usefulness of the Committee will entirely depend upon the wisdom with which it sets about its work and the spirit in which it approaches the questions placed before it. Its aim will be to win and to retain the confidence both of the teaching profession and of the administrators appointed by the State, and in so doing to construct an organization at once vigorous and elastic as well as free from bureaucratic uniformity.

It must not be forgotten that the Consultative Committee, among other purposes, will serve to connect the present with the past, for through its agency, the old traditions and influences which the Universities represent may become widely operative and may deeply affect the schools of to-day. No system would be English which broke with the past, and no system would be really national which disregarded the relationship and the consequent mutual action and reaction of the University on the school. One aspect of this question is thus touched upon by Dr. Whewell in "The Principles of English University Education":—"Universities and colleges have for their office not to run a race with the spirit of the age, but to connect ages as they roll on, by giving permanence to that which is often lost sight of in the turmoil of more bustling scenes. In order to introduce real improvements, we must bring to the task a spirit, not of hatred, but of reverence, for the past; not of contempt, but of gratitude, towards our predecessors. If we are able to go beyond them, it must be by advancing in their track, not by starting in a different direction. We must continue their line of instruction and study their academic constitutions."

2. But, important as Clause 4 is to the profession as a whole, it is the working of Clause 3 which will be most watched by the individual schoolmaster. Clause 3, which deals with inspection, is the key-stone of the Bill. On inspection depends the success or failure of the organization attempted. The terms in which the Bill deals with this subject deserve, therefore, the closest scrutiny. What strikes us most, perhaps, is the fact that inspection is made voluntary; but this, like so much else in the Bill, is but a beginning, and it cannot be doubted that, if the method of inspection adopted be successful in winning the confidence of the public, schools which do not accept inspection will come to be regarded as placing themselves in an inferior category.

When this fact is widely recognized the step to compulsory inspection will be virtually unnecessary.

But "inspection" is a term which, like so many other educational terms, needs defining. It has at least three distinct significations even for schoolmasters. It includes, for instance, what has been styled "administrative inspection," which relates to the building, the school apparatus, and what may be called the environment of teaching. But this is distinct from educational inspection, which deals with the actual teaching process as going on in the school. And, again, both these differ from the examination of pupils, which, in most cases, is the only test, and that a singularly incomplete one, which schools at present are able to afford. It is only because there has been no effective demand for inspection that examination results have assumed their present undue importance. If inspection succeeds, then, in the future, examination results will form a smaller part than at present in the repute of a school, and examination will be largely superseded by inspection conducted on reasonable lines, and dealing with the work of all the school, and not merely of a few picked pupils.

3. But, important as are both the Consultative Committee and inspection, they are but means to an end—the due evolution of a national system of education, which includes in its purview public and endowed schools, private and proprietary schools, denominational and undenominational schools alike, and which encourages among teachers and schools that feeling of solidarity and community of interest which, in a great cause like that of education, dignifies the work and inspires the worker.

The attainment of this end depends almost entirely on the kind of attitude which the great public schools may take up towards the Bill. On them, more than on Ministers and Departments of State, depends the actual filling out of the outlines of the Bill to the scope of its possibility. On this matter, fortunately, we are not left in doubt. The headmasters of the great public schools have risen to the opportunity afforded them by the Lord President, and individually have declared themselves willing that the schools over which they preside should form part of the national system, and not be the subject of exceptional and privileged legislation.

In replying to inquiries addressed to them by the Lord President on behalf of the Government, they have stated that they are so impressed with the public advantage of a general inspection of secondary schools by a competent authority that, although they may have little or nothing to gain by it themselves, yet, on certain conditions, they would be willing to come under a system of general inspection by the Board of Education.

The conditions laid down by the headmasters, and very properly laid down, as the Lord President remarked in his speech in introducing the Bill, were as follows:—(i.) That there should be a Consultative Committee, to serve as a guarantee against the imposition of uniformity of instruction or curriculum. (ii.) That inspectors of recognized competence should be appointed. (iii.) That University inspection should be recognized as an alternative to State inspection.

The conditions (iii.) as to the Consultative Committee and as to University inspection are satisfied in the Bill, and, although the condition as to the new Inspectorate for Secondary Schools at the moment seems to present difficulties, it cannot be believed that these difficulties will prove insuperable, and it may indeed be hoped that assurances to this effect will be given in the House of Commons during the passage of the Bill. The reply of the headmasters referred to is important, because it serves to indicate the alternatives which the situation offers. With the adhesion of the public schools, a really national system becomes possible; without that adhesion, a dual system of secondary schools would inevitably grow up in which boarding schools and day schools would come to be regarded as differing not only from the administrator's point of view, but, in the long run, from the educational standpoint also. This divorce would over-emphasize the present characteristics of such schools, especially on their social side, and the development of each would proceed on divergent lines. The day school, conducted more under the public eye than at present, might tend to attract more than its due share of public attention, and would endeavour to justify its new importance by increased attention to success in examinations. Its temptation would be to make its chief aim the cultivation of the intellect rather than an all-round development—in a word, to exalt cleverness rather than character. Yet, as has been well said, it is character—not intellect—which governs this world and inherits the next. Specially then, at a time when international trade-rivalry is becoming more acute, and when help in the struggle is looked for from the school, we need all the help the great schools can give to make the higher and not the lower aim prevail, and to make it possible for day schools also to aim at that ideal of education which through the public schools has done so much for England.

If, under these conditions, a national and inclusive organization of schools be established as the outcome of the Board of Education Bill, then, although as a system it may perhaps lack logical symmetry, yet without doubt it will be characteristically English, both in its merits and in its defects; it will be seen to be not a system "made in Germany," but rather an organization which has to adapt itself to our national needs, and which will in the best interests of England seek

to extend to the preparation for commerce and industry that conception of public duty and of public service which makes our public schools at once the pride of England and the envy of the world.

The CHAIRMAN said the members were much indebted to Dr. Scott for his lucid and interesting exposition of the Bill and the problems it had to face. He was particularly struck with the concluding passages of the lecture, referring to the action of the public schools and the danger of dividing the secondary schools of England into two classes. One of the great improvements in education of recent times had been the spread of a public-school spirit, which was somewhat limited in its range in a large number of schools for both boys and girls. With regard to girls' schools, nothing was more striking than the growth of that public spirit, which was the pride of English public schools, and Dr. Scott had dwelt very happily on the necessity of building up a community of character in all schools, which might be endangered if a great gap were fixed between day and boarding schools. So complex were the problems to be dealt with that he hesitated to express any opinions of a definite character as to how the provisions of the Bill were to be worked out.

Mr. G. Brown was pleased that Dr. Scott had pitched so high a keynote in dealing with the Bill, though he could not help thinking that it was too high for realization. The Bill itself was an outline to be filled up hereafter, everything depending upon the Minister of Education. The public had, he thought, hardly realized what the passing of the Bill meant. Dr. Scott had pointed out the difficulty of drawing the line between primary, secondary, and technical education. If the limits could not be fixed now, they would not be fixed later on. Elementary education had always been very well defined in the public mind as that which was to be provided by the State for those unable to obtain it for themselves. If secondary schoolmasters had experienced the organization and methods of Government Departments, they would not have been so ready, as stated by the Duke of Devonshire, to welcome inspection. As Dr. Scott had said, this was a Bill of potentialities, and that was precisely where the danger lay. The Lord President of the Council admitted that he could not give any explanation of Clauses 3 and 4, for fear that too many amendments might be induced. If teachers allowed this Bill to pass without knowing its details, they could not afterwards complain if its provisions did not work satisfactorily. The lecturer had spoken of the rights of parents and of citizens as ratepayers; but what about the rights of the teachers? As for the right claimed for parents to have a sufficiency of secondary schools provided for them, the State might as well be asked to pay people's tram-fares, or to fix the price at which tradesmen should sell their goods. Elementary education had to be provided, in order to prevent the population growing up in ignorance; but the State might as well provide jackets, coats, boots and shoes, as higher education for those who could afford to pay for it. That was the Archbishop of Canterbury's reply, when asked if parents had a right to make the demand. He denied altogether the alleged rights of parents to have secondary education provided by the State. In reference to linking schools and guarantees of efficiency, the middle classes of this country were not so crassly ignorant that they could not be trusted to see that they get their money's worth. Here and there a charlatan might flourish for a time, but he was soon found out, and he was a rapidly diminishing quantity. Too much must not be expected from inspection. Twenty-five years' experience had shown, in the case of public elementary schools, that it was not a real test of efficiency, and the Government had at last discovered that they had been working in a wrong direction, and that the children had not been really educated, but only instructed. Higher education would not make successful men of business. Instruction was of little use without elevation of the moral character; and it was time to return to elementary methods, which this Bill did not propose. Considering the great variety of secondary schools now in existence, no Minister of Education could ensure that variety. If a Bill must be passed, they might accept this one, if on no other ground than that it would reform the Education Department. But, if it were to go beyond that, some guarantees were wanted, and the country should keep a careful watch on what was going to be done. In the absence of details, those guarantees should be demanded when the Bill reached the House of Commons. So far from attacking the lecture, he thought Dr. Scott's ideas, on the whole, were too good for the Government to carry out, and it was to be hoped that the "sweet reasonableness" he had spoken of would be as fully shown in other quarters.

The Rev. G. E. MACKIE hoped that the opinions expressed by the last speaker did not fairly represent the opinions of most members of the College. He had poured scorn on the proposed arrangement of sub-departments under the Minister of Education on the ground that it was impossible to draw the line between primary and secondary education. It was equally impossible to draw the line between light and darkness; but were they therefore unable to distinguish between light and darkness? In all large public offices a system of departments was found, and the few matters which touched two or more departments presented no practical difficulties. Then the speaker

had said that headmasters were welcoming inspection because they did not know what it meant, and that his own experience had taught him to dread it. But all the best teachers in the elementary schools were agreed that the inspector was their best friend: their chief protector from the ignorance of parents, the crotchets of managers, and the red tape of a department. And when the inspection of secondary schools was established, such schools, and especially the smaller and poorer of them, would find inspection their best protection, since it would give a test of efficiency which would not depend, as now, solely on the production of a list of successes in examinations. Further, the last speaker had denied the right of parents to claim the interference of the State in the matter of education any more than in the supply of provisions. The parallel was unfortunate; for the State did interfere to secure for the citizen that they should not be poisoned with unwholesome food, and the grocer who adulterated his goods might be prosecuted and fined; and had not the State equally the right to see that those who professed to purvey education were doing what they professed to do? Such a narrow and selfish view of the question was short-sighted; and he hoped that members of the great educational profession would realize that in this matter parents had rights, and the State had rights, and that, while teachers had rights, they had duties also.

Mr. ORCHARD thought they had been greatly advantaged by one so conversant with secondary education as the lecturer bringing before them so clear a *résumé* of the Bill. While pointing out merits, he had not ignored blemishes. Probably the conclusion arrived at would be that the Bill was good, but not perfect. The provisions for— (1) a responsible Minister of Education, (2) a Consultative Committee, (3) registration of teachers and schools, were three steps, and three long steps, in the path of educational reform. On the other hand, as had been well remarked, it was unfortunate that we were left without definitions of the terms "primary" and "secondary," as applied to schools. It was a serious detraction from the usefulness of the Bill that inspection was not made compulsory. The notion that the public would send their children to inspected schools only, and thus the non-inspected would be weeded out, was unduly optimistic, and was not borne out by experience in regard to schools at present existing. Bad and indifferent schools might prefer not to avail themselves of inspection; but it was precisely those schools which, in the interests of the people, ought to be inspected. Nothing short of compulsory school inspection could prevent our present system of educational inequality and inefficiency being largely perpetuated. This, and other deficiencies in the Bill, could be remedied, and ought to be remedied, in its Committee stage. The Duke of Devonshire deserved, and would receive, the thanks, not of the teaching profession only, but also of the numerous community of the taught, for this attempt to grapple with a most important problem.

Mr. SHIPHAM thought that inspection should not only be compulsory, but should eventually be carried out entirely by the State. The elasticity and variety of instruction given in the schools demanded high qualities in the inspectors to be appointed. They should be men of wide experience of educational principles and methods in this and other countries. Efficient inspection should constitute a man's profession and life's work. University inspectors often had little practical experience, and took up the work for a few years merely as a stopgap till something else turned up. They could not claim to be educational experts. It would be desirable for the unity of our educational system that all inspection should proceed from one body. At the same time the English character was opposed to such uniformity as had been spoken of, but more so to the existing haphazard system.

Mr. SAPAT doubted whether the Bill was in the direction of freedom. As he did not look to the State to supply him with boots and shoes, so he did not see how he could be rightly called upon to pay out of his earnings for what he did not approve. He remarked on the great difficulties there would be in finding men with the exceptional qualities, moral and intellectual, required of inspectors, and on the impossibility of coming to a just conclusion on the work of a teacher in the short time that could be allowed for the inspection.

Mr. KIRKMAN would have liked the lecturer to explain the distinction he desired to draw between secondary and technical education. Different inspectors should be appointed for each class of schools. They need not necessarily be either classical scholars or men of science, as had been stated would be probably the case. At present the responsible authorities were at loggerheads, each having its own aim; and a third body would destroy all idea of unity in our educational system.

Dr. SCOTT, in reply, urged the necessity of a wide outlook in deciding the details of educational administration: he commended for this purpose the "Special Reports" which had been issued by the Education Department. It is not possible rightly to judge what is best for England till what is being done for the rising generation in Germany, in France, in Switzerland, had been understood and considered. The Board of Education Bill should be accepted on account of the potentialities for good which it undoubtedly possessed; assurances as to the manner in which it would be worked should be asked for in the House of Commons, and every effort should be made to influence the working out of the Bill on wide and reasonable lines.

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FORECASTS AND COMMENTS.

June 1, 1899.

THE Midsummer Certificate Examinations of Fixtures. the College of Preceptors will begin on Tuesday, June 27. The Junior Forms Examination will be held simultaneously.

* * *

THE first of June is the last day of entrance for the Intermediate Examinations at London University, and for the July Examinations of the Guildhall School of Music. June 6 is the last day of entrance for the Diploma Examinations of the College of Preceptors.

* * *

ON June 2, Sir George Gabriel Stokes, LL.D., F.R.S., will be presented with an address from Cambridge University and a commemoration gold medal on the occasion of his completion of fifty years' service as Lucasian Professor of Mathematics. Sir George, who is in his eightieth year, will be subsequently entertained at a banquet. Prof. A. Cornu, of the Ecole Polytechnique of Paris, has been appointed Rede Lecturer for the present year. The lecture will be delivered in the Senate House on June 1, as a part of the proceedings relating to the jubilee of Sir George Stokes.

* * *

A MEETING of the Teachers' Guild will be held at the Westminster Town Hall on Saturday, June 3, at 3 p.m. The Right Hon. James Bryce, M.P., will take the chair.

* * *

THE Royal Institution will celebrate its centenary next week by two commemorative lectures. The first will be delivered at three o'clock on Tuesday, June 6, by Prof. Lord Rayleigh, when H.R.H. the Prince of Wales will preside. The subject of Lord Rayleigh's lecture will be the physical work of the Institution during its hundred years of existence. The second lecture will be delivered on Wednesday evening, June 7, at nine o'clock, by Prof. James Dewar, when the Duke of Northumberland, the President of the Royal Institution, will preside. Prof. Dewar will take as his text the chemical work of the Institution during the century.

* * *

THE examinations in Agricultural Science for the Cambridge Diploma will extend from June 12 to June 19.

* * *

ON November 7 two groups of colleges will hold examinations for entrance scholarships and exhibitions in natural science. One group includes Pembroke, Caius, King's, Jesus, Christ's, St. John's, and Emmanuel; the other, Trinity, Clare, and Trinity Hall. The scholarships are of the value of £80 a year and under. In the first group the subjects of examination are:—(1) chemistry, (2) physics (including dynamics and hydrostatics), (3) physical geography (as introductory to geology), (4) animal physiology, (5) biology (including zoology and botany). In all branches of natural science there will be an examination in practical work. In the second the subjects are physics and chemistry.

* * *

A TABLE of Holiday Courses on the Continent for instruction in Modern Languages has been prepared by Mr. Fabian Ware for the Special Inquiries Branch of the Education Department. We

mention below the places and principal subjects of instruction; further information may be obtained at the Education Department Library in Cannon Row.

* * *

COURSES will be held at Bonn on Philosophy, History, Art, Geology, and Botany; at Greifswald, on German and French Literature, Methods of Modern Language Teaching, Phonetics, Pedagogy, Natural Science; at Jena, on Pedagogy, Natural Science, History of Art, Mental and Moral Science, Religion, German Language and Literature, Education of Defective Children; at Lisieux, on French Literature, History, Language, Political, Social, and Economic Aspects of France; at Tours, as above; at Paris, on Classical and Modern French Language and Literature, Elocution and Pronunciation, Phonetics, Institutions and Arts of France; another at Paris, on Study of French in groups of three or four, visits to places of interest in Paris, also lectures on Literature, Art, Educational and Social Life of Paris; at Geneva, on Modern French Literature, special classes for study of spoken language, and methods of teaching; at Lausanne, on History, Literature, and Philology, Phonetics, special study of spoken language, Psychology; and at Neuchâtel, on the general study of French Language and Literature.

* * *

THE following is the programme as at present arranged for the Bedford College Jubilee:—Thursday, June 22, 3 p.m., Students' Conference in the Portman Rooms, Baker Street, Miss Anna Swanwick in the chair. Speakers: Prof. Jebb, Miss H. Busk, Miss Manning, Mrs. Morgan Williams, Mrs. Bryant, D.Sc., and others. After this meeting there will be tea at the College, York Place. Friday, June 23, 3 p.m., meeting at the Theatre of the University of London, Burlington Gardens, Prof. Jebb, Visitor to the College, in the chair. Speakers: His Grace the Duke of Devonshire, the Lord Bishop of London, the Right Hon. James Bryce, Mrs. Fawcett, and Mrs. Henry Sidgwick. To this meeting will be invited two representatives of all women's colleges and colleges which admit women as students, all educational bodies, headmistresses, &c., and all members of the Students' Association. 9 p.m., *Société* at Bedford College, York Place, to guests invited for the afternoon meeting. Saturday, June 24, 7 p.m., a Garden Party arranged by the Students' Association in the Royal Botanic Gardens.

* * *

THE Entrance Scholarship Examination at Bedford College will be held on June 27 and 28. There will be two scholarships offered for competition: the Reid Scholarship in Arts, 30 guineas a year for three years; the Arnott Scholarship in Science, of £48 a year for three years. The successful candidates will be required to take a full three years' course in arts or science. Entrance forms must be returned not later than June 15.

Education Gossip. A CIRCULAR relating to the English Education Exhibition from January 4 to 27, 1900, preparatory to the French Education Exhibition in the same year, has been published. It is to be hoped that the exhibit at Paris will be a worthy one. The strong and representative Committee who will be responsible for the English Education Exhibition may be trusted to ensure that our country's interests are adequately represented. In addition to this exhibition, and to one which will be held simultaneously in Edinburgh, there is to be a display of Welsh apparatus and work for the same purpose, between July 15 and August 5 of the present year.

* * *

THE fixing of dates for our far too numerous examinations, so as to produce the minimum of overlapping, has become a matter of considerable difficulty. We are not surprised to see that the London Chamber of Commerce, finding that no fewer than three other examinations had been fixed for the same week as the Junior Examination of the Chamber, has postponed the latter for a fortnight, until July 10–15.

THE *University Correspondent* expects the immediate publication by the London University Commission of a draft statute, embodying its first conclusions on the problems which were submitted to it. "The draft statute referred to is a very lengthy document, and is the result of an enormous amount of almost daily close and controversial work. When it is published will be the time for the friends of the external student (who have been lying low hitherto, there being nothing to do) to propound their proposals and criticisms. Those members of the Statutory Commission who are also members of the Senate and its Committees have not had a sinecure. Many are curious to see whether the examiners have been restored to the Faculties and whether the External Council has its full powers."

* * *

MR. J. W. MACKAIL is giving a course of three lectures on the "Dramatic Art of the Greeks," under the auspices of the London School of Ethics and Social Philosophy, at University Hall, Gordon Square. At short notice he undertook to supply the place of Prof. Gilbert Murray, who had been obliged through ill-health to cancel his engagement to lecture for the School on Euripides.

* * *

THE *University Extension Gazette* gives the complete arrangements for the Summer Meeting at Oxford. The Literature Course will contain some thirty lectures. Prof. York Powell has made himself responsible for his friend William Morris, Mr. Frederic W. H. Myers for his friend George Eliot, Mr. Arthur Sidgwick will lecture on Mrs. Browning, and Mr. Churton Collins and Mr. Ronald Bayne on Robert Browning. Mr. Herbert Paul, equally at home in the *Nineteenth Century*, in the *Daily News*, and in the House of Commons, will deal with Modern Journalism, Mr. Hudson Shaw with John Ruskin, Dr. Bailey with Tennyson, Mr. Boas with the Pre-Raphaelite Poets, Mr. de Burgh with Carlyle, Mr. Ashe King with R. L. Stevenson, and Mr. Shaw Jeffrey with Pierre Loti and Alphonse Daudet.

* * *

MR. SADLER has promised a lecture on Dr. Arnold, of Rugby, and Mr. Arthur Hassall one on his old master, Edward Thring, of Uppingham. Prof. Earl Barnes will, it is hoped, lecture on some aspects of Child Study, and Mr. Keatinge will hold daily classes in the Theory and Practice of Education.

* * *

THE most attractive section of all to many students will be that devoted to Hellenic studies. Prof. Jebb has promised to lecture in this section, together with such distinguished specialists as Prof. Sayce, Mr. Wells, and Profs. Percy and Ernest Gardner; whilst the exceptionally strong list of lecturers who will illustrate the more remarkable contributions to scientific knowledge during the present century includes such names as those of Prof. Francis Gotch, Dr. Ransome, Prof. Miers, Prof. Sollas, and Mr. G. C. Bourne.

* * *

THE Cambridge Local Lectures Syndicate have decided to hold a Summer Meeting of University Extension students at Cambridge in August, 1900. It is proposed that the lectures should deal with "Some Great Influences on English Life and Thought." Further particulars will be announced in due course.

* * *

THE London Guilds are being urged to give a helping hand to the City of London School for Girls, by endowing scholarships and exhibitions. At present the school stands in this respect at a great disadvantage in comparison with the several other schools of a kindred character that are associated more or less closely with the City.

* * *

THE Charity Commissioners recently promulgated a scheme of administration for the Leeds Grammar School, and £12,000 was set apart from the capital fund for the education of girls in the city. The Governors have given the whole sum to the existing Girls' High School in Woodhouse Lane. It is further

proposed that a Grammar School for Girls shall be constituted and conducted under a new scheme, with a separate governing body—this to include representatives of the Girls' High School, the Yorkshire Ladies' Council of Education, the School Board, the City Council, and the Governors of the Boys' Grammar School, the latter to be in a majority. What did the Commissioners think would be done with the £12,000?

AN Association of Graduates in the Royal Irish University has been formed, "in order to secure united action for the furtherance of higher education in Ireland in its relation to Catholic and national interests."

THE Hall of Residence for Women Students in connexion with Owens College, Manchester, is to be opened next session. The Wardenship of the Hall has been offered to Miss Helen M. Stephen, daughter of the late Sir James Fitzjames Stephen, and niece of Mr. Leslie Stephen. Miss Stephen has accepted the post, and will enter on her duties as Warden after the Long Vacation. Miss Stephen's sister, Miss Katherine Stephen, is one of the Vice-Principals of Newnham College at the present time, and will be able to give her the valuable help of her own experience in dealing with women students.

THE Edinburgh Summer School of Modern Languages will meet this year, as usual, in August. The purpose of the School is "to extend the knowledge and advance the teaching of modern languages by means of an international meeting for intellectual, educational, and friendly intercourse." This year, as last year, the languages of the meeting will be French and English, and, as before, the classes will not merely deal with the practical side of language study, but will include courses of lectures on the geography, history, social life, institutions, and literature of France and England. Special opportunities for the practice of foreign languages are afforded by the associated life of the residential halls in which the students board during the meeting.

WE greatly regret to note the death of Mr. W. J. Reynolds, for many years a member of the Council of the College of Preceptors, who possessed the confidence and esteem of all associated with him. The College has further to lament the death of the Rev. Dr. Schoell, one of its Examiners in German.

At a meeting of the Council of the College of Preceptors held on May 17, the following were appointed to the vacant Examinerships: In English Language—J. Lawrence, D.Lit., M.A. Lond., B.A. Oxon.; and Miss B. M. Skeat, Med. and Mod. Lang. Tripos, Cambridge, Ph.D. Zürich. In French—V. Spiers, M.A. Oxon., B.-à-L. Paris., Professor of French Language and Literature in King's College, London, Examiner in French in the University of London; and J. G. Anderson, B.A. Lond., French Master at Merchant Taylors' School.

THE Chair of History in Edinburgh University, vacant by the resignation of Prof. Prothero, will be filled at a meeting of the University Court on July 17.

THERE are vacancies in the Jodrell Chair of Zoology at University College, London—applications by June 5; in the Chair of Pathology at St. Andrews—applications by June 1; in the Clark Lectureship in English Literature at Trinity College, Cambridge—applications by June 1; in a Theology Lectureship at St. David's, Lampeter, and in an Assistant Lectureship in German at Mason College—applications for the last two posts to be sent in by June 10.

THE Headmasterships of the Schools of Art at the Worcester Victoria Institute and at Hartley College, Southampton, are vacant. Applications should be sent in by June 5 and June 12 respectively.

THE Egyptian Government require five assistant-masters in the Cairo Secondary School—one for physics, two for mathematics, and two for English. Applications by June 30.

THERE are also vacancies in the Headmasterships of Sheffield Grammar School and the West Somerset County School, Wellington—a layman preferred. In both cases the last day for applications is June 1.

Literary Gossip. It seems that there is an extraordinary competition for the Secretaryship of the Cambridge University Library. Over eight hundred persons applied for information as to the conditions of the appointment, and the electors have had a hard task sifting the testimonials of several hundred applicants.

THE report of the Bodleian Library mentions that the number of publications received last year is the greatest on record—66,817. This total, however, does not represent very much in reality. One-fifth of it consists of maps, and the number of volumes received under the Copyright Act, or in other ways, is not much more. Among the donations is a guitar which Shelley presented to Mrs. Jane Williams, and about which he wrote a poem. The Library already possesses some Shelley papers; but the guitar is a novelty.

DR. S. R. GARDINER, who has lectured on history at Toynbee Hall for twenty years, was presented with a testimonial by his former students. Dr. Creighton, Bishop of London, himself a distinguished historian, in the course of his speech on the occasion, passed a high eulogium on his friend, saying that he thought England did not generally know what a really great man Dr. Gardiner was. The life of the simple, whole-hearted student, who devoted himself absolutely to his work, asking for no popularity and requiring no recognition, was a life often for a time overlooked, but, in the long run, it shone out brightly in the annals of mankind.

THE *Oxford Magazine* says that, properly punctuated, and adorned with at least one ingenious emendation by the editor of the *Classical Review*, the thirty-four lines recently discovered in "Canonicianus 41" begin to look more like Juvenal than they did; and certainly, as Mr. Postgate says, they do not look like an imitation. Forgeries are generally translatable. However, we cannot anticipate the verdict of scholars. The passage has now been thrown to the young lions of the *Classical Review*, and will no doubt provide excellent sport for explainers and emenders who are tired of the rather cheap fascinations of Bacchylides and have nothing more to say about the *Ἀθηναίων Ἰστορία*. But the evident moral is that we must go more to the Bodleian and save our tickets to Egypt. It is very curious, and perhaps not altogether creditable to a learned University, that a known MS. of Juvenal (for Juvenalian scholars have seen it before) should never have been thoroughly collated till an undergraduate happened to "glance at" (as Mr. Winstedt rather quaintly puts it) its version of some disputed passages.

WE have received an extra thick "Annual Report of the Board of the Smithsonian Institution," containing more than a thousand pages. The Smithsonian volumes are wont to strike us as a little heavy—which is doubtless our own fault; but this one is just the reverse. It consists of a report from Mr. Brown Goode, the Secretary of the Smithsonian Institution, who is also Curator of the National Museum of the United States, together with many interesting and richly illustrated papers describing the national collections.

By an Act of Congress, passed in 1846, the Smithsonian Institution became the only lawful place of deposit for "all objects of art and of foreign and curious research, and all objects of natural history, plants, and geological and mineralogical

specimens belonging to the United States." Hence the National Museum, which for many years was supported entirely out of the Smithsonian Fund, but now receives liberal appropriations from the State.

* * *

WE learn from Mr. Frowde, of the Oxford University Press, Amen Corner, on behalf of the Delegates of the Press, that the extent of the "New English Dictionary on Historical Principles" has now been determined, and that it is proposed to publish a new issue in monthly parts, and on terms accommodated to the often slender purse of the scholar and student—to wit, three shillings and sixpence for the monthly part.

* * *

THE "Oxford Dictionary," when completed, will consist of from twelve thousand to thirteen thousand pages, contained in ten volumes. Of these volumes, three have been issued, and the fourth and fifth (of which many parts and sections have appeared) will be completed in 1900. Half of the entire work will thus be finished with the century; the second half (Vols. VI.—X.) will be produced more rapidly than the first, so as to reach the end of the alphabet in 1909.

* * *

THE Religious Tract Society has celebrated its centenary by a certain amount of legitimate mutual congratulation, and, more practically, by raising another fund of nearly £50,000. When the Jubilee was celebrated, it was reported that the Society's works had been published in one hundred languages. Now the number has risen to two hundred and thirty. Then its annual circulation had risen to twenty millions. Now it stands at 59,053,360. The Jubilee Fund amounted to £6,345; the Centenary Fund amounts to nearly £50,000. The grants of money, paper, and publications in the Jubilee year amounted to £6,180. 1s. 7d.; last year to £21,419. 0s. 1d.

* * *

MESSRS. MACMILLAN are to issue, in the autumn, a limited *édition de luxe* of Canon Ainger's well known edition of the works of Charles Lamb, together with the memoir which appeared in the "English Men of Letters" series. The whole work will be carefully revised by the editor, who will be able to incorporate some important new letters and also make interesting additions to the notes. Arrangements have been made to include the letters from Lamb to Charles Lloyd which appeared last year in a volume edited by Mr. E. V. Lucas. It is further announced by Messrs. Macmillan that a new volume is about to be added to their "Foreign Statesmen" series. It will be a Life of Cosmo de Medici, by Miss K. Ewart.

* * *

THE issue of the "Higher Latin Grammar," which is to form a sequel to the "Tutorial Latin Grammar," has now been completed by the author, Mr. F. G. Plaistowe, late Fellow of Queens' College, Cambridge, and it is expected that it will be ready for issue during the autumn. The book is specially intended for candidates for Pass Degrees at the Universities. Its aim being entirely practical, comparatively little philology has been introduced; but care has been taken that no statement shall appear which is contrary to scientific principles.

* * *

THE second volume of Mr. Stout's "Manual of Psychology" has been for some time in the printer's hands. Volume I., which was published last December, has met with a favourable reception. As one of the objects of the "Manual" was to provide a text-book for candidates for the London University B.A. Examination, it is interesting to note that Mr. Stout has recently been appointed Examiner in Mental and Moral Science at that University. The publisher is Mr. Clive.

* * *

IN order to meet the needs of teachers who desire to requisition their books in time, a special effort has been made by the Committee of the National Home Reading Union to prepare and issue the Book List for the Young People's Section for the next

season, commencing in October. Teachers can receive this List by return of post on payment of 1s. 6d., which will also secure to them the monthly Magazine containing the articles on these books, with suggestions and questions especially useful to teachers.

UNIVERSITIES.

(From our Correspondents.)

THE most stirring event of the current term—Oxford, except the Eights week, which undoubtedly "stirs" us more than anything else—has been the migration of our Vice-Chancellor to Westminster. It is no surprise to those who know him best to find that Sir William Anson has political as well as academic ambitions, and that he could not resist the temptation of an unchallenged election to the House of Commons. The first step rendered necessary by his candidature was the resignation of his office of Vice-Chancellor, which was followed by the nomination of Dr. Fowler, of Corpus, to succeed him. In Convocation, on May 4, Sir William regretted that circumstances had caused his resignation, leaving various tasks incomplete. He referred to Sir John Mowbray, whose services to the University and the State had been discharged with such unflinching industry and semblance of perpetuated youth. He paid a tribute to the memory of Mr. Olley Wakeman, his friend and colleague. The President of Corpus, Dr. Fowler, then took the seat vacated by Sir William. The four pro-Vice-Chancellors were admitted to office in the following order:—The Provost of Queen's, the Rector of Lincoln, the Warden of All Souls', and the Provost of Oriel. It is a hundred years since a President of Corpus filled the office of Vice-Chancellor. The actual election of a Burgess took place a week later, and, judging by the very small attendance of graduates, it did not excite much interest or curiosity. Dr. Fowler stated that the business before the House was the election, and asked if any one wished to nominate a candidate. Thereon the Sub-Warden of All Souls' (Mr. W. P. Ker) nominated Sir William Anson, and Prof. Montagu Burrows, Senior Fellow of All Souls', seconded the nomination. The Vice-Chancellor inquired if any other candidate was nominated, and, in default of such, declared the Warden of All Souls' elected. The House then ordered the University Seal to be affixed to a document attesting the election, and the proceedings closed hardly ten minutes after they had begun.

Mr. Lyttelton Gell is another of our academics who have recently manifested a craving for wider interests than the University has been able to afford them. He has joined the Board of the British South Africa Company, and his undoubted business capacities ought to find ample scope in assisting to develop the new province of Rhodesia.

Sir John Stainer has expressed a desire to resign the Professorship of Music. According to the *Oxford Magazine*, he is in the habit of going abroad for a portion of every year, and found the ties of his appointment inconvenient. This is no doubt true, but there is reason for believing that it is not the whole truth. He has filled his Chair for ten years, and thinks that to be the limit of time for which it ought to be held, the idea being that eminent musicians throughout the country should have the opportunity of succeeding to it. There is much to be said for periodical change, and, at any rate, the suggestion does him credit. The favourite nominee for the vacancy is Sir Hubert Parry, the present Choragus; and the general opinion is that, if he would consent to stand, he would be elected unopposed. But his duties in London may be in the way, and, in that event, the Rev. Dr. Mee, the Precentor of Chichester Cathedral, for whom, in 1890, the office of Coryphaeus was revived at Oxford, will almost certainly be a candidate. Dr. Mee has in many ways rendered good service to music in the University, in which he is a popular figure.

Mr. Arthur Thomson, M.A. Exeter College, has been appointed to the Professorship in Human Anatomy for five years, from June 30, 1899. The Reader in Rabbinical Literature, Mr. Adolf Neubauer, M.A., Hon. Fellow of Exeter College, has also been reappointed for a period of five years. Mr. Arthur A. Macdonald, M.A. Corpus Christi College, has been appointed to take charge of the teaching of members of the University in Sanskrit.

THE arrangements for celebrating the jubilee of Cambridge. Sir George Stokes are now practically complete.

It is intended to commence the proceedings on June 1 with the delivery of the Rede Lecture in the Senate House by Prof. Cornu, of the French Institute. In the evening

a conversazione will be held at the Fitzwilliam Museum. The morning of June 2 will be devoted to the reception of the guests in the Senate House, with the inevitable presentation of addresses. At 2.30 an address and a gold medal will be presented to Sir George Stokes on behalf of the University. At this Congregation the honorary degrees will be conferred, so that the spectacle will be an imposing one. A garden party at Pembroke College and a dinner in the Hall of Trinity, at which latter function the Duke of Devonshire hopes to preside, will close the proceedings.

It has been decided to establish a University Lectureship in Russian, a language which, from an educational and linguistic standpoint, is worthy of serious cultivation in any University. The Caius College authorities, with their usual enterprise, have announced their intention of founding an exhibition in the subject, and doubtless other colleges will soon follow suit. As at present there is a rage for things military in Cambridge, it is likely that intending candidates for the Army will avail themselves of the opportunity of learning Russian, and thus materially increase their chances with regard to pay and promotion. It should be noted that the new Lectureship has been established entirely at the expense of Sir David Salomons.

A very important statement has been issued by the General Board of Studies as to suggested increases in the emoluments of certain Readerships and Lectureships. The changes may be summarized as follows:—The Professor of Chinese, who receives no emolument, is to be eligible for a Professorial Fellowship; the Disney Professor of Archaeology is to receive an additional £100 a year in return for extra work; the offices of University Lecturer in French and German are to be merged in new Readerships of Romanic and Germanic languages respectively, the salary in each case being £300 per annum; the salary of the Readership in Botany is to be raised from £150 to £300; the Lecturer in Organic Chemistry, £100 to £200; the Lecturer in Experimental Psychology, £50 to £150.

A new oral examination to test the power of speaking French and German has been proposed, and will probably be established. At present it is customary to examine candidates for the Modern Language Tripos as to their conversational powers, and it is now proposed to institute an entirely separate examination open to any one who has passed either the Tripos or the Special. Mr. Roberts, of Caius, in a letter which was read by the Vice-Chancellor at the discussion in the Senate, pleaded for throwing open the examination to successful candidates in all Triposes, but the opinion of the Senate seemed adverse to the step. If the matter is carried to a division, it is possible that Mr. Roberts's opinion will prevail.

The state of the weather has militated very much against the prospects of the May term amusements, and work has not suffered so severely as usual. The first function of the term was the Volunteer inspection, which was a great success, from both the professional and social sides; a distinguished retired officer, a great authority on tactics, has written an independent criticism in the *Granta*, and speaks in the very highest terms of the manner in which the attack evolutions were carried out. The corps is actually over regulation strength, and the officers are able to pick and choose among would-be recruits. The number of University men seeking commissions in the Army has doubled, and it is now possible for such candidates to do the whole of their work in Cambridge, every phase of preparation, both military and literary, being now obtainable in the place itself. It is known that the authorities at the Horse Guards are desirous of attracting University men into the Army, while recent developments at Cambridge have removed some of the objections felt by the college authorities to the removal of their men from University discipline during the interval between the qualifying and final tests.

Great schemes are in the air for new buildings on the recently acquired sites. One much-needed improvement has already been put in hand—the narrow part of Corn Exchange Street is to be widened, and, as a result of the University and Town authorities laying their heads together, there is to be a wood pavement as well.

Residence for the Long Vacation term begins at most colleges about July 1, an arrangement which will permit the working bees of the academical hive to get some holiday during the enjoyable time of this vacation.

INTENDING candidates and others will be interested in the appointments to the vacant Examinerships. In Latin, the Senate have elected Dr. J. S. Reid, M.A. Lond. who has previously acted as Examiner for two periods of five years, and who has recently been appointed Professor of

Ancient History at Cambridge; in English, Prof. Napier, M.A., Ph.D., Merton Professor of English at Oxford; in French, Prof. F. Spencer, M.A., Ph.D., of University College, Bangor, and, like one of the examiners in German, an Englishman; in Mental and Moral Science, Prof. G. F. Stout, M.A., who holds Chairs both at Aberdeen and at Oxford; in Teaching, Mr. Oscar Browning, M.A., Principal of the Day Training College, Cambridge; in Chemistry, Prof. Percy Frankland, Ph.D., F.R.S., of Mason College; in Jurisprudence, &c., Prof. Pawley Bate, LL.D., M.A., of University College, London; in Common Law, Dr. Blake Odgers, Q.C., who has previously examined for five years in the same subject; and, in Obstetrics, Sir John Williams, Bart., who also has similarly examined before.

Convocation meeting on May 9, and the ceremonial of Presentation on the 10th, passed without any noteworthy contribution to the history of the University. On the latter occasion, however, Lord Kimberley made his first public appearance in the capacity of Chancellor, but had to leave early in the proceedings, his place being then taken by the Vice-Chancellor.

The vacancy in the Medical Council caused by the death of Sir William Roberts has been filled by the election of Dr. Pyc-Smith, F.R.S., as representative of the Senate upon the Council. An important instruction of the Senate requests their representative to attempt the removal of a difficulty which has arisen out of the recent alterations in the regulations for Matriculation. By those alterations candidates now need pass in one language only (viz., Latin) besides English. But the Council require that a candidate, in order to be registered as a medical student, shall also have passed either in Greek or in a modern language. As some candidates, not being aware of this requirement, have exercised and will exercise the option allowed by the University, of taking up a science instead of a second language, the Council have specially relaxed their rule in favour of such candidates, up to and including January 1900. The efforts of the new representative are to be directed towards getting this relaxation made permanent.

THE ART OF READING.

DR. ARNOLD's oft-quoted advice to his sixth form at Rugby, "Remember that you are here not so much for the purpose of reading as to learn how to read," may be taken in a double sense. Dr. Arnold meant, of course, that his pupils, whilst under his care, were to prepare themselves for their later and severer studies and to have their minds expanded so that, at the University and afterwards, they might derive real profit from books. Still, there is a more literal and lower meaning of these words, which he would not have thought unimportant.

We have not long since been reminded by high authority of the necessity of teaching the future teachers of the young to read aloud articulately and intelligently. The circulars addressed by the Education Department, the one to the inspectors, the other to training colleges and pupil-teachers' centres on the subject of reading, have drawn particular attention to it, and they are worthy, especially the latter, of being carefully considered by all interested in education. Many of the remarks in them apply not only to elementary scholars and teachers, but also to those engaged in the higher walks of scholastic life.

It has been often said, and with too much truth, that the English as a nation do not pay sufficient attention to the form and style of their public utterances. The French and other nationalities may go to the opposite extreme of a stilted, artificial, affected manner of reading and speaking, which to us matter-of-fact people is painful and repellent. We are more concerned about the matter than the form. Yet this does not justify our too-often slovenly and slipshod or monotonous way of reciting the writings of others, or of expressing our own thoughts. Most educated men and women are liable to be at times called upon to read or speak in public, and should be prepared to do so correctly and effectively. This, however, cannot be done, unless our boys and girls in all ranks of society are early trained to use their voices to good purpose.

It may be with regard to the scholars in our elementary schools that the Departments and the inspectors expect too much. The early age at which they leave school and the environment of their daily lives make it most difficult for such children to read and speak with that "careful articulation at all times, that modulation of tone and intelligence," which "My Lords" would insist upon, and such as all well cultured people desire to have, and more or less aim at, for themselves.

It is, no doubt, well that this and the like methods should have been again urged by the Department upon teachers and the trainers of teachers, and we hope more care will consequently be bestowed upon this very essential part of education. They had also wisely tracked these defects to their fountain head in the training colleges and pupil-

teacher centres, though it would be unjust to suppose that in the former, at least, much has not been done for many years in this direction. However this may be, the true remedy is certainly to teach the teachers more thoroughly the art of reading—for it is an art, which does not come by intuition or without labour and study.

At the same time, the subject admits of a much wider application. If this be so with regard to our primary schools, it is still more important in our secondary schools and colleges, and, we may add, in our Universities. Here there ought to be far less difficulty, because hereditary and home influences, as well as social surroundings, are more or less favourable to the desired result. Nevertheless, the question arises whether the actual results do not fall greatly below a reasonable standard in the Courts of Law, the Church, and the Senate, not to speak of the less conspicuous walks of life. Of course, the stage is above criticism in this matter. In our public schools and Universities our youths enjoy comparatively few opportunities of learning how to read or speak in public. The theological colleges of both the Church of England and Nonconformists have, indeed, of late years devoted much time and effort to the training of the voice, elocution, and extempore speaking, and with excellent results. Notwithstanding what is done there, and in many private seminaries, it is a lamentable fact that not a few youths go forth into public life well instructed and with well disciplined minds; and yet, knowing little of the right way of imparting their knowledge or convictions to others, they are left to flounder about in a sea of perplexity, until, perhaps after many failures and blunders, and by the use of special natural gifts, they at length achieve success. But all this delay and misdirected energy might have been prevented if in their earlier days they had learned to read and speak with distinct articulation and in an impressive manner.

One of our daily contemporaries, in a recent article on this subject, somewhat severely observed: "It is something that 'My Lords' have at last realized that reading does not come by nature, and that, like other things, it can and must be taught. There was a time when the three R's were supposed to comprise the whole duty of the elementary teacher. We have changed all that, happily enough; but, after all, the three R's embody a not unimportant principle. Education must begin with them, though it cannot end with them; and a system which neglects one of them, or at least leaves it in a state which is generally admitted to be unsatisfactory, is to that extent faulty in principle. Hence, the Department has none too soon resolved to take the matter seriously in hand." The principles here laid down are by no means counsels of perfection for the few, but such as all that have the training of the young cannot too carefully adopt. The rules are so obvious that they are the more in danger of being overlooked and neglected. All will admit that the main things to aim at in reading aloud or speaking are audibility and intelligent expression; but is it not just the combination of these two qualities that is so often wanting in public readers and speakers, as well as in professional teachers? Shouting and screaming or declaiming on one note are, by some even cultured persons, mistaken for "clear, audible, and impressive" utterance. But we thereby inevitably miss our aim, for, by an unnecessarily loud or monotonous delivery, we rather distress, confuse, and fatigue the minds of the hearers. As it is well put in one of these circulars, "an easy, pleasant-sounding speech secures the attention of those whom shouting and stridency distract and tire." More than this, the speaker or reader does himself a positive injury. "Good reading," we are again reminded, "is an exercise in voice economy, and voice economy is useful in degrees. It is always a saving of physical effort, at least it is a protection against common forms of throat disease, to which those who live by talking are prone, and at best it is an admirable and health-giving gymnastic."

It did not concern "My Lords" to refer to the malady so well known as "clerical sore-throat," though to do so would have strengthened their argument. The ailment may be usually traced to an unnecessary playing, as it were, on one string of the voice, and so irritating and exhausting some one of the vocal organs. We seldom hear of barristers, and never of actors, being affected in this way. They speak in a natural tone, expanding the chest and regulating the breath so as to be heard without any sensible effort. Not so is it, according to the circular, with many elementary teachers, for, with reference to this, it is added: "It is a most painful fact that a substantial number of teachers suffer from more or less developed and recognizable forms of throat disease, which exact knowledge and careful practice in the earlier stages might have cured, if not avoided; and experiments have satisfactorily shown that, even in cases of advanced deterioration, carefully graduated exercises have gone far to mitigate the mischief already done." Accordingly, besides other things, the Department recommends exercises in breathing, in the management of the lungs, throat, mouth, and lips, so as to get the maximum of work out of them with the minimum of exertion and the most unconstrained use of every available organ; these exercises to be carefully graduated and taken at appropriate stages for a short time before every reading lesson. These are unquestionably admirable suggestions, and, if more generally adopted, would hardly fail to effect a great improvement.

It is the same with reading as with singing. Those who have had

any experience in teaching others to sing will tell us how important is the right use of the vocal organs. Some pupils have a tendency to close their teeth like a comb, and thus, of course, greatly impede the emission of sound, or produce a rasping, strident effect. Others will keep their mouths partially shut, and so send forth unnatural, muffled, woolly tones. The same is to a great extent true in reading or speaking. An extreme case will illustrate this point. A few years since, the present writer had the pleasure of visiting an institution for the deaf and dumb near Lille, in the north of France, where the Brothers of the Order of St. Gabriel have continued the noble work of the Abbé de l'Épée by teaching the dumb that have no organic defect to speak by lessons in articulation and watching the teacher's lips. Wonderfully successful have been their efforts. The burden of their instruction was "Ouvrez la bouche," the very thing which these unfortunates find it so difficult to do, and inattention to which often prevents those who have the gift of speech from really articulate and expressive utterance. But this is by no means the whole of their method. These devoted Brothers work on thoroughly scientific principles, from an intelligent study of the various organs, for each of which they have devised appropriate exercises.

At the same time they insist upon "a calm, full, strong inspiration" as not only conducive to health, but as essential to the emission of distinct sounds and to articulate speech. One rule, on which they especially rely, is that of inspiring freely by the nose, and respiring gently and slowly by the mouth. This method will not be accepted by all experts, and it may be more applicable to French as an essentially nasal language than to our own. Any one, however, who has visited such schools, and heard those who had been isolated mutes speaking distinctly and correctly, if not in altogether pleasing tones, will acknowledge the success of the work and the soundness of the principles on which it is based. Should not, we would ask, the same principles be applied, *mutatis mutandis*, to the development of the organs of speech in those who are blessed with a full power of using them? Many of the defects in utterance, which are so prejudicial to public and professional usefulness, and almost incurable in later life, may be overcome by a judicious and practical application of such simple rules.

WILLIAM BURNET.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held at the College, Bloomsbury Square, on May 17. Present: Dr. Wormell, Vice-President, in the chair; Mr. Barlet, Rev. A. W. Boulden, Mr. Brown, Mr. Charles, Miss Dawes, Miss Day, Mr. Eve, Mr. Harris, Rev. Dr. Hiron, Rev. R. Lee, Sir Philip Magnus, Mr. Millar Inglis, Rev. Dr. Scott, Dr. R. P. Scott, Mr. Sergeant, and the Rev. T. W. Sharpe.

The minutes of the last meeting were read and confirmed.

The Secretary reported the death of Mr. W. J. Reynolds, a member of the Council, and of the Rev. Dr. Schoell, one of the Examiners in German.

Saturday, July 22, was fixed as the date of the next Ordinary General Meeting of the members of the College.

The Report of the Examination Committee was adopted, and the following additions were made to the examining staff of the College:—*English Language*: J. Lawrence, D.Lit., M.A. Lond., B.A. Oxon.; and Miss B. M. Skeat, Med. and Mod. Lang. Tripos, Camb., Ph.D. Zürich. *French*: V. Spiers, M.A. Oxon., B.-ès-L. Paris; and J. G. Anderson, B.A. Lond.

The Report of the Education Committee was adopted.

The following persons were elected members of the College:—

Mr. L. C. Brooks, 63 High Street, Marylebone, W.
Miss A. M. Butcher, A.C.P., 53 Wendover Road, Harlesden, N.W.
Mr. F. E. Butcher, A.C.P., 53 Wendover Road, Harlesden, N.W.
Mr. J. H. Ellis, 87 Guilford Street, Russell Square, W.C.
Miss L. M. Morris, A.C.P., 27 Seaside, Eastbourne.
Miss E. Nash, A.C.P., 12 Seafeld Road, Hove.

The following books had been presented to the Library since the last meeting of the Council:—

By the AUTHOR.—Meiklejohn's Art of Writing English.
By the AGENT-GENERAL FOR NEW SOUTH WALES.—Coghlan's The Seven Colonies of Australasia, 1897-98.
By ALLMAN & SON.—Blonet's Preparatory French Lessons; Davidson and Alcock's Arithmetic (Junior Students).
By G. BELL & SONS.—Stories from the History of England, 1066-1485.
By BLACKIE & SON.—Brockington's Elements of Prose.
By C. J. CLAY & SONS.—Sanderson's Geometry for Beginners; Sidgwick's Vergil's Aeneid, Book IX.
By W. B. CLIVE.—Jackson's Practical Lessons in Bookkeeping; Thompson and Mills' Platon.
By MACMILLAN & CO.—Cotterill's Goethe's Iphigenie auf Tauris; Julien's Richelieu's Les Violettes Blanches; Pitman's Introduction to Greek Prose Composition. Register of Veterinary Surgeons, 1899.
Joint Scholarships Board Year Book, 1898-99.

REVIEWS.

GREEK AND ROMAN HISTORY PRIMERS.

- (1) *Nicias and the Sicilian Expedition.* By A. J. Church.
 (2) *Hannibal and the Great War between Rome and Carthage.*
 By W. W. How. (Seeley & Co.)

These two little volumes—the one by an acknowledged historian, the other by a skilful story-teller for boys—are likely to make the ancient history lesson at least less wearisome for master and pupil than it is apt to be. It has long seemed to us desirable to give greater prominence to the concrete in ancient history for the benefit of young learners. We have an excellent series of ancient history epochs; but of biographies or sketches of the great men of antiquity—the statesmen, soldiers, and teachers—we have scarcely any account that is suitable for the needs of beginners. Where is the simple monograph on Pericles, on Cæsar, on Demosthenes, on Socrates? Messrs. Seeley will confer a boon on teachers if they are able to extend a series of which the foundations have been most competently laid by Mr. Church and Mr. How.

Mr. Church takes a studiously moderate view of Nicias. He is not enthusiastic, like Aristotle; but neither is he, like Grote, bent on proving the incompetence of the unfortunate general. The virulence of Grote almost transcended the bounds of decency. To win sympathy for Demosthenes he seemed to think it necessary to write his colleague down an ass. It is well that Mr. Church declines to follow him. To be sure it is impossible to praise enthusiastically a man who failed so signally in the greatest undertaking of his life; but it is equally impossible to withhold sympathy from him when we remember the cruel disease from which he was suffering at the time. If Nicias had been listened to, he would have been recalled from Sicily before any irrepairable loss had been incurred; as it was, it was the Athenian people far more than the poor invalid that deserved the blame. We are not able to follow Mr. Church altogether in his account of this pathetic business. "We happen to know from the sufferer," he says, "the nature of his disease. It was an affection of the kidneys. There is no ailment that is more apt to cloud the brain. In some trouble of this kind, it is believed, may be found the mysterious cause which from time to time in Napoleon's latter days seemed to paralyze the great soldier's energies." As regards Napoleon we may refer Mr. Church to M. Houssaye's account of the Emperor's life during the days preceding Waterloo, after reading which it becomes simply incredible that Napoleon was afflicted with disease of the kidneys. The Emperor rested nineteen hours out of ninety-six, and that is the strongest proof that, whatever he may have been suffering from at the time, his kidneys were sound. Neither do we see any signs that Nicias's brain was clouded. That dread disease by no means invariably affects the head; but it must, from its very nature, make a man incapable of commanding an army. The general's bodily energy was gone; his strength had dwindled away under the tyranny of that cruel affliction. But his head remained clear enough to enable him to sustain his army during the eight days of the awful retreat from Syracuse. The note on "Ostracism" at page 32 does not seem to accord with the "*Respublica Atheniensium*," and there is an odd misprint on page 145.

In Hannibal Mr. How had a considerably more difficult subject to deal with. After all, whatever view we take of Nicias, whether as statesman or general, the facts about him have been set down once for all by Thucydides, and on those facts our judgment must be based. But with Hannibal this is not so. To all the Roman writers now available to us, beginning with Livy himself, Hannibal is a legend; he is the incarnation of "Punic faith," a monster of cruelty, his very name a bogey for mothers to frighten their babies with. And it is not only that his character in Roman literature is a fiction. The very facts of his career are constantly an occasion of controversy. Saguntum, the passage of the Alps, Trasimene, Cannæ—what two writers agree in all points in their views on these matters? It must suffice to say that Mr. How, avoiding controversy, has followed good authorities on every one of these and other points of difficulty; and that, in the case of Trasimene, he has visited the ground himself. The narrative he gives is plain and business-like: he omits all those anecdotes of doubtful authenticity that throw a glamour over the career of the "dire" Hannibal—the dream at Cadiz, for example, with the vision of the *rastitas Italiae*, and the melting of the rocks, and the pleasures of Capua are the invention of "a rhetorical moralist." In fact the author has endeavoured to steer a middle course between the extreme plainness of Polybius and the twopenny coloured style of Livy; and, though the result scarcely affords exhilarating reading,

we have as compensation a trustworthy and impartial narrative; and, if Mr. How's style does not bear comparison with Mommsen and Arnold, he at least is vastly superior to the ordinary school historian. There is much, too, in his volume that will be of service to candidates for the higher examinations, notably the historical parallels of which Mr. How is fond. At the end there is useful comparison, in the orthodox manner, between Hannibal, Alexander, Cæsar, and Napoleon.

WINCHESTER COLLEGE.

A History of Winchester College. By Arthur F. Leach, M.A., F.S.A. (Duckworth & Co.)

The flow of school and college histories is so great that a reviewer may often be hard put to it to find the *aliquid novi* to say about each. Among the many such series of histories, Messrs. Duckworth & Co. are fortunate enough to be publishers of one of the most interesting, and Mr. Leach, the author of the book before us, is even more fortunate in having to deal with the "mother of schools"—the foundation of William of Wykeham, "a community," as Mr. Leach says, "which for five hundred years has stood in the front rank of English institutions." Nor can it be said that he does not make use of his opportunity, for he has succeeded in producing a volume which is worth the attention of a larger public than the Wykehamists to whom it is primarily addressed.

The early part of the book is properly devoted to the traces of previous schools at Winchester, and to the work done by William of Wykeham. Mr. Leach, it may be noted, disclaims the idea that the founder introduced any startling innovation in the system of education. His work was one of development.

Winchester College, while no novelty in itself, either in being a foundation for secular clerks, and not for monks, or in being a collegiate church with a grammar school attached, or in being a preparatory school for a University college, or even in its designed numbers, or the admission of commoners and those of the higher ranks, was yet, by virtue of its combination of all these characteristics, on a grander scale than had yet been seen, a new departure, and the first of public schools as that term is now understood.

As to this term, "public school," by the way, Mr. Leach has some remarks in his first chapter. It does not mean a school supported out of public funds—this description would only apply to public elementary schools; nor a school under public control—this would exclude, for instance, Cheltenham and Marlborough Colleges; nor a school included in the Act of 1867—this would include only seven schools. The only working definition, thinks Mr. Leach, is that a public school is

an aristocratic or plutocratic school which is wholly, or almost wholly, a boarding-school, is under some form of more or less public control, and is, in the hideous jargon of the late Royal Commission on Secondary Education, "non-local."

But the great success of St. Paul's and Merchant Taylors' is tending, he admits, to alter the connotation of the term so as to admit day schools in the capital. We should rather say that it has already so altered this connotation.

After discussing the foundation, Mr. Leach proceeds to the school building, the oldest in England and the "only ancient school building of the fourteenth century now existing." Then he continues with the history of the early days of the college—under its first wardens and headmasters, the foundation from Winchester of Eton, the reign of "Grocyu the Grecian," the escape from the fate which overtook so many institutions under Henry VIII., the temporary turning-out under James I., "the troubles" during the Revolution—the City of Winchester was particularly unfortunate at this time, as the mutilations in the cathedral bear witness—and the more peaceful records (not, however, unmarked by occasional internal discords) down to the present day.

Not the least interesting chapter is the twenty-eighth, "In my time"—i.e., Mr. Leach's own school-days at Winchester. A comparison can be made by those who care between his account of the work done in his days and the work of the school in 1550, given in chapter xx. "Classics," says Mr. Leach, "were the be-all and the end-all of our education"; and the same was the case in 1550. But the hours of 1860 were more humane than those of the earlier date, when the boys had to rise at 5 a.m., breakfasting at 9; in 1860 it was chapel at 7, breakfast at 8 or a little later. Of the Winchester of to-day, Mr. Leach has a good deal to say that is worthy of consideration; and he does not hesitate to touch on one or two controversial points. These, however, it would scarcely profit to discuss here. The author is

convinced that "nowhere in all the world can boyhood be passed under happier auspices than at Winchester to-day." Who will not pardon him for his patriotism? In any case he is deserving of thanks for giving outsiders so good a picture of his old school. The illustrations call for a word or two. The photographs are excellent, and Mr. Percy Wadham's drawings are charming. Messrs. Duckworth have published a very well finished volume in every sense.

JAPANESE LETTERS.

"Literatures of the World." Edited by Edmund Gosse.—*A History of Japanese Literature.* By W. G. Aston, C.M.G., D.Lit. (Heinemann.)

It has been said, probably many times, that no nation can excel in more than one, or be among the first in many, arts. The truth of this is sufficiently to be seen in the European nations; and a critic of cosmopolitan education and sympathies could, with little hesitation, assign to each art its most productive country. Outside Europe he could certainly point to Japan as the home of that art which may be called loosely "graphic." Naturally, therefore, he would not expect a pre-eminence in literature in the nation which has taught so much to modern graphic artists. And this is what Mr. Aston (whose intimate acquaintance with Japan gives him the best right to speak authoritatively) has to say on the subject of Japanese literature:

It is the literature of a brave, courteous, light-hearted, pleasure-loving people, sentimental rather than passionate, witty and humorous, of nimble apprehension, but not profound; ingenious and inventive, but hardly capable of high intellectual achievement; of receptive minds endowed with a voracious appetite for knowledge; with a turn for neatness and elegance of expression, but seldom or never rising to sublimity.

A native originality of character, however, he claims for this literature, for the Japanese, he says, are never content with simple borrowing, whether it be in matters of art, of politics, or of religion. Curiously, too, in the very earliest remains definite proof of Chinese influence is lacking. It is readily to be found as Japan's literature developed.

Mr. Aston traces this development through the different periods which have been assigned to Japanese literary history; but here, of course, we cannot go into his analysis step by step. It is sufficient to say that the gradual changes are lucidly marked, and the special characteristics of each epoch carefully defined. One of the most interesting chapters in the book is the second, which deals with "Japanese Poetry Generally." Of this, Mr. Aston says that it is

confined to lyrics and what, for want of a better word, may be called epigrams. It is primarily an expression of emotion. We have amatory verse, poems of longing for home and absent dear ones, praise of love and wine, elegies on the dead, laments over the uncertainty of life. A chief place is given to the beauties of external nature. . . . If we add some courtly and patriotic effusions, a vast number of conceits more or less pretty, and a very few poems of a religious cast, the enumeration is tolerably complete. But, as Mr. Chamberlain has observed, there are curious omissions. Sunsets and starry skies, for example, do not appear to have attracted attention. War songs, strange to say, are almost wholly absent. Fighting and bloodshed are apparently not considered fit themes for poetry.

How different is the present-day English view, in this last particular!

On the manner and mechanism of Japanese poetry Mr. Aston is very enlightening; but into the subtleties of *Tanka*, *Naga-uta*, &c., it is not here proposed to follow him. He publishes some excellent translations by himself from Japanese poets, which should give a fair idea of the special characteristics of their verse. The difficulties of such translation are not to be rated low. To take only a comparatively small point: "What," he asks, "is the translator to do with the names of flowers as familiar to the Japanese as daffodil or daisy to ourselves, but for which he can offer no better equivalents than such clumsy inventions as *Lespedeza*, *Platyodon grandiflorum*, and *Deutzia scabra*?"

With regard to the future of Japanese literature, Mr. Aston says:

Thirty years is far too short a period for the seed sown at the Revolution of 1867 to grow up and ripen literary fruit. . . . No doubt things move more rapidly in the present day, but it seems reasonable to believe that what we now witness is only the beginning of a new and important development.

He thinks, moreover, that ultimately the Christian religion must have some effect on the Japanese, though "probably, as was the

case with Buddhism, it will not be received without some modification"—in the direction of a more rationalistic form of belief, he suggests.

Too little, perhaps, has been said in this notice of Japanese literature in general, especially of Japanese prose literature. But it is better to quote here Mr. Aston's words concerning the method adopted by him in the book than to set down any individual judgment. "Comparatively little space in this volume," he says, "has been devoted to what is necessarily a record of personal impressions and opinion. . . . It seemed preferable to allot ample room to translated extracts and to such biographical notices as are necessary to show what manner of men the authors were." With this method we have no fault to find, except that through it we desire to make large quotations, and refrain from an obvious reason. But we can strongly recommend the reader to take up Mr. Aston's "History," and shall not be surprised if he finds it the most interesting of Mr. Heinemann's useful series of handbooks to "Literatures of the World." It certainly has the advantage of dealing with an unbackneyed subject, and it deals with it in a very satisfactory way.

THE DANTE-CHAUCER CENTURY.

"Periods of European Literature." Edited by George Saintsbury.—*The Fourteenth Century.* By F. J. Snell. (Blackwood.)

Mr. Snell's preface is too ingenuous; he would have done better to dispense with three-quarters of it. He entered on his task "with some amount of misapprehension"—as he well might; but, "when at last the real nature of the enterprise dawned upon him, he was already too deeply committed to withdraw from it." It sounds awkward. Mr. Snell can scarcely mean that he was far advanced in his work before he had a true notion of what he had to do and how he was to do it. He is simply over-apologetic—even to the length of telling us that he is exceedingly backward in Icelandic, that his Welsh is almost non-existent, and that he "once knew a little Swedish"—as if one really needed Swedish for such literature as Sweden had in the fourteenth century. We should not be carping in this way if we had not come across several recent instances of writers for series departing from, or undervaluing, the ideas conceived by the editors of the series. We mentioned a few months ago a notable example of this in one of the volumes of an historical series; but we should, probably, not have returned to the matter now if Mr. Snell had not insisted on taking himself to task. What he had to do was to give us a comparative view of European literature in the fourteenth century; and he has done it with sufficient thoroughness for a popular volume.

The old court poetry, the cyclic poems and romances, the "matter" of France and the epic of Germany, decayed with the decline of chivalry; newer and more lyrical forms set in; the new proses of modern Europe began to take shape and literary mould. What we call "the revival of learning"—in other words, the acquisition of old learning by the young nationalities—quickened the germs of intellect in the races of Western and Northern Europe; imitation of ancient models gave birth to a neo-classical spirit; and then the time was ripe for Dante, Petrarch, and Boccaccio, for Villani, Marco Polo, and Froissart, for Chaucer and Gower, for "Maundeville" and Wyclif. The most intelligent of the schoolmen were stimulated to become a little revolutionary, and the most intelligent of the Churchmen shrank unconsciously from the oppression of obscurant authority into the solace of mysticism; whilst the untrammelled men of letters and of the world, who are to be looked for in this age in Italy and England rather than in France, were already steeped in the morning glow of the Renaissance. Mr. Snell, we think, is disposed to be somewhat pedantic and quibbling in his estimate of the period with which he deals.

It was marked by no strong general tendency, except in the direction of symbolism, which, in spite of Dante, can hardly be accounted a merit. Were I in love with paradox, I should say of the fourteenth century that it was not, as regards literature, a great age, but that it was an age of great men. In order to be great an epoch must be solid, homogeneous; and the fourteenth century is a bundle of contradictions. But the greatness of individual writers—Dante, Petrarch, Boccaccio, Froissart, Chaucer—is beyond the reach of cavil and controversy, being, indeed, all the more appreciable by reason of the mediocrity, or less, that serves them for a background.

To protest that the fourteenth century was not solid or homogeneous, to affirm that it was a bundle of contradictions, and to say that it would not be a great epoch if you took out its greatest men, is to conceal judgment and knowledge under the guise of a truism.

We do not always find ourselves in sympathy with Mr. Snell's literary estimates. He carps needlessly, as it seems to us, at the good faith of Petrarch. Petrarch has been suspected of being envious of Dante.

In a letter to Boccaccio, he denies the imputation, remarking that, when a young man, he had purposely abstained from reading poetry in the vernacular, lest he should be betrayed into imitation. It is extremely unfortunate, but no less indisputably true, that no reliance can be placed on this and little on any other of Petrarch's assertions, however deliberate. Thus, in his sonnet, "S'io avessi pensato," he declares that he sought

"Pur di sfogare il doloroso core
In qualche modo, non d'acquistar fama;
Pianger cercai, non già del pianto onore";

whereas, in his "Poetical Epistles," he affirms the contrary—that he had written his Italian verses for the sake of glory. So also, with regard to his professed ignorance of Romance poetry, the statement cannot be received implicitly. It may be that he did not possess a wide acquaintance with modern productions; but it is simply incredible that he should have lived at Avignon, yet know nothing of Provençal letters; and equally so that he should have obtained such a mastery of Italian verse without a novitiate in the art.

But, in spite of this, and of a few instances in which parallel ideas and expressions have been noted in Petrarch's works and in those of his immediate predecessors, Mr. Snell admits that Petrarch is, in essence, original, and that coincidences such as he points out do not count for much. On the whole, his literary judgments are fair and even acute. He does not seem to have satisfied himself over the riddle of the fourteenth century, and, therefore, he can scarcely have hoped to satisfy his readers. But his book is full of interest and attraction on particular points.

THREE HUNDRED IMMORTALS.

"British Anthologies." Edited by Prof. Edward Arber.—4. *The Shakespeare Anthology*. 5. *The Jonson Anthology*. 6. *The Milton Anthology*. (Henry Frowde.)

The only intelligible objection which can be made to anthologies by a general reader who is not a scholar or an advanced student is that he has to acquiesce in some one else's selection, though he may have an uneasy feeling that his own choice of pieces might have been different. The only way of curing that is to become an expert, and devote a great deal of time to the complete works of a large number of authors—which a "general" reader certainly cannot do. We have had of late more than a few good anthologies of English verse, but none of them is quite so full and comprehensive as the ten volumes contemplated by Prof. Arber promise to be. The finished series will contain about 2,500 entire poems and songs, written by some three hundred poets, all arranged in chronological order, whilst the ten volumes will go by the names of Dunbar, Surrey and Wyatt, Spenser, Shakespeare, Jonson, Milton, Dryden, Pope, Goldsmith, and Cowper.

The editor is perhaps a trifle too ambitious in his plan, or at any rate in his prospectus, of the work. He tells us that it is to include "the largest collection ever printed of the most exquisite love lyrics in our language, some serious poems, many notable ballads, some political verse, a few prison songs, also naval and military songs, drinking songs, mad songs, satires, &c.; together with poems in praise of the country life and its various pleasures, hunting, hawking, fishing, &c." After this inviting programme, Prof. Arber goes on to say that "most of this poetry will be quite new to the general reader." Surely that assumes a little too much; it implies either that the general reader (of poetry) has never read most of the best poems of most of the best authors, or else that the editor has passed over many exquisite poems in order to make room for hundreds of the second-best. Possibly the latter suggestion is justified, for, if some of these poems may be found in every anthology, very many of them have rarely or never been printed apart from the rest of their authors' work. In any case, these volumes are full of gems which will be new to the great majority of readers. Few, we imagine, have met with the poems of Richard Verstegan, printed at Antwerp in 1601. We cannot resist the desire to quote four stanzas from "Our Blessed Lady's Lullaby":—

Upon my lap my Sovereign sits,
And sucks upon my breast;
Meanwhile his love sustains my life,
And gives my body rest.
Sing lullaby, my little boy!
Sing lullaby, my life's joy!

When thou hast taken thy repast,
Repose, my babe, on me!
So may thy Mother and thy Nurse
Thy Cradle also be!
Sing lullaby, my little boy! &c. . . .
My babe, my bliss, my child, my choice,
My fruit, my flower and bud;
My Jesus and my only joy!
The sum of all my good!
Sing lullaby, my little boy! &c. . . .
Grow up, good fruit! Be nourished by
These fountains two of me,
That only flow with maiden's milk,
The only meat for thee!
Sing lullaby, my little boy! &c.

Undoubtedly the charm of this new Anthology is that it contains so many pieces which will strike the reader with the joy of a sudden discovery and surprise. In an age of forcible mediocrity, or, at best, of superabundant talent, this is no slight cause of satisfaction, and our warmest thanks are due to Prof. Arber for his discriminating and successful labour. What would Waller have said to this fair company of three hundred immortals, which so thoroughly belies his desponding prediction?—

Poets may boast (as safely vain)
Their work shall with the world remain!
Both, bound together, live or die,
The verses and the prophecy!
But who can hope his Lines should long
Last in a daily changing tongue?
While they are new, envy prevails;
And, as that dies, our language fails. . . .
Poets that lasting marble seek
Must carve in Latin or in Greek!
We write in sand! Our language grows;
And (like our tide) ours overflows!

GENERAL NOTICES.

CLASSICS.

Tales of Early Rome, adapted from the Text of Livy, by J. B. Allen (Clarendon Press), is an elementary class-book constructed on the same plan as the editor's "Lives from Nepos," which was noticed in this column some months ago. The text has been so altered and rearranged as to provide progressive lessons, and is only based on the actual words of Livy. In the notes references are given to the same editor's "Elementary Latin Grammar." Then there are a Latin-English vocabulary, a series of exercises for translation into Latin, and an English-Latin vocabulary. The exercises are designed to illustrate some definite rule of syntax; and this is a plan too seldom followed by editors. On the whole, the book is designed with considerable ingenuity, and exhibits the practical good sense of a discerning teacher.

Thucydides, Book II: a Translation, by J. F. Clive.—The translator has come with credit through the difficult task of rendering this book of Thucydides literally. He acknowledges the assistance he has received from Mr. Marchant, of whose edition he has made good use, and of others; and it is evident that his work is the result of considerable labour. The version should prove of great service to those for whose use it is designed.

Not less to be commended is an edition of *Plato, Ion*, by J. Thompson and T. R. Mills (Clive). Everything that can possibly be required by the student is here to be found—an introduction which, though crowded with solid information, is not uninteresting, and exhaustive and helpful notes. The series to which this volume belongs has been brought to a high level of efficiency.

Cæsar: Invasion of Britain, being De Bello Gallico, IV. 20, to V. 23, by A. H. Allcroft and T. R. Mills (Clive), is intended for Matriculation candidates. It has, therefore, none of the added delights—pictures, exercises, and what not—that one expects nowadays in editions of Cæsar; and, therefore, it may not be found suitable for ordinary class-reading. But it is most completely edited, and—from the point of view of those who will use it—leaves nothing to be desired.

MATHEMATICS.

Mechanics applied to Engineering, by Prof. John Goodman, of Leeds (Longmans), is intended for engineers and technical students who have a fair knowledge of theoretical mechanics to begin with, and it is very well calculated to introduce them to the extended principles and problems of practical engineering. Proceeding from what may be described as a matriculation test of mechanics, and carefully graduating its difficulties through some six hundred pages, it comprises as much

as is necessary for the Institution of Civil Engineers, the B.Sc. Examinations, the Honour stages of the Science and Art Examinations, and the City and Guilds Institute. Prof. Goodman has done well, we think, to begin with a comparatively simple introduction, and with chapters on mensuration and moments. There is a large number of good diagrams and classified examples. This text-book is admirably concise and clear, and we very confidently recommend its adoption.

Captain E. H. Atkinson, R.E. is responsible for a thoroughly sound and systematic *Text-Book of Practical Solid Geometry*, &c. (Spon). It is intended primarily for the use of the Royal Military Academy, Woolwich, where the author is Instructor of Fortification; but sufficient stress has been laid on the earlier sections on methods of projection, plan and elevation drawing, and the projection of regular solids, to make the book serviceable for the entrance examinations of the Academy, and for other students in a corresponding stage. It is provided with sixteen folded plates of seventy-seven figures.

From Messrs. Cassell & Co. we have a new and enlarged edition of the Rev. J. Warren's revision of Dr. Houghton's little *Manual of Optics*. This was one of the best of the old "Galbraith and Houghton's" text-books, and, in its revised form, with numerous exercises, it is still a thoroughly adequate introduction to the theory of light and vision.

To the fourth edition of *A Practical Arithmetic*, by John Jackson (Sampson Low & Co.), a large number of new exercises has been added, considerably increasing the utility of the book. The text of this Arithmetic is clearly set forth, and the illustrations are often ingenious.

Mr. R. F. Macdonald's *School Arithmetic* (Macmillan) is suitable for a second, or moderately advanced, course, being clear in method and provided with very numerous exercises. Mr. Macdonald frankly refers us to Lock and Brooksmith for "explicit reasons for the processes," but at the same time he has sought "to modernize the work by illustrating analogy in processes"—the meaning of which we do not quite gather.

There are some novelties in Mr. Finn's *Junior Euclid, Books I. and II.* (Clarendon Press), such as a preliminary explanation of terms, the introduction of definitions and axioms as they are needed, the anticipation of certain propositions of Book III. as riders on Book I., notes to propositions and hints for the solution of some of the exercises, guiding marks in the diagrams, and an appendix on the geometry of the triangle. This is a serviceable book for intelligent pupils with a judicious teacher.—Mr. F. W. Sanderson's *Geometry for Young Beginners* (Cambridge University Press) is an introduction to theoretical and practical geometry for pupils of eight years upwards, very well calculated to instil general notions about geometrical facts, to make a beginning of geometrical drawing, and to lead up to Euclid. For those purposes it is admirable.

From Messrs. Macmillan we have a convenient set of *Graduated Test-Papers in Elementary Mathematics*, by Walter J. Wood, covering the ground of the Science and Art "Subject 5, Stage I."—with answers; also *Answers to Examples in An Arithmetic for Schools*, by S. L. Loney.—From Messrs. Longmans we have *Complete Arithmetics, Mental and Practical (Course A)*, in five paper-covered books, with five corresponding sets of *Answers*—a simple graduated course of elementary practical arithmetic.—Mr. Dawson sends us *The Warwick Plane Geometry (Standard V.)*. The definitions and other statements are not sufficiently precise. A circle is rightly defined as a plane bounded figure; a right angle "shuts in a quarter of the circle—that is, 90°"; "to measure an angle is to ascertain how wide open the mouth is"; an altitude is "perpendicular height," and, in another place, "the length of the perpendicular height."

MODERN LANGUAGES.

La Main Malheureuse (Anonymous). Edited by H. A. Guerber. (Isbister.)

This short story of sixty pages is taken from *Le Magasin pittoresque*, and may be recommended as suitable for a fourth or fifth form. It is brightly written, and deals with the progress of an artist who is brought to see that his gifts are such as will enable him to achieve success as a modeller of motifs taken from nature—not as a sculptor of great statues, which had been his ambition. It is the sweet little Muguette who cleverly contrives to lead him on to the road to success; and the artist eventually marries her. There is a mere hint of this; there is nothing sentimental in the story itself. There are no notes; but Miss Guerber has supplied a vocabulary, which will probably serve its purpose, though it is incomplete. Thus, we have failed to find in it *à mon adresse*, *s'arrêter* ("to stop"), *charmer*, *préférer*, *voiture* (all on one page of the text), and *anxiété*, *création*, *envers*, *mal* ("illness"), *médecin* (also taken from a single page).

Dumas Fils: La Question d'Argent. Edited by G. N. Henning. (Isbister.)

It is open to question whether any play by this author can be read with advantage at school, however interesting the problems treated may be to the mature man. The editor has omitted a few lines; but, even if he had made more extensive excisions, the play would still be a representation of a side of life which it is well not to put before school children. The introduction is well written; the notes are not so satisfactory. They consist largely of renderings which are not always happy, and often contain slang or Americanisms, which a

teacher would not tolerate. We refer to such expressions as "chappies," "a mighty big difference," "the mighty dollar," "keep right on," "passenger-van," "we're hustlers," "she's a fine one," "come off" (for *allons donc*), "cut stick" (for *filé*).

Jules Verne: Voyage au Centre de la Terre. Edited by R. C. A. Du Pontet, M.A. (Edward Arnold.)

Any book by Jules Verne is sure to be read with avidity. This is one of the earliest, and certainly not the least exciting. It is eminently suitable for very rapid reading, and may then, perhaps, be taken through in a term. The text runs to 194 pages. There are only 22 pages of notes, and these are good and to the point.

Francisque Sarcey: Le Siège de Paris. Edited by T. H. B. Spiers. (Isbister.)

Sarcey, whose death is just announced in the papers, kept a diary during the siege of Paris, which he afterwards expanded into a book. It is written as only a gifted Parisian could write, with a *verve* that could not be repressed even in those gloomy days. School editions have already appeared here and in Germany. This one hails from America. Mr. Spiers furnishes a short introduction, maps of France and of Paris, notes, and an alphabetical list of persons and places. All these are useful and clear, everything being omitted that is not essential. The renderings are, of course, not free from American words and phrases.

E. Richebourg: Les Violettes Blanches. Edited by F. Julien. (Macmillan.)

A good short story (47 pages), with plenty of dialogue. The notes are not uniformly good; some of the renderings are in questionable English. The vocabulary is not full. The editor warns us that "words which are the same in both languages or have little difference, either in spelling or in pronunciation, are avoided." This does not justify the omission of *appuyer*, *brûler*, *crayonner*, *dévoiler*, *éclater*, *feuille*, *poser*, *remplir*, *sanglot*, *trouver*, and *voiture*, all of which occur on a single page of the text.

Molière: Le Bourgeois Gentilhomme. Edited by F. M. Warren. (Isbister.)

This edition contains an excellent introduction, a well printed text and satisfactory notes. It is suitable for school use, but not sufficiently full for University students. The price is very low.

Selections from the Correspondence between Schiller and Goethe.

Edited by J. G. Robertson, M.A., Ph.D. (Ginn & Co.)

This edition deserves unqualified praise. It should be read by every student of German literature who wishes to obtain a picture of the admirable union of Germany's greatest poets. No easy task it was to make a selection from the large number of letters which have fortunately been preserved; nor was it easy to compress into thirty pages all that one would like to say by way of introduction. Mr. Robertson has succeeded in this, and has, further, supplied excellent notes. There are few who will not feel themselves the richer for perusing this book and who will not be grateful to the editor for the conscientious and stimulating way in which he has accomplished his task.

Wildenbruch: Der Leizte. Edited by F. G. G. Schmidt. (Isbister.)

Those who know the same author's "Das edle Blut" will find this story very similar to it in style, and even more sad. It is, indeed, almost too painful and harrowing for girls, while there is hardly enough action for boys. There are some notes, which are fairly satisfactory.

MISCELLANEOUS.

Poetical Works of Alfred Lord Tennyson, Poet Laureate. (Macmillan.)

Here is a complete collected Tennyson—all but the plays—at a very moderate price. It is a single volume of 647 pages, less than an inch in thickness—and these things doubtless imply thin paper and small type; but the double-columned page is very readable. The book includes all that Tennyson approved of his "Juvenilia," and ends with "Songs from the Plays" and "Crossing the Bar." There are also four useful indices.

The Book of Psalms, containing the Prayer Book Version, the Authorized Version, and the Revised Version in Parallel Columns. (Cambridge University Press.)

A very convenient handbook for reference, which will be useful not merely to teachers and students of Scripture, but also to the ordinary reader. It is very clearly printed.

Elements of Prose. By W. A. Brockington, M.A. (Blackie.)

Mr. Brockington begins his serviceable little manual of English prose composition aptly enough by insisting on the value of attentive reading for the purpose of watching the method of good writers. When we can get a student to do this, more than half of our task is done. Rules are comparatively useless to one who is able to observe and imitate. After this good beginning, we find ourselves on all the better terms with the succeeding chapters on the Sentence, the Paragraph, and the Figures of Prose. Though by no means exhaustive, this is a good book for intelligent learners.

Nature's Alphabet. By N. Mumbray. (Newmann.)

This is a clearly written book of suggestions to kindergarten

teachers for making a primrose path to reading, writing, and arithmetic. As is the case with so many of these "interesting" methods, the work is far more arduous than on the old dry system. All the letters are developed from a ball and a stick, and much ingenuity is shown in finding objects to resemble the letters; the child is to remember the letter *r* because it looks like a paper-fastener, *w* like a purse, and so on with each letter. In what sense this can be called Nature's alphabet it is hard to see. We cannot agree with the author that the order of the letters is immaterial in the first stage, for whatever order is taken tends to remain, and will only create confusion when the conventional order has to be acquired later.

Geometrical Drawing for Army and Navy Candidates and Public School Classes. Vol. I., *Practical Plane Geometry.* By Edmund C. Plant. (Macmillan.)

Mr. Plant, of Clifton College, has classified, in this well produced quarto volume, a large number of geometrical problems, illustrated by clear and finished mechanical diagrams. The double aim of geometrical drawing, which is to introduce the pupil to geometry whilst training him in the neat and accurate use of instruments, is carefully borne in mind in this excellent book, which should be very useful to good teachers and studious pupils. The diagrams are produced from photographs of drawings made by Mr. Plant and his assistants, and will serve as a model or standard of draughtsmanship.

Mammals. (Bacon.)

It is seldom that a book of so-called object-lessons is of any practical use. This little handbook, however, intended to illustrate Bacon's "Natural History Pictures," can be heartily recommended. In the hands of a teacher who really knows the animals it will be very serviceable, by setting forth in clear form certain facts which it would cost him much time and trouble to look up, and leaving it to his discretion how much or how little he gives to his class. The general lessons on teeth, hoofs, tongues, &c., with the accompanying suggestions for black-board sketches, are particularly commendable.

Domestic Economy for Teachers. Designed to Meet the Government Requirements for Class and Specific Subjects, and for Queen's Scholarship and Certificate Examinations. By H. Major, B.A., B.Sc. (Newmann.)

It has seldom been our lot to come across a book so carelessly prepared for publication as this *pot-pourri* of information, huddled together without index, list of contents, or trace of logical arrangement. We find "walking-sticks" given as a use for stems, in the section on botany, and a recipe for a pudding takes up a third of the chapter on water. Beef suet is classified as a vegetable, and we are mysteriously told that "starch is insoluble, but when it is dissolved it is carried by the blood to the parts which need it." The diagrams used are evidently those which happened to be at hand, for they illustrate what is least necessary (e.g., the only fish selected for illustration are the herring and the cod), and are in many cases decorated with lettering without any key, or, indeed, any relation to the text. So many are the inaccuracies that it is well, on the whole, that the book is addressed to teachers, and not intended for the pupils.

A History of English Critical Terms. By J. W. Bray, M.A. (Isbister.)

Mr. Bray was decidedly ambitious in undertaking a history of critical terms. His work is in the form of an alphabetical glossary of words more or less freely used in criticism, and under each word we have an indication of its earlier employment, with a few illustrations of its use. We are sufficiently grateful to Mr. Bray for his enterprise, and will not carp at details.

A Practical Handbook on Elocution. By Rose I. Patry. (Sonnenschein.)

A little book full of sensible and useful hints on reading and reciting. The illustrations are almost exclusively from poetry and the musical stave.

A Form Grammar for Secondary Schools. By William Dodds. Part I. (John Heywood.)

We are to understand the junior classes in secondary schools; but what we are to understand by "a form grammar" it is hard to say. Mr. Dodds considers that every question hitherto given in the third-class English grammar papers of the College of Preceptors can be answered from this book. It is a book of 250 pages, so there ought to be a chance. But how of the questions that are to come? There is more than meets the eye in that consideration. Our first impression is that Mr. Dodds knows his business and deserves a trial.

The Principles of Composition. By Henry G. Pearson. (Isbister.)

This little American book is well fitted to break the ground for theme-writing in a juvenile non-classical school. It has a system of its own, and Mr. Pearson is clear and deliberate in expounding it.

History of England. Part III., 1689-1897. By George Carter, M.A. (Relfe Bros.)

This volume, it is stated, is a continuation of the author's "Outlines of English History" on a more comprehensive and detailed scale. Candidates preparing for examination in the special period 1689-1897 will find it very helpful. It is a model of arrangement. Each reign is divided into what may, perhaps, be called homogeneous sections, and

each section is divided into paragraphs, with the heading in large type. Such an arrangement is not without its dangers. We are acquainted with some such *histories* which give the impression the history is a mass of unconnected details: one cannot see the wood for the trees. But Mr. Carter has contrived to avoid this mistake. While dealing effectively with the parts, he gives a clear picture of the whole. A novel and striking characteristic is the use of italicized sentences or phrases, often quotations, which serve to sum up or vividly illustrate the substance of the paragraph. For instance, after a clear statement of the real and pretended objects of the *Holy Alliance*, we read: "The Duke of Wellington refused to join the Alliance, declaring that the British Government would like something more precise." We have noted a few omissions, such as the Transvaal War of 1881. The book, however, has few faults and many merits. Among the latter we may mention the well written biographical sketches of eminent persons and the index. We recommend it as a sound and scholarly and interesting handbook.

A Guide to London. With Plans and Illustrations. (Cassell & Co.) A well executed and convenient guide, arranged alphabetically, with copious information and clearly drawn map, plans, and illustrations.

"School Operettas."—*In Shakespeare's Days.* Libretto by M. C.

Gillington. Music by E. Ouseley Gilbert. (Curwen & Sons.)

This brightly written operetta is designed to enable English boys and girls to realize the life and manners, ideals and games, of Elizabethan times. Two Stratford boys, having heard of Shakespeare's success in London, go up to pay him a visit, when they hear and see many curious things. It is a good idea, and is well and simply worked out.

"Official" Drawing Books. (Macmillan.)

A series of twenty oblong books, combining copies and blank drawing-paper. The arrangement follows the Code, for seven standards and pupil-teachers, but it is very well suited for general use, advancing from easy patterns on squared paper to freehand, geometrical, and model drawing, exercises in shading, animals, flowers, &c. This is an excellent, as well as a cheap, series.

Britannia Copy Books. (Edward Arnold.)

A series of fourteen, making a complete course, from strokes and curves up to correspondence and business forms. The headlines get in a little instruction in geography and history, elementary science and domestic economy. The writing is rounded and slightly sloped.

The Practical Teacher's Copy Book. By Arthur T. Flux. (Edinburgh: Nelson & Sons.)

Good in style, but too expensive for adoption in schools. It is suited for "Certificate" students, and includes printed pieces for writing out.

English History from the Norman Conquest to the End of the Wars of the Roses, in Twenty Stories, is one of Messrs. Bell & Sons' "History Readers." It is simply written, in numbered paragraphs, with words for spelling, summaries, and illustrations.—Messrs. Nelson & Sons send us Book VI. of the "Windsor History Readers," *The Reign of Queen Victoria: Growth of the Empire*, containing many economic and historical facts which will interest a boy or girl of thirteen or fourteen. From the same publishers we have Nos. I. and II. of their "Supplementary Readers," *The Story of the North-East Passage, as told by the Early Explorers*, and a companion *Story of the North-West Passage*.—Mr. C. H. Simpkinson has written *Stories from British History, 1688 to the Present Time*, for Messrs. Wake & Dean's "Victory History Readers."

WE HAVE ALSO RECEIVED the following publications and new editions:—

Two welcome reprints in Macmillan's half-crown series—*Madam How and Lady Why; or, First Lessons in Earth-Lore for Children*, by Charles Kingsley; and *Tales of the Birds*, by W. Warde Fowler (Macmillan)—both admirably illustrated, and not easy to beat as nature-readers for boys and girls.

Scenes from Ivanhoe (Edward Arnold.)

Durham: Cathedral and See, by J. E. Bygate (Bell & Sons' "Cathedral Series").

Key to Exercises in Siepmann's German Primer, by T. H. Bayley, M.A. (Macmillan.)

Object-Lesson Readers, Book III. (M'Dougall.)

"*Excelsior*" Drawing Books, Parts I.-VI. (Bacon.)

CORRESPONDENCE.

CLASSICAL METRES.

To the Editor of the Educational Times.

SIR,—In the very interesting review with which you have honoured my pamphlet on this subject, your reviewer puts certain questions which seem to me well worth following up. If you think the matter of sufficient interest and importance, I should like to attempt some answer to them.

He, in the first place, questions the possibility of the identity of Greek and English accents, which is one of my theories, on the ground that in Greek six or seven consecutive syllables are to be found unaccented. If I am not misunderstanding his position, this objection implies that the same is not the case in English; that in English it is not possible to find six or seven consecutive syllables unaccented. I am inclined to deny this; but then we probably do not mean quite the same by *accent*. Perhaps I may be forgiven if I take the word in my sense, and see how the question works out.

I will first write down a sentence in which there are, according to my views, ten consecutive unaccented syllables: "I am in a, to some extent, irreconcilable position." The only accents which, on the analogy of the Greek, I should allow in this sentence are a circumflex on *I*, an acute ante-penultimate on *irreconcilable*, and an acute penultimate on *position*. There would, of course, be a number of grave accents, but, as your reviewer points out, they simply express that the syllable is unaccented. There are two things in this sentence which I would draw attention to. First, the word *extent*, which by itself is oxytone, to my ear distinctly loses its accent, as it would in Greek; but I must be understood to mean by this simply that the voice is not raised on the syllable. The second point to notice is that *irreconcilable* has a secondary accent on the second syllable; but observe again that the tone is raised very slightly indeed on that syllable, not enough to receive either an acute or a circumflex accent. This slight stress could not, from the nature of Greek accents, be expressed at all, but was, I believe, present in exactly the same way. I believe that the first syllable of *νεφεληγερέα* would have had such an accent; but of course I have no evidence for my belief. Let me remark here that, in English accentual rhythms, this accent, inexpressible in Greek, is used equally with the acute and the circumflex to mark the beat of the verse, the variation between the three being a great part of the charm. Opening "Paradise Lost," the second line my eye fell upon illustrates my meaning:

"Us to abolish lest the adversary,"

where there are only two acute accents, no circumflex, and the rest inexpressible on Greek principles. Such a line would be called, I believe, by many writers a two-stressed verse, which to some extent supports my theory. I am afraid I must plead guilty to having begged the question on what I have just been saying, but I hope I may have incidentally suggested possible relations between English and Greek accents.

Your reviewer further accuses me of overlooking the fact that Homer wrote for music. I confess that, from ignorance of the subject, I thought it as well not to appeal to it, though it seemed to me to be in my favour. We must remember that bars, which are mainly responsible for the accentual character of modern music, are of comparatively recent invention. The tendency to accent the first note in every bar has naturally grown, I suppose, because of its usefulness in keeping a large orchestra together, and musical people tell me that there are signs of reaction in almost all branches of music. However that may be, I am convinced that my verses would not, if sung to some old unaccented plain-song chant, sound particularly grotesque, though the experiment would be more interesting in some other metre, such as Sapphics, which could not be divided into bars at all. I cannot imagine that the effect would be more absurd than that of making every syllable the same length, as we are forced to do in most of our hymns.

I must confess absolute ignorance of the principles of prose-rhythm, and must therefore leave that question untouched. Lastly, your reviewer asks whether I mean quantitative and accentual verse to exist side by side. It seems to me that the principles of the two are so diametrically opposite that they might well do so without clashing; but whether this would be desirable or not I cannot say.—Yours faithfully,
W. J. STONE.

GRANTHAM GRAMMAR SCHOOL.
To the Editor of the Educational Times.

SIR,—I enclose copy of the Commissioners' letter in answer to one asking for information. I may say that Mr. Bigge has suggested May 30 as the date of the inquiry, but whether the Governors have accepted that date I do not yet know. The concluding sentence of the letter seems to me of some importance, and will be all the more so if it can be authoritatively declared that "in no case does a vacancy in the headmastership of a school *ipso facto*" terminate the appointments of assistant-masters. ONLOOKER.

"SIR,—Referring to your letter of the 26th inst., I am directed to inform you that the Commissioners have instructed one of their Assistant Commissioners, Mr. Selby Bigge, to visit Grantham with a view of holding an inquiry into the circumstances of this case as affecting the assistant-masters.

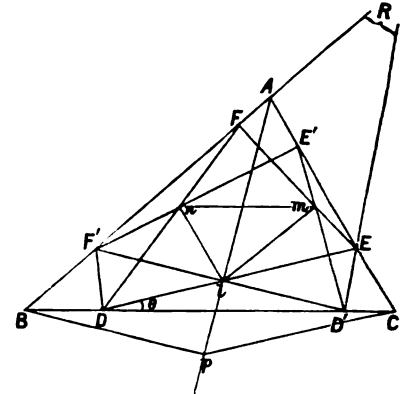
"I am to add that the Commissioners have intimated to the Governors that there is apparently no ground for the contention that the appointments of assistant-masters were *ipso facto* terminated by a vacancy in the headmastership.—I am, &c., "WM. C. LEFROY."

MATHEMATICS.

14159. (Rev. J. CULLEN.)—Prove (1) that the PASCAL line of the hexagon DD'EE'FF', formed by the intersections of the sides of ABC with any "T" circle, is the radical axis of "T" and the circumcircle; (2) the intersections of the homologous sides of DEF and D'E'F' are the vertices of a triangle homothetic with ABC, and the homothetic centre lies on KIEPERT'S hyperbola.

Solution by G. N. BATES, B.A.

Let DE meet AB in R.
Then, from similar triangles RD'B, REA,
RE.RD' = RA.RB;
therefore R is on radical axis of T, and circumcircle, which therefore coincides with PASCAL line of DD'EE'FF'.



If DE, F'D' meet in l, &c., the quadrilateral nmE'F' is cyclic; therefore nm is parallel to BC; i.e., lmn is homothetic with ABC. Now, if Bp be drawn parallel to D'F' to meet Al in p, then Cp is parallel to DE, and p is vertex of isosceles triangle described on BC, with base angle θ ; similarly for q and r; therefore Ap, Bq, Cr, i.e., Al, Bm, Cn, intersect in a point which lies on KIEPERT'S hyperbola.

14072. (Professor NEUBERG).—Résoudre le système

$$\begin{aligned} \sin(y+z+u) &= a \sin x, & \sin(x+u+z) &= b \sin y, \\ \sin(u+x+y) &= c \sin z, & \sin(x+y+z) &= d \sin u. \end{aligned}$$

Solution by H. A. WEBB.

Let $x+y+z+u = \kappa$.
Then $\sin(\kappa-x) = a \sin x$;
therefore $\tan x = \sin \kappa / (a + \cos \kappa)$, and three similar equations (1).

Now $\tan \kappa = \frac{\sum \tan x - \sum \tan y \tan z \tan u}{1 - \sum \tan x \tan y + \tan x \tan y \tan z \tan u}$
 $= \frac{\sum \sin \kappa (a + \cos \kappa) (b + \cos \kappa) (c + \cos \kappa) - \sum \sin^3 \kappa (d + \cos \kappa)}{(a + \cos \kappa)(b + \cos \kappa)(c + \cos \kappa)(d + \cos \kappa) - \sum \sin^2 \kappa (a + \cos \kappa)(b + \cos \kappa) + \sin^4 \kappa}$
therefore either $\sin \kappa = 0$, giving x, y, z , and u each a multiple of π (2),
or we have an equation in $\cos \kappa$ which reduces to

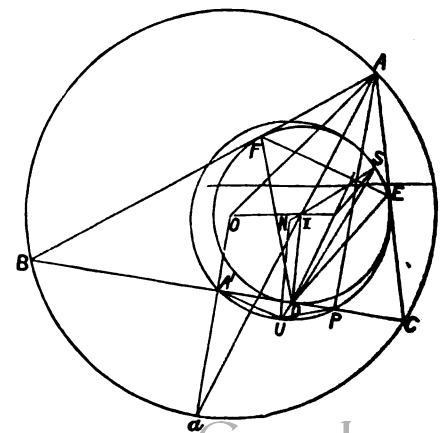
$$\begin{aligned} abc d - \sum ab + 1 - 2 \cos \kappa \cdot \sum a - 4 \cos^2 \kappa = 0; \\ \text{therefore } \cos \kappa = \frac{1}{4} \{ -(a+b+c+d) \pm [a^2 + b^2 + c^2 + d^2 - 2(ab+bc+ca+ad+bd+cd) + 4abcd + 4]^{1/2} \} \dots \dots (3). \end{aligned}$$

(2) is one set of solutions; the others are found by substituting the values of $\sin \kappa, \cos \kappa$ found from (3) in equations (1).

14075. (Professor A. DROZ-FARNY).—Le cercle inscrit du triangle ABC touche les côtés en D, E, F. Soit S le point de contact de ce cercle avec le cercle d'EULER. Démontrez que la droite de SIMSON de S par rapport au triangle DEF est parallèle à la droite d'EULER de ce triangle. Théorème analogue pour les cercles ex-inscrits?

Solution by C. E. HILLYER, M.A.

If O, N, I are the circum-, nine-points-, and in-centres, respectively, of ABC, and AI meets the circumcircle in a, a' is the mid-point of BC so that $OA'a$ is a straight line perpendicular to BC, AP is perpendicular to BC, and NU the parallel radius of the nine-points-circle, so that UDS is a straight line, then



$\angle UA'P = \angle UPA'$
 $= \frac{1}{2}(B \sim C)$
 $= \angle Oaa' = \angle OaA$;
therefore the isosceles triangles $UA'P, OaA$ are similar.

Also, by parallels, $A'D : DP = aI : IA$;
therefore the triangles UDA', OIa are similar. Therefore
 $\angle OIa = UDA' = SDC = \frac{1}{2}SID$,

since DC touches the circle DEF at D . Now it is known that the angle between the SIMSON-lines of two points is half the angle subtended by the two points at the centre ; but the SIMSON-line of D with respect to the triangle DEF is the perpendicular from D on EF , and is therefore parallel to AI . Thus the angle between the SIMSON-line of S and $AI = \frac{1}{2}SID = OIa$. Therefore the SIMSON-line of S is parallel to OI , and it is known that OI passes through the orthocentre of DEF .

Note.—The fact that $\angle UDA' = OIa$ affords a very simple proof of FURBERBACH's theorem, for it is easy to deduce from it that the point in which UD meets NI is on the circumference of the in-circle.

14125, 14127, & 14129. (14125.) (DISCIPULUS.)—If $(1 + 2x)^m / (1 - x)$ be expanded in ascending powers of x , prove that the coefficient of any power of x greater than $m - 1$ is 3^m , m being a positive integer.

(14127.) (REV. T. MITCHESON, B.A.)—Show that
 $(p + q)! / p! q! = 1 + pq + p(p-1)q(q-1) / (2!)^2 + \dots$
 $+ p(p-1)(p-2)q(q-1)(q-2) / (3!)^2 + \dots$

(14129.) (R. KNOWLES, B.A.)—Prove that the $(r + 1)$ th terms in the expansions of $(1 + x)^{m/n}$ and $(1 - x)^{-m/n}$ are respectively

$$\frac{(m + n - nr)(m + 2n - nr)(m + 3n - nr) \dots \text{to } r \text{ terms}}{nr \cdot r!};$$

$$\frac{(n - m - nr)(2n - m - nr)(3n - m - nr) \dots \text{to } r \text{ terms}}{nr \cdot r!}.$$

Solutions by Rev. T. WIGGINS, B.A., and many others.

(14125.)
 $(1 + 2x)^m / (1 - x) = (1 + 2x)^m (1 + x + x^2 + \dots)$
 $= \{c_0 + c_1(2x) + c_2(2x)^2 + \dots + c_m(2x)^m\} (1 + x + \dots)$

In this product the coefficient of any term x^{m-1+k} is
 $(c_0 + c_1 \cdot 2 + c_2 \cdot 2^2 + c_3 \cdot 2^3 + \dots + c_m \cdot 2^m) = (1 + 2)^m = 3^m$.
[The rest in Volume.]

14120. (REV. T. ROACH, M.A.)—Prove geometrically
 $\cot^{-1} 7 + \cot^{-1} 8 + \cot^{-1} 18 = \cot^{-1} 3$.

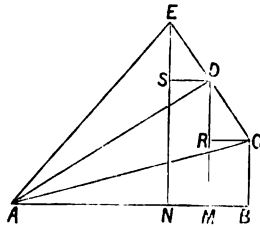
Solution by the PROPOSER.

Draw $AB = 7$, and BC perpendicular $= 1$; then $\angle CAB = \cot^{-1} 7$.

Make $CAD = \cot^{-1} 8$, and draw DM and CR perpendicular; then, by similar triangles, $CR = \frac{1}{8}$ and $DR = \frac{1}{8}$; therefore $AM = \frac{5}{8}$ and $DM = \frac{1}{8}$.

On AD make $DAE = \cot^{-1} 18$, and draw EN and DS perpendicular; then, by similar triangles, $SD = \frac{1}{18}$ and $ES = \frac{17}{18}$; therefore $AN = \frac{13}{18}$ and $EN = \frac{1}{18}$.

$\angle EAN = \cot^{-1} (AN/EN) = \cot^{-1} 3$.



14070. (FRANCIS ROUNTREE, M.A.)—Solve the following sets of simultaneous equations:—

$$\begin{aligned} x^2 - 5xy + 5y^2 + 3x - 5y + 3 &= 0 \dots\dots\dots (1), \\ 3(x^2 - 2xy + 4y^2) + 2(x - 2y) - 1 &= 0 \dots\dots\dots (2), \end{aligned}$$

and

$$\begin{aligned} (1) \quad 2x^2 + 3xy &= 22x - 18 \} \\ (2) \quad 2y^2 - xy &= 22y - 54 \} \end{aligned}$$

Solution by H. J. WOODALL, A.R.C.S.

From the first set
 $x^2 + x(-5y + 3) + (5y^2 - 5y + 3) = 0$, $3x^2 + x(-6y + 2) + (12y^2 - 4y - 1) = 0$,
giving the determinant

$$\begin{vmatrix} +1, & -5y + 3, & 5y^2 - 5y + 3, & 0 \\ 0, & +1, & -5y + 3, & +5y^2 - 5y + 3 \\ +3, & -6y + 2, & 12y^2 - 4y - 1, & 0 \\ 0, & +3, & -6y + 2, & 12y^2 - 4y - 1 \end{vmatrix} = 0,$$

which reduces to $279y^4 - 420y^3 + 104y^2 + 8y + 37 = 0$, none of whose roots are rational, but when we have found the four values of y we must substitute in $\{3(1) - (2)\}$ and find the corresponding value of x .

For the second part we find from (2), $x = (2y^2 - 22y + 54) / y$. Substituting in (1), we get $7y^4 - 143y^3 + 1032y^2 - 2970y + 2916 = 0$, one of whose roots is $y = 3$, giving $x = 2$.

14146. (R. F. DAVIS, M.A.)—If OP, OP' are tangents from an external point O to a given circle, and any point T is taken upon the line joining their middle points R, R' from which tangents are drawn whose chord of contact intersects RR' in U , prove that OT, OU are at right angles.

Solutions (1) by C. JOSS, M.A.; (2) by H. D. DRURY, M.A.

(1) The figure needs no explanation.
 $CD \cdot CO = CP^2 = CE \cdot CT$;

therefore O, D, E, T is concyclic ;
therefore $\angle DOE = \angle DTE$,
and $\angle DBE = \angle BOE + \angle OEB$,
but $\angle DBE$ also $= \angle ATE$, for B, A, T, E is concyclic ; therefore
 $\angle OEB = \angle ATD = \angle OTA$

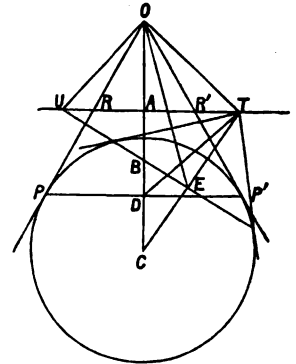
(for $OA = AD$) ; therefore O, U, E, T is concyclic.

(2) Let Q, Q' be the points of contact of the tangents from T .

Since T is a point on the radical axis of the "point circle" O and the given circle, we have

$TQ = TQ' = TO$.

Therefore a circle described with T as centre and radius TO will pass through Q, Q' , and this circle will touch UO at O , for $UO^2 = UQ \cdot UQ'$, since U is another point on the radical axis. Hence, &c.



14053. (REV. W. A. WHITWORTH, M.A.)—Prove that Quest. 13630, Vol. LXIX., p. 47, is true if any square number be substituted for $4, e, g$,

$$1 - 9 + 9^2 - 9^3 + 9^4 = \square + \square = 73^2 + 24^2 = 63^2 + 44^2,$$

$$1 - 25 + 625 = \square + \square = 24^2 + 5^2;$$

and generally that

$$1 - a^2 + a^4 - a^6 + \dots + a^{4r} = (1 - a^2 + a^4 - \dots \pm a^{2r})^2 + (a - a^3 + \dots \pm a^{2r-1})^2.$$

Solution by F. H. PRACHELL, B.A.; H. W. CURJEL, M.A.; and Lt.-Col. ALLAN CUNNINGHAM, R.E.

$$1 - a^2 + a^4 - a^6 + \dots + a^{4r} = 1 - a^2 + (a^2)^2 - (a^2)^3 + \dots (a^2)^{2r}$$

$$= \frac{a^{4r+2} + 1}{a^2 + 1} = \left(\frac{a^{2r+2} \pm 1}{a^2 + 1} \right)^2 + \left\{ \frac{a(a^{2r-1} \mp 1)}{a^2 + 1} \right\}^2 \dots\dots\dots (1)$$

$$= (1 - a^2 + a^4 - \dots \pm a^{2r})^2 + (a - a^3 + \dots \pm a^{2r-1})^2 \dots\dots\dots (2).$$

When r is odd, we take the bottom signs in (1) and (2), and the top signs when r is even.

5665. (PROFESSOR CASEY, M.A.)—Given the distance between the centres of two circles, the radius of one circle, and the length of an endless band that passes round the two circles; find the radius of the other circle.

Solution by Professor SANJANA, M.A.

Let d = distance between centres, r_1, r_2 = radii of the circles, and $2l$ = length of endless band; then, if 2θ be the angle subtended at the centre of the larger circle by the free arc,

$\cos \theta = (r_1 - r_2) / d$;

hence $d \sin \theta = \{d^2 - (r_1 - r_2)^2\}^{\frac{1}{2}}$.

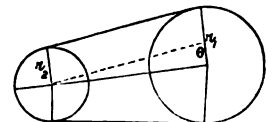
Now $2l = 2r_2\theta + 2r_1(\pi - \theta) + 2d \sin \theta$;

Therefore

$l = r_2 \cos^{-1} (r_1 - r_2) / d + r_1 \{ \pi - \cos^{-1} (r_1 - r_2) / d \} + \{d^2 - (r_1 - r_2)^2\}^{\frac{1}{2}}$;

whence one radius may be found when the other three quantities are given. When the band crosses between the circles the formula is

$l = r_2(\pi - \theta) + r_1(\pi - \theta) + d \sin \theta$.



14051. (R. TUCKER, M.A.)— P is a point on the ordinate of an ellipse produced. PK is the perpendicular from P on the polar of P . Find the equation to the circular locus of K , and the envelope of this locus as the ordinate varies in position. Interpret the result.

Solution by H. W. CURJEL, M.A.

Let Q be the pole of the ordinate. Then the polar of $P(a, \beta)$ passes through $Q(a^2/a, 0)$, and $PK \{ (x-a)/a^2 = (y-\beta)/a^2\beta \}$ passes through $R(a^2/a, 0)$. Therefore locus is a circle on QR as diameter. This clearly passes through the points of intersection of the ordinate and the ellipse and also through the foci on the y -axis, which therefore form the envelope of the circles. These circles are therefore coaxial and cut the circles through the foci on the x -axis orthogonally.

13998. (J. J. BARNIVILLE, M.A.)—Prove that the series $1, 1, 2, 3, 5, \dots$ contains multiples of every number. Prove that u_n is divisible by u_n . Can it be shown that u_n is prime when n is prime?
[See *Nature*, May, 1897.]

Solution by C. E. BICKMORE, M.A.; and H. W. CURJEL, M.A.

(1) $u_n = (a^n - \beta^n) / (a - \beta)$, where $a + \beta = 1, a\beta = +1$; u_n is divisible by an uneven prime p , if $(a/\beta)^n \equiv 1 \pmod{p}$. Since $a/\beta = -\frac{1}{2}(3 - \sqrt{5})$, this

is satisfied by $n = p - 1$, if 5 be a 2-ic residue of p , and by $n = p + 1$, if 5 be a 2-ic non-residue of p . Thus

$$u_{10m} \equiv 0 \pmod{10m+1}, \quad u_{10m+8} \equiv 0 \pmod{10m+9},$$

$$u_{10m+4} \equiv 0 \pmod{10m+3}, \quad u_{10m+8} \equiv 0 \pmod{10m+7},$$

the modulus in each case being a prime. Similarly,

$$u_n \equiv 0 \pmod{p^k}, \quad \text{if } n = p^{k-1}(p \pm 1); \quad u_3 = 2, \quad u_6 = 8;$$

therefore $u_n \equiv 0 \pmod{2^k}$, if $n = 3 \cdot 2^{k-2}$, k being > 2 .

(2) Since $(\alpha^{mn} - \beta^{mn}) / (\alpha - \beta)$ is obviously divisible by $(\alpha^n - \beta^n) / (\alpha - \beta)$, u_{mn} is a multiple of u_n .

(3) If n be prime, u_n is not necessarily prime; thus u_{19} is a multiple of 37; but (noting that $u_{2n+1} = u_{n+1}^2 + u_n^2$), if n be a prime > 3 , the prime factors of u_n are of the form $4m+1$, if ending in 1 or 9, and of the form $(4m+2)n-1$ if ending in 3 or 7. As examples of the latter, a prime of form $60m+37$ always divides u_{30m+19} , and a prime of form $60m+13$ always divides u_{30m+7} .

Since one of the two numbers $10m+9$ and $10m+7$ is of the form $4M+1$, when they are both primes, one of them is a factor of u_{5m+4} and the other is not; e.g., $m = 10$ gives 107 a factor of u_{108} but not of u_{54} ; and u_{109} a factor of u_{54} as well as of u_{108} .

QUESTIONS FOR SOLUTION.

14222. (Professor ELLIOTT, F.R.S.)—If $P + a_0Q$, in which P and Q are free from a_0 , is annihilated by $a_0 \frac{\partial}{\partial a_1} + 2a_1 \frac{\partial}{\partial a_2} + 3a_2 \frac{\partial}{\partial a_3} + \dots$ to ∞ , show that $\frac{\partial}{\partial a_1} Q = 0$, and that, when $m > 1$,

$$\frac{\partial}{\partial a_m} Q = -\frac{1}{2} \sum_{r=1}^{m-1} \frac{r^{m-1}}{\partial a_r \partial a_{m-r}} P.$$

14223. (Professor G. B. MATHEWS, F.R.S.)—A variable sphere is inscribed in a right circular cone, and tangent cones are drawn to the sphere from two fixed points on the given cone. Find the locus of their intersection.

14224. (Professor CROFTON, F.R.S.)—Four points are taken at random in a triangle. Find the chance that the point nearest to the side AB shall also be the nearest to AC. (Ans. $\frac{1}{3}$.) By means of this, an elementary proof may be given that the chance of a convex quadrilateral is $\frac{1}{3}$.

14225. (Professor NEUBERG.)—Eliminer x, y, z entre les équations
 $(x-y)(x-z) = ayz,$
 $(y-x)(y-z) = bzx,$
 $(z-x)(z-y) = cxy.$

14226. (Professor S. SIRCOM, M.A.)—Let $O(ABC)$ denote the sine of the solid angle subtended at O by the triangle ABC ; then, if A, B, C, D, E be five fixed points and O any variable point on a quadric, prove that the ratios $\frac{O(ABC) \cdot O(ADE)}{O(ABE) \cdot O(ACD)}, \frac{O(ABC) \cdot O(ABD) \cdot O(CDE)}{O(CDA) \cdot O(CDB) \cdot O(ABE)}$ and $\frac{O(ABC) \cdot O(BCD) \cdot O(CDE) \cdot O(DEA) \cdot O(EAB)}{O(ABD) \cdot O(BCE) \cdot O(CDA) \cdot O(DEB) \cdot O(EAC)}$ are constant.

NOTE.—If ABC be the area of the triangle ABC , and A, B, C, D, E be five points in a plane no three of which are in a straight line, the ratio $\frac{ABC \cdot BCD \cdot CDE \cdot DEA \cdot EAB}{ABD \cdot BCE \cdot CDA \cdot DEB \cdot EAC}$ is unaltered by projection, and may be called the cross ratio of the five points in a plane.

Similarly, if $ABCD$ be the volume of the tetrahedron $ABCD$, and A, B, C, D, E, F be six points in space no four of which are in a plane, the ratio $\frac{ABCD \cdot BCEF \cdot ABCF \cdot ADEF \cdot CDEF \cdot ABDE}{ABCE \cdot BCDF \cdot ABFE \cdot ACFD \cdot BDEF \cdot ACDE}$ may be called

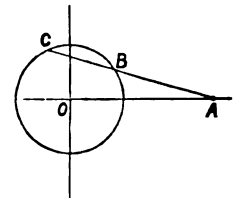
the cross ratio of the six points in space (Quest. 9710), and so on for space of any dimensions. The above proposition is an extension of the anharmonic property of conics to quadrics.

14227. (Professor F. MORLEY.)—In the motion of a plane in a plane, lines whose envelopes have at any instant a given curvature touch a circle, and the points of contact of the lines with their envelopes lie on a limaçon.

14228. (Professor A. DROZ-FARNY.)—Un triangle ABC est inscrit dans une conique. Les deux bissectrices de l'angle A rencontrent pour la seconde fois en a et a' la courbe. Démontrer que la droite aa' et ses analogues $\beta\beta', \gamma\gamma'$ se coupent en un même point.

14229. (Professor UMES CHANDRA GHOSH.)—If the LEMOINE'S circle of a triangle ABC cuts its sides $AB, BC,$ and CA in $F, F'; D, D';$ and E, E' respectively, and if the points of intersection of the symmedians $AK, BK,$ and CK of the triangle ABC with $FE', F'D,$ and ED' be A_1, B_1, C_1 , show that the centre of the LEMOINE'S circle of the triangle $A_1B_1C_1$ is the middle point of the line joining the symmedian point of the triangle ABC and the centre of its LEMOINE'S circle. If triangles $A_2B_2C_2, A_3B_3C_3, A_4B_4C_4, \dots, A_nB_nC_n$ be formed in the same way as $A_1B_1C_1$, and if $O_2, O_3, O_4, \dots, O_n$ be the centres of the LEMOINE'S circles of these triangles, prove that $O_nK = 1/(2^{n-1}) \cdot OK$.

14230. (Professor COCHEZ.)—On donne un cercle fixe O et un point fixe A , par lequel on mène une sécante ABC . Sur AB et AC comme diamètres on décrit des circonférences Σ et Σ' . Lieu des intersections des cercles communes à O et Σ et à O et Σ' quand la sécante tourne autour de A .



14231. (Professor THOMAS SAVAGE.)—The arcs which subtend equal angles, whether at the centres or the circumferences of two circles, being equal, prove that the circles are equal, by elementary geometry.

14232. (Professor H. LANGHORNE ORCHARD, M.A., B.Sc.)—Solve the cubic equation

$$12x^3 - 2(n^3 + 3n^2 + 2n - 3)x^2 - (n^3 + 3n^2 + 2n + 6)x + n^3 + 3n^2 + 2n = 0;$$

and show that the three values of x may each be exhibited as a series.

14233. (Professor K. J. SANJANA.)—If three points A, B, C be referred to two axes meeting in O , the intersections of the joins of B and C, C and A, A and B , with the isogonal conjugates with regard to the given axes of OA, OB, OC , respectively, are collinear. If three straight lines BC, CA, AB be referred to two points on a line Δ , the joins of A, B, C with the isotomic conjugates with regard to the given points of the intersections of Δ with BC, CA, AB , respectively, are concurrent.

14234. (D. BIDDLE.)—As the angle A of a variable triangle increases from 0 to π , the sides AB and AC increase in the same proportion with it. Supposing the dimensions at some period of the transformation to be given, and AB to remain fixed in direction, find (1) the maximum height of C above AB , (2) the maximum area attained, (3) the locus of the centroid.

14235. (R. TUCKER, M.A.)— $ABCD$ is a square. P, Q, R are points on AB, AD, BC respectively, such that PQR is an equilateral triangle. Find maximum value of triangle. Show also that locus of intersection of AR, BQ , as P moves along AB , is a parabola, and that QR touches a rectangular hyperbola.

14236. (C. E. HILLYER, M.A.)— O is the circumcentre and I the incentre of a triangle ABC ; AO, BO, CO meet the circumcircle again in a, b, c respectively; X, Y, Z are the points of contact of the incircle with the sides, and $X\delta, Y\epsilon, Z\zeta$ the perpendiculars of the triangle XYZ . Prove that $a\delta, b\epsilon, c\zeta$ are concurrent in I .

14237. (R. F. DAVIS, M.A.)—The tangent at A to the circumcircle of the triangle ABC meets BC in T and is produced to U so that $AT = TU$. Prove that the polar of A with regard to any circle through B, C passes through U .

14238. (Rev. W. ALLEN WHITWORTH, M.A.)—If a straight line be divided at random into any number of parts, the expectation of the square on any part taken at random is double of the expectation of the rectangle contained by any two of the parts taken at random. [This can be proved by algebra without the integral calculus.]

14239. (B. N. CAMA, M.A. In continuation of Quests. 14177 and 14207.)—If $OP, P_2, \dots, OQ, Q_2, \dots$ be two vectors including a right angle, meeting an equiangular spiral (pole O) in the points $P_1, P_2, \dots, Q_1, Q_2, \dots$, show that the parabolas drawn to touch the curve at $P_1, Q_1, P_2, Q_2, \dots$, and having the chords of contact for their focal chords are in geometrical progression: further, that their axes are parallel to a fixed line.

14240. (V. R. THYAGARAGAIYAR, M.A.)—Solve the following system of equations in four variables:—

$$\begin{vmatrix} x_3 & x_4 & x_1 \\ x_4 & x_1 & x_2 \\ x_1 & x_2 & x_3 \end{vmatrix} = a^3; \quad \begin{vmatrix} x_2 & x_4 & x_1 \\ x_3 & x_1 & x_2 \\ x_4 & x_2 & x_3 \end{vmatrix} = b^3;$$

$$\begin{vmatrix} x_2 & x_3 & x_1 \\ x_3 & x_4 & x_2 \\ x_4 & x_1 & x_3 \end{vmatrix} = c^3; \quad \begin{vmatrix} x_2 & x_3 & x_4 \\ x_3 & x_4 & x_1 \\ x_4 & x_1 & x_2 \end{vmatrix} = a^3.$$

14241. (Rev. T. ROACH, M.A. Suggested by Quest. 13173.)—Six circles are described, each passing through the same excentre of a triangle, and touching one side of the triangle at one of its extremities. (1) Show that the centres of the six circles lie on the radii $I_n D \dots$ on three circles concentric with the excircle. (2) Show that the product of the radii of three alternate circles $= 2R^2 r_n$.

14242. (C. JOSS, M.A.)—Tangents to a circle at the vertices of an inscribed triangle meet the opposite sides produced in collinear points.

14243. (G. H. HARDY.)—If p, m are integers, $p > m$, then, if m is odd,

$$\int_0^{\pi} x \cos px \sin^m x dx = (-)^{\frac{1}{2}[m+(-1)^p]} \left\{ \frac{m! \pi}{(p^2-1^2)(p^2-3^2)\dots(p^2-m^2)} \right\};$$

and, if m is even,

$$\int_0^{\pi} x \sin px \sin^m x dx = (-)^{\frac{1}{2}[m+1+(-1)^p]} \left\{ \frac{m! \pi}{p(p^2-2^2)(p^2-4^2)\dots(p^2-m^2)} \right\}.$$

14244. (H. MACCOLL, B.A.)—The chance that A is true is a , and the chance that B is true is b . It is also given that the chance that A is true when we assume B to be true is k times the chance that A is false when we assume B to be false. Express in terms of a, b, k , firstly, the last two chances; secondly, the dependence of A upon B (see *Quest.* 14181); and, thirdly, the condition that A and B shall be independent.

14245. (W. C. STANHAM, B.A.)—If two of the common chords of two conics (c), (c') intersect at O, and any straight line through O meets (c) at P and Q, and (c') at P' and Q',

$$1/OP + 1/OQ = 1/OP' + 1/OQ'$$

(Regard being had to the geometrical signification of the signs + and -, and O not being one of the points of intersection of the conics.)

14246. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Factorise completely $(1440^{10} + 1)$.

14247. (R. F. MUIRHEAD.)—It is sometimes stated that when a particle under a central force varying inversely as the fifth power of its distance from a fixed point is projected with a velocity = $\sqrt{(\mu/2a^4)}$ at a distance a from the centre of force and at right angles to that distance it will describe a circle having that initial distance as diameter. But at the instant of passing through the centre of force the particle is acted on by no force, and there would seem to be no reason why it should not continue moving in a straight line thereafter. Discuss this.

14248. (G. N. BATES, B.A.)—Find the tripolar equation of all conics circumscribing the triangle of reference.

14249. (Rev. T. MITCHESON, B.A.)—Prove that $\sum \{ \sin n\beta \sin (n+1)\beta / \{ \sin \beta + \sin n\beta + \sin (n+1)\beta \} \}$

$$= \{ \sin \frac{1}{2}(n+2)\beta \sin \frac{1}{2}n\beta - n \sin^2 \frac{1}{2}\beta \} / \sin \beta,$$

and use this result to show that, if lines be drawn from one angular point to each of the others of a regular polygon (of n sides) inscribed in a circle,

(1) the sum of the radii of the in-circles of the triangles thus formed

$$= 2R \{ 1 - n \sin^2 (\pi/2n) \};$$

(2) the sum of the squares of these radii

$$= \frac{1}{2}a^2 \{ (n-4) \sec^2 (\pi/2n) + 2n \tan^2 (\pi/2n) \};$$

and (3) the sum of the squares of the distances of the centres of these $(n-2)$ circles from the centre of the given circle

$$= R^2 \{ 4n \sin^2 (\pi/2n) + n - 6 \}.$$

14250. (ROBERT W. D. CHRISTIE.)—Prove the following very general theorem:— $x \cdot 10^{pm+k} = \frac{P_m + x}{\{ \frac{1}{10}(XP+1) \}^k \text{ mod } P} \pmod{P}$,

where x, n, k are any integers, P any odd prime, p the period of $1/P$, m any integer required to make the remainder an integer (always possible).

Ex. gr.—(1) $x = 3, k = 5, P = 7, X = 1, 3, 7, 9$, when P ends in 9, 3, 7, 1, respectively. Therefore

$$3 \cdot 10^{6n+5} = \frac{7m+3}{5^5 \text{ mod } 7} \pmod{7} = \frac{7m+3}{3} = 1 \text{ mod } 7.$$

Thus $3 \cdot 10^{6n-1} = 1 \text{ mod } 7$.

(2) $n = 7, k = 1, P = 19$. $7 \cdot 10^{18n+k} = (19m+7)/2^k = 13 \text{ mod } 19$.

Thus $7 \cdot 10^{18n+1} = 13 \text{ mod } 19$.

14251. (R. KNOWLES, B.A.)—Prove that the sum of the first r coefficients in the expansion of $(1-x)^{-n}$ is $\{r(r+1) \dots (r+n-1)\}/n!$.

14252. (Rev. J. CULLEN.)—Factorize 329554457, i.e., $(7^{11}-1)/(7-1)$. [This is given as x in Mr. BICKMORE's *Table of Fermat's Numbers*.]

14253. (H. FORTEY, M.A.)—If n white, n red, and n black balls are placed one at a time, in random order, in a bag, show that the chance that the bag never, during the process, contains more red balls than white, nor more black balls than red, is $2/\{(n+1)^2(n+2)\}$.

14254. (C. E. BICKMORE, M.A.)—Is the number 78,875,943,472,201 prime or composite? It is a factor of $(10^{20}+1) + (10^5+1)$; has no factor between 1 and 100,000; and any factor when divided by 200 leaves one of the two remainders 1 or 51.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

5827. (Professor MATZ, M.A.)—From a point taken at random in the left-hand half of the major axis of an ellipse, whose minor axis is unknown, a circle is drawn at random, but so as to lie wholly in the surface of the ellipse. Show that the average area of the ellipse, whose major axis is that portion of the given major axis between its right-hand extremity and the circumference of the circle, is

$$\frac{\pi a^2}{672} \left(\frac{2205\pi + 2012}{15\pi + 17} \right),$$

where a is the semi-major axis of the primitive ellipse.

5835. (E. B. SEITZ.)—Two equal spheres touch each other externally. If a point be taken at random within each sphere, show that (1) the

chance that the distance between the points is less than the diameter of either sphere is $\frac{2}{3}$, and (2) the average distance between them is $\frac{1}{2}$.

5839. (R. W. GENÈRE, M.A.)—An ellipse turns about its centre; find (1) the envelope of the chords of intersection with the initial position. Also (2), if the ellipse move parallel to its major axis, find the envelope of the chords of intersection with the initial position of the axes.

5840. (A. MARTIN, M.A.)—A catenary is revolved about its axis. If the solid thus formed be cut by a plane making a given angle with its axis, find the equation to the curve bounding the section.

5865. (C. J. MONRO, M.A.)—Of three independent judges, pronouncing on $l+m+n+p$ simple alternatives, one is in a minority l, m, n times, respectively. If, nevertheless, we have equal confidence in all three, find how often, in the most probable case, they are severally right and wrong.

5876. (Professor SYLVESTER, F.R.S.)—If there be given any number of homogeneous functions of any number of variables, prove that there is always a *limited* number of resultants such that any other is a rational integer function of them and of the coefficients of the given functions.

Ex.—Suppose

$$Ax + Bz = 0, \quad Cr^2 + Dz^2 = 0, \quad Ex^3 + Fz^3 = 0;$$

then $A^2D + B^2C, A^3F - B^3E, C^3F^2 + D^3E, ACF + BDE$ are the four fundamental resultants, and any other resultant of the system will be a rational integer function of these and of the coefficients A, B, C, D, E, F .

[The following Note was appended to this Question when it originally appeared: "Professor SYLVESTER states that it is upon this and an allied pure algebraical theorem, and not upon anything special to invariants as such, or to any method of umbral (misnamed symbolical) processes, that 'GORDON'S immortal theorem' on the existence of finite fundamental invariants of scales really depends. That theorem essentially forms part of a grand undeveloped algebraico-diophantine Theory of Elimination. The first algebraico-diophantine problem in set terms ever enunciated, so far as Professor SYLVESTER knows, was proposed by himself in the *Educational Times*. It related to a property of the Bezontiant, and marks the advent of a new phase of algebraical science."]

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to

D. BIDDLE, Esq., Charlton Lodge, Kingston-on-Thames.

NOTICE.—*Vol. LXX. of the "Mathematical Reprint" is now ready, and may be had of the Publisher, FRANCIS HODGSON, 89 Farringdon Street, E.C. Price, to Subscribers, 5s.; to Non-Subscribers, 6s. 6d.*

THE LONDON MATHEMATICAL SOCIETY.

Thursday, May 11, 1899.—Prof. H. Lamb, F.R.S., V.P., in the Chair. Sixteen members present.

Messrs. G. A. Miller, Ph.D., Instructor in Mathematics, Cornell University, Ithaca, U.S.A.; and J. Pierpont, Ph.D., Professor of Mathematics, Yale University, New Haven, U.S.A., were elected members.

Major MacMahon, R.A., F.R.S., made a short communication of results at which he has recently arrived in the Theory of Partitions.

Mr. H. M. Macdonald, M.A., read a paper on "The Zeroes of $P_n^m(\mu)$ considered as a Function of n ." The solution of certain problems connected with Laplace's equation requires the determination of all the values of n for which $P_n^m(\mu)$ vanishes, μ being real, and $1 > \mu > -1$, and m a real quantity. The zeroes of $P_n^m(\mu)$ are all real when $1 > \mu > -\infty$ and there are an infinite number of them. There are an infinite number of real zeroes of $P_n^m(\mu)$ when $\infty > \mu > 1$, and, in addition, in general $2k$ complex zeroes, where k is the greatest integer less than m : when m is an integer these $2k$ zeroes become real, and when $\mu = 0$ they are real, in all other cases complex. Formulæ are given for the calculation of the zeroes (1) when μ is not nearly 1 or -1 , (2) when μ is nearly 1, (3) when μ is nearly -1 . The Chairman and Dr. Hobson, F.R.S., made a few remarks upon the paper, which they characterized as an important contribution.

Mr. W. F. Sheppard, M.A., spoke on "The Statistical Rejection of Extreme Variations, Single or Correlated. (Normal variation and normal correlation.)"

At the June meeting, Lord Kelvin, G.C.V.O., the President, promises to read a paper on "Solitary Waves, Equivoluminal and Irrotational, in an Elastic Solid" Papers have also been received from Dr. G. A. Miller, "On several Classes of Simple Groups," and from Prof. J. H. Michell, "On the Transmission of Stress across a Plane of Discontinuity in an Isotropic Elastic Solid, and the Potential Solution for a Plane Boundary."

The Council will, at their meeting, elect the sixth De Morgan Medalist, and the Chairman will announce the result at the General Meeting. The presentation of the medal will be made at the Annual Meeting in November next.

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JULY 1, 1899.

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The Half-Yearly GENERAL MEETING of the Members of the Corporation will be held at the College, Bloomsbury Square, W.C., on Saturday, the 22nd of July, at 3 p.m.
C. E. HODGSON, B.A., *Secretary*.

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1. **DIPLOMAS.**—The next Examination of Teachers for the Diplomas of the College will commence on the 4th of July, 1899.—At the Midsummer Examination, persons who have previously passed in Theory and Practice of Education at the Diploma Examination may be examined practically for Certificates of Ability to Teach.

2. **CERTIFICATE EXAMINATIONS.**—The Christmas Examination for Certificates will commence on the 5th of December.

3. **JUNIOR FORMS EXAMINATIONS.**—The Christmas Examination will commence on the 5th of December.

4. **PROFESSIONAL PRELIMINARY EXAMINATIONS.**—These Examinations are held in March and September. The next Examination will commence on the 5th of September, 1899.

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The Educational Times.

The Education Bill in the Commons.

THE second reading of the Board of Education Bill was taken in the House of Commons on Monday last, and the Bill has been referred to the Grand Committee on Law. The Bill comes before the House, as we have already stated, in a form which differs materially from its original draft. The third clause, as amended and carried in the House of Lords, now reads as follows:—

3.—(1.) The Board of Education may, by their officers or by any University organization, after taking the advice of the Consultative Committee hereinafter mentioned, inspect any school supplying secondary education and desiring to be so inspected, for the purpose of ascertaining the character of the teaching in the school, and the nature of the provisions made for the teaching and health of the scholars, and may so inspect the school on such terms as may be fixed by the Board of Education, with the consent of the Treasury. Provided that the inspection of schools established by scheme under the Welsh Intermediate Education Act, 1889, shall, subject to regulations made by the Treasury under Section 9 of that Act, be conducted as heretofore by the Central Welsh Board for Intermediate Education, and that the said Board shall be recognized as the proper organization for the inspection of any such schools as may be desirous of inspection under this section.

It will be observed that, in the Bill as now reprinted, the inspection of schools, when not made by the officers of the Government Department, or, in Wales, by the Central Welsh Board, is confined exclusively to University organizations." It seems to us, for reasons which we stated last month, that this exclusiveness would be a serious mistake, and that, if the clause be enacted in its present shape, it will have a direct tendency to defeat the purpose of the Bill. There is not the slightest doubt, as our readers will readily allow, that many private schools would be deterred from accepting inspection by the fact that there would be no one to inquire into the character of their teaching, and the provision made for the teaching and health of their scholars, except Government inspectors and inspectors nominated by University syndicates. The new legislation will be much narrower in spirit and in scope than any reasonable man has expected it to be, if it does not aim at the widest possible comprehension. To begin by restricting freedom of choice, by referring everything to the standard of a Department or of a University, by submitting all methods and conditions to the judgment of inspectors who may, and very likely will, be

wedded to particular methods and particular conditions, would not make for comprehension, because it would inevitably increase the nervous dread of schoolmasters who are at present independent.

This is so manifest that we can scarcely imagine the House of Commons insisting on the hard and fast rule that no authority shall be allowed to inspect a school on behalf of the Education Department except the Universities. If all schools worked up to and fed the Universities, such a hard and fast rule might be natural enough; but this is not by any means the case. The Royal Commission, the Education Conferences, and the framers of the Bill have all seen the necessity for proceeding on broad and comprehensive principles, and of avoiding the autocratic spirit which would sooner or later end in narrow curriculums and a tyrannous control. If the guarantees of elasticity and variety are diminished, and the spirit of comprehension is violated, our confidence in the new legislation will be undermined.

Amendments to Clause 3 will be moved in Committee, and we trust that the House may, in its wisdom, see fit to increase the number of inspecting authorities. We do not attempt to give a list of the authorities which should be named in the Bill. It is manifestly impossible that any list should be looked upon as complete and final. The reasonable course was that which the Government followed in the original draft—to leave the selection of authorities to the Board, after taking the advice of the Consultative Committee. The unfortunate action of Lord Spencer and his friends has expunged this useful provision from the Bill, and it will be a task of no slight difficulty to repair the mischief. What is necessary is that the principle of comprehension should be clearly impressed upon and accepted by the House of Commons. There is always in the House a great majority for common sense. It is common sense to say that the success of secondary organization will largely depend upon this question of inspection—that schools work up to and mould themselves upon their inspections, and that if you make the business of inspection either a function of Whitehall or a close preserve of the Universities, you at once discourage, if you do not destroy, much that is original and distinctive in the educational domain. It will be well to put this clearly and candidly before the House in Committee, so that the point may not be overlooked or passed over. It is no mere detail, but a critical point, on which a great deal will be found to turn.

NOTES.

THE question at issue between the General Medical Council and the College of Preceptors is still unsettled, though through no fault of the College. The Council of the College had reason to expect that the matter would be finally decided at the recent session of the Medical Council. Some time before the opening of the session they had forwarded to every member of the Medical Council a printed copy of a Memorandum, in which it was clearly shown that the essential parts of the Education Committee's Report were vitiated by errors of the gravest character. They had, moreover, addressed a letter to the President, asking him to refer the matter to the whole Council. What happened was that the letter to the President and his reply thereto were read *in camera* at the end of the session, but the Council, evidently feeling that they had not had an adequate opportunity of considering the matter, limited their action to ordering the letter and the reply to be entered on their minutes, refraining from expressing any opinion on the merits of the case. The Memorandum itself, though necessary to a proper understanding of the case, was unfortunately not included in the Council's order. We have, therefore, to wait until November for the Medical Council's decision. It is much to be regretted that opportunity was not afforded for the adequate and public discussion of the matter. The President's reply does little more than convey the reiterated expression of the views of the Education Committee. It is at present under the consideration of the Examination Committee of the College Council, and we need say no more at present concerning it than that it makes no attempt to controvert the facts set out in the College Memorandum—facts which are destructive of the essential positions of the Report of the Education Committee.

ONE manifestly wholesome effect has been produced upon the Education Committee of the Medical Council by their recent experience. They have asked the Council to place at their disposal a sum of money to enable them, during the current year, to obtain expert assistance in the examination of the regulations, requirements, standards, &c., as well as the answers and the markings of candidates, of "the several Junior Preliminary examinations." It is satisfactory, as far as it goes, to find the Committee acknowledging the necessity of expert assistance for such a purpose; but it is unfortunate that they did not recognize the same necessity last year. We shall be curious to learn the names of the experts. Are we to assume that the Education Committee, who have already reported on one of these examinations, will consider themselves entitled to select their own experts? Or will it occur to them that the various bodies which conduct the examinations should be represented on equal terms in such an inquiry?

THE Honour lists at Oxford and Cambridge are always interesting, not only to the candidates and their friends, and to the schools which have laid the foundations of individual success, but also to the nation at large, which may not be unanimous in its respect for classics and mathematics, but invariably enters into the spirit of a competition. This year's Mathematical Tripos at Cambridge has some features which make it specially worthy of notice. The honour of the Senior Wranglership is divided between Birtwistle, of Pembroke, who

hails from a "voluntary" school, by way of Owens College, and Paranjpye, an Indian who migrated to Cambridge from the Bombay University. Mr. Paranjpye's success is very popular: perhaps the only way in which an Indian could render himself more popular in this country would be by heading the batting averages at cricket. One commentator on the Tripos list ventured so far out of his depth as to say that Indians had not hitherto shown much disposition for mathematics. This, of course, is a misconception. India has plenty of good mathematicians, as our own columns testify from month to month.

THE third and fourth Wranglers are from Australia, though one of these is English born. There is another Australian in Part II., Class I., of the Classical Tripos, who owes his classical training to St. Paul's. Another Pauline first, who may be not inappropriately mentioned here, is Mr. H. J. Pinches, in the Natural Science Tripos. The fifth Wrangler is apparently of German birth, but he is one of three contributions to the first class of the Mathematical Tripos from the Cowper Street Central Foundation School. The Cambridge Honour lists published in June include the names of one hundred and one women students. This will be a formidable increase of the number of ungraduated peris who stand disconsolate at the gate of the Cambridge Senate House. What further task will Convocation set them before they draw the bolts and admit the expectant crowd?

THERE is a special interest attaching to the three Cowper Street Wranglers—the fifth, fourteenth, and nineteenth on the list. This triumph for the Central Foundation School is a splendid *finale* to Dr. Wormell's long and honourable tenure of the headmastership, and he is to be congratulated on being able to close his record with so much distinction—a distinction which, so far as mathematics are concerned, is probably not beaten by any other school in this year's Tripos. Our readers will have an opportunity of congratulating Dr. Wormell at the school prize-giving on July 20; and we may add that a further opportunity is afforded by the Old Boys of the Central Foundation School, who have resolved to present a complimentary testimonial to their former Headmaster. We have no doubt that many will desire to be associated with this mark of esteem.

WE have before us the report (dated June 14) of the Special Committee appointed by the Senate of London University—Lord Kimberley, Sir Henry Roscoe, and Sir Joshua Fitch—to confer with representatives of the Treasury and of the Imperial Institute on the proposed removal of the University to the building of the Institute at South Kensington. This report is favourable throughout; and we are bound to say that the Committee, after six months of correspondence, have succeeded in bringing the proposal into a shape eminently favourable to the University. Their final conclusion is as follows:—

Having regard (1) to the fact that our present accommodation is insufficient, and that there are no means of enlarging it upon its present site; (2) to the size and dignity of the Institute building, and its capacity for adaptation and expansion; (3) to the fact that no alternative proposal for the housing of the University in a more appropriate place is before us, or is likely to be made; and (4) to the consideration that the building, though not geographically central for London, is placed in the midst of a group of institutions—the Royal College of Science, the Natural History Museum, the City and Guilds of London Institute, the College of Music, and the Science and Art Galleries and Museums—which are all, in various ways, cognate in their objects with

the purposes and work of the University, we are of opinion that the proposal of the Government has been conceived in a fair and liberal spirit, and that it deserves the favourable consideration of the Senate.

WE may conclude that the scheme will now be carried into effect, and doubtless it will be wise to make the best of it—the more so as the Government are practically pledged to substitute a grant-in-aid for the present annual vote for the University as soon as the work of the Statutory Commission has been completed. The University is to occupy the whole East Wing and part of the centre of the Institute buildings, representing a total floor space and open area of 94,793 square feet, as against the 20,400 square feet in Burlington Gardens. Clearly this is an offer not to be lightly rejected; and there are other and larger possibilities in the future. We had at one time both practical and sentimental objections to the South Kensington site, some of which still remain. But we think that no one who reads this report, and marks the favourable terms on which the University will hold its new premises direct from the Government, will be obstinate enough to maintain a critical attitude.

BEDFORD COLLEGE may regard with considerable satisfaction the fifty years of work which it has just celebrated. Like Newnham College, it was a company of souls before it had a local habitation. The foundress, Mrs. Reid, not only gave her money, she also lent her private house, in the first instance, for lectures and other meetings. In 1849 the promoters rented a house in Bedford Square, whence the College took its name; and from that day to this its work has gone on steadily, its influence ever widening and deepening, and its prosperity has increased with its usefulness. In the first stage of its career it was not so much a college as a society for providing lectures. Its present work includes preparation for the various examinations of London University, the professional training of teachers, and a special department, created four years ago, which provides scientific training for sanitary and factory inspectorships, and for other public careers open to women. The College has been exactly half its lifetime in York Place, Baker Street, removing thither from Bedford Square in 1874.

MORE than one speaker on Friday referred to the debt which this College for Women owes to the generosity and active help of men. Here, as indeed in most other things, the interests of the sexes are identical, and the men whose opinion on the subject is best worth having are the most convinced of that real identity of interest. Miss Maitland—whose brief speech was peculiarly happy and appropriate—said truly that the higher education of women has added greatly, not only to the happiness of women, but also to that of men. Another cause which has had a great influence on Bedford College in the past, and must continue to influence its development in the future, is that the Reid bequest was wisely left unfettered. No dead hand of the past depresses Bedford College, and the example is one to be followed. As long as far-sighted men and women sit at its Council board, it is able, so far as the Reid bequest can enable it, to aim at the highest utility and the greatest good to the greatest number. Yet another substantial proof of men's sympathy with the movement for women's education is the fact that the staff, and especially the men upon it, have served the

College for less remuneration than that to which their abilities and reputation entitled them. This has long been known to a grateful Council, and has been an important factor in the development and reputation of the College, which otherwise could not have offered such able and even brilliant teaching. It is due to the Council to say that when the Government afforded the College a share of the grant to colleges, amounting to £700 in 1894, and to £1,200 in 1896, and when the Technical Education Board of the London County Council granted a subsidy of £500 annually, the Council promptly raised the salaries of its professors and lowered the fees of its students.

THE wiping out of an intellectual defeat by a physical victory is not an unheard of event in English schools, but we should hesitate before finding the origin of "town and gown" riots in intellectual rivalry. It seems, however, that the cause of the recent serious riots in the Tinnevely district of Madras is to be laid at the door of education. The Shanars, being of low caste, have deigned to profit by the teaching of the missionaries, while the more exclusive Maravars, a high-caste race, have chosen to ignore all the educational facilities offered to them. The Shanars, so say the Maravars, have become not only filled with conceit, but also overbearing in manner. This, however, scarcely justifies a hundred murders—unless, indeed, the hundred Shanars were excessively cultured minor poets, who persisted in proving their intellectual superiority by writing birthday odes. We hope, by the way, that Lord Kitchener will not leave out the Baggaras in making up the tale of his Khartoum College students. If he does, he may find that there are Maravars even in the Soudan.

WE have come across the following specimens of children's logic, in each case the child proving easily the victor:—
Examination question: "What do you do first when you parse a word?" Answer: "I rule a margin." Again, a teacher has explained an abstract noun as the name of something you can neither see, nor hear, nor touch, and asks for an example. Answer, after much mental hunting: "A little hen in an egg." On another occasion the teacher affirms that a transitive verb must have an object—"thus, if you break, you must break something"—and cheerfully invites the class to put "break" into a sentence without an object. A small girl ventures this, in perfect good faith: "I tried to break the glass, but couldn't"—adding anxiously: "You see I *didn't* break the glass." To use Milton's expression, grammar is clearly "not a bow for every man to shoot in that counts himself a teacher."

SUMMARY.

THE MONTH.

THE jubilee of Sir George Stokes as Lucasian Professor of Mathematics at Cambridge was celebrated on June 2. It was attended by representatives of sixty-three Universities and learned societies in various parts of the world. Sir George, who was Senior Wrangler in 1841, has also been President of the Royal Society and of the British Association. The Duke of Devonshire, as Chancellor of Cambridge University, presided, and read an address on the occasion, when a commemorative gold medal was presented by the University to Sir George Stokes, who received a similar honour from the French Academy of Sciences. A bust by Mr. Hamo Thornycroft was presented to the University, and a replica of the same to Pembroke College, Lord Kelvin under-

taking this duty. Sir George made a modest reply to the address, saying that the unsolved problems of science were more in number than those which have been solved, and that his main feeling was that he ought to have worked harder than he had done—though, “if he had done so, he might not have been there to receive the felicitations of his friends.”

THE Rede Lecture was delivered in the Cambridge Senate House on June 1, by Professor Cornu, of Paris. The subject was, “The Wave Theory of Light: its Influence on Modern Physics.” The lecturer paid a tribute to the valuable work done by Newton, and dwelt on the great advance in our knowledge of light that was due to him. Professor Cornu pointed out that light, electricity, and magnetism were all transmitted by waves, with ether as the medium for transmission. The lecturer did justice to the recent discoveries in the field of physics by Cambridge men, including Clerk Maxwell, Lord Rayleigh, Lord Kelvin, and Sir George Stokes. The Vice-Chancellor, Dr. Hill, in conveying the thanks of the audience to Professor Cornu for his lecture, said he had done them the compliment to write it in English, but at the request of the Vice-Chancellor and others he had done them the still greater compliment of translating it into French. They rejoiced to think that so many eminent Cambridge men, from Newton downwards, had shared in the discoveries made in this field of science. Dr. Hill mentioned that this was the first time the Rede Lecture had been delivered by a foreigner.

THE Leys School, Cambridge, has been relieved of its debt of £30,000 by the efforts of its friends. June 16 was the twenty-fifth anniversary of its foundation, and Mr. A. J. Balfour presided at the annual distribution of prizes, and congratulated the Governors on having established this Wesleyan school as one of the public schools of England.

AN inquiry into the Grantham Grammar School case was held at Grantham on May 30, on behalf of the Charity Commissioners and at the instance of the Headmasters' Association. The case arose out of the dismissal of the staff of assistant-masters at Christmas, without notice, on the departure of the late Headmaster. The inquiry was conducted by Mr. L. A. Selby-Bigge, Assistant Commissioner. Messrs. Preston, Brooke, and Marindin, the aggrieved masters, were represented by Mr. Cecil Walsh, barrister, of London (who appeared on the instructions of the Assistant-Masters' Association); and Mr. E. H. Fraser, D.C.L. who represented the Headmasters' Association. The Commissioner said that the inquiry had been ordered by the Charity Commissioners, under the Charitable Trusts Acts 1853 to 1894, with a view to ascertaining what might or might not be the rights of assistant-masters at the school, and, if any injustice had been done, what remedy was to be had.

It appeared from the correspondence in the case that when the late Headmaster (Mr. W. J. Hutchings) wrote terminating his engagement, on December 20, the Clerk to the Governors pointed out to him that the assistant masters might look to him for compensation if the new master did not see his way to retaining their services. Mr. Hutchings on the same day wrote to Mr. Preston and Mr. Brooke, reporting what he had heard, and adding that he did not anticipate that they or Mr. Marindin would come upon him for pecuniary satisfaction. On December 24, Mr. Malim (the Clerk) again wrote to Mr. Hutchings, pointing out that on the termination of his appointment, whenever that might be, the engagement of his assistant masters would also terminate. Further letters were also read showing that this was communicated to the three dismissed masters by Mr. Hutchings, who wrote to Mr. Malim telling him so, and also intimating that Mr. Marindin said he was appointed by the Governors, and was under different terms. In the statement Mr. Hutchings had prepared he said that he had not dismissed the assistant-masters, but he simply passed on to them the formal notice from the Clerk, together with the Rev. W. R. Dawson's (the new Headmaster's) declaration that he could not appoint them. At a meeting of the Governors subsequently held letters were read from the assistants, appealing against their dismissal, and it was resolved that the Governors regretted the dismissal of the late under-masters without due notice from the Headmaster, and they desired to express their sincere sympathy with them in their trouble. In recognition of the long services rendered by them to the school, they decided to give an honorarium to each of the assistants. Mr. Brooke, in thanking the Governors, said he accepted the sum as an honorarium,

and not in lieu of notice. Mr. Marindin asked the Governors for salary in lieu of notice, saying that the only notice he had received was from the Rev. W. R. Dawson, when he called upon him before the beginning of the term.

A LARGE amount of evidence was heard, including that of the Clerk to the Governors, the new Headmaster, and the assistant-masters. The Rev. W. R. Dawson, in cross-examination, said he had three reasons for not engaging the old masters. The first was that he preferred not having older persons than himself as assistants; secondly, he required that the assistants should be athletes; and, thirdly, he wished his assistants to reside at the school, so as to study the comfort of the boarders. The Governors contended that the engagement of the assistant-masters terminated with that of the Headmaster; but the Charity Commissioners had already declared against this contention. It was urged on behalf of the assistants that they were servants of the Governors, by whom their salaries were paid, and that they were entitled to a term's notice. Mr. Selby Bigge said that he would report to the Commissioners.

THE Annual Conference of the Headmistresses' Association was held at the Ladies' College, Cheltenham, on June 9 and 10. Miss Jones, of Notting Hill High School, President of the Association, occupied the chair. Miss Beale, in welcoming the Association to Cheltenham, gave a slight sketch of the rise and growth of the Association, and contrasted its first meeting at Cheltenham, twenty years ago, when fewer than thirty members attended, with the present large gathering, the number of members having now reached 184. Miss Jones reviewed the educational work of the past year, particularly as regards legislation on educational matters. The Board of Education Bill formed the chief subject of discussion, and the following amongst other resolutions were passed:—

That this Association regards it of the highest importance: (i.) That in the interests of girls and women a due proportion of seats on the Consultative Committee should be assigned to women; (ii.) that the inspection of schools should not be taken to include the examination of scholars; (iii.) that the inspection of schools should be gratuitous, and open to all schools alike; (iv.) that, at the earliest possible moment, inspectors of the highest competence and experience in secondary schools should be appointed. That, in order to secure that the registration of teachers shall be in the hands of a body with suitable expert qualifications, it is desirable: (i.) that the constitution of the Consultative Committee should be more clearly defined, and that it should so far follow the lines of the Council proposed under the Registration Bill, 1898, as to include, in the first instance, the representatives of the six bodies mentioned in Clause 17 of that Bill—the Headmasters' Conference, the Incorporated Association of Headmasters, the Association of Headmistresses, the College of Preceptors, the Teachers' Guild of Great Britain and Ireland, the National Union of Teachers; (ii.) that the Consultative Committee should be charged with the duty of regulating the maintenance, as well as the formation, of the register of teachers.

Miss Day, of the Grey Coat School, Westminster, was elected President of the Association for the two ensuing years.

THE distribution of prizes in the North London Collegiate School for Girls took place in the Clothworkers' Hall on June 21. The chair was taken by the Bishop of Bristol, and the prizes were distributed by Miss Emily Davies. Among those on the platform were Mrs. Bryant, the Headmistress, Miss Lawford (Headmistress of the Camden School), Miss Ridley, Mr. Latham (Chairman of the Board), Mr. A. T. Pollard (Headmaster of the City of London School), Sir Joshua and Lady Fitch, the Rev. A. J. Buss, and the Rev. Septimus Buss. The Headmistress announced that next year the Jubilee of the School would be celebrated in April. Mrs. Bryant in her report said that the School now contained 467 pupils, of whom 114 had been presented for public examinations during the year, and of these 72 per cent. were successful. Open scholarships had been gained by Miss L. M. Taylor (in mathematics), and by Miss M. Gregory (in classics), at the Royal Holloway College. Miss Agnes Bennett had gained the Girton Entrance Scholarship of £60 a year for three years. Thirteen old pupils had during the year taken degrees at London University, and two, Miss C. A. Raisin and Miss M. T. Newbiggin, had taken the higher degree of Doctor of Science. Another old pupil, Miss Ethel Sargant, had read a paper before the Royal Society. The Bishop of Bristol said that the work of higher education begun by Miss Davies and himself

had developed far beyond what they could have foreseen. Miss Davies was the foundress of Girton, while he was the first secretary of the Cambridge Local Examinations. He was astonished at the number of valuable prizes and scholarships gained by old and present pupils. He spoke of the ever-abiding presence of the memory of Miss Buss, and congratulated the audience on the living presence of Miss Davies. The prizes were then distributed, after which Miss Davies described the attempts made by women to get the London University to open its doors to women, and how out of this grew the application to allow girls a share in the Cambridge Local Examinations. The next step was the opening of a Women's College at Hitchin, the forerunner of Girton.

As part of the celebration of the Jubilee of Bedford College for Women, a meeting of old students was held, on June 22, in the Portman Rooms. Miss Anna Swanwick, LL.D., the first Visitor of the College in 1849, was in the chair. Miss Swanwick gave some interesting reminiscences of her own early schooldays in Liverpool, where she said she never remembered to have seen a map, and the geography lesson consisted of learning a passage by rote from a dull book. Grammar and history were taught in much the same manner. Miss Beatrice Harraden took her B.A. degree from Bedford College in 1882, and amused her audience by retailing her experiences with regard to the value of the magic letters "B.A." in the eyes of the hard-hearted "Editor." They obtained her many a valuable introduction. Other speakers were Dr. Sophie Bryant, Miss Henrietta Busk (who has written a history of the College), Mrs. Morgan Williams, and Miss Hurlbatt, the Principal.

On June 23, a crowded meeting was held in the theatre of London University, of which Bedford College is hereafter to be a constituent institution. Prof. Jebb presided, and, in an interesting address described the progress made by the College during the past half-century. The Duke of Devonshire said that he was there, as a humble member of the Government, in order to show that the immense advances which had been made during the last half-century in the higher education of women was a matter to which the Government was not insensible. Bedford College was among the first to associate itself with the movement, which had opened to women a great number of positions and professions, and its establishment, and the work it had done, had affected the status and the social position of women to an extent which it was impossible to estimate. The Government had fully recognized that movement, and had allotted to Bedford College a substantial grant from the public revenue. When the time came for the public to be approached for the supply of further funds, which would be necessary in the development of the position of the College, he was sure that aid would be forthcoming from the wealthy inhabitants of London.

UNIVERSITIES.

(From our Correspondents.)

We have had a sufficiently gay term, all things considered. It is true that there have been one or two disagreeables, and that the Eights week was somewhat spoiled by rain; but cheerfulness has been the prevailing note—in spite, as some would say, of Schools and Pass examinations intervening just when Oxford had begun to be most enjoyable. Our Schools are later than the Cambridge finals, so that there is nothing for me to say about individual successes or the triumphs of particular colleges or schools. The Hertford, indeed, the special blue ribbon of style and Latinity, which goes to Mr. Garrod, enables one to pick out eight of the best men of the year, for the Hertford award is generally accompanied by a mention of six or seven beyond the actual scholar. They belong to Balliol, New College, Christ Church, and Trinity, three of them being Winchester boys, one a Westminster, and one a Pauline.

A gift of five thousand pounds, from our old friend the anonymous donor, has come in very handily for the Science side of the University, for it has nerved Congregation to add to it an equal sum of money for the erection of a laboratory for the study of pathology, as well as a vote of £250 per annum for five years for equipment and maintenance. This is regarded as a very pretty pendant to the honour which the Queen has conferred upon our Regius Professor, now Sir John Burdon Sanderson, and the Medical School has good reason to felicitate itself.

Commemoration, needless to say, was very brilliant; and in fact there are some experts in these things who say that it was brilliant beyond recent experience. It is only natural that the presence of the popular Duke and Duchess of York should count for much in the direction of gaiety. At the *Enœmia*, when the honorary degrees were conferred, the Duke wore his doctor's robes, and he was attended by Mr. Talbot and Sir William Anson, the latter in his new capacity as M.P. for the University. The graduation ceremony, of course, was the culmination of "Commem.," and the list of D.C.L.'s was certainly notable:—The Earl of Elgin and Kincardine, K.G., M.A. Balliol College, late Viceroy of India; the Right Hon. Lord Kitchener of Khartoum, Governor of the Sudan; the Right Hon. Cecil John Rhodes, M.A. of Oriol College; Sir Hubert Parry; Professor Maitland, of Cambridge; Mr. Godman, of the British Museum; Father Ehrle, the Prefect of the Vatican Library; and Mr. James Frazer, of Trinity College, Cambridge. No doubt the decision of Mr. Rhodes to take up the degree which had been offered to him seven years ago put some of the authorities into a rather perplexing position; and the open secret of the business is that it was certain *others* of the authorities who had encouraged the great Proconsul to come forward at this moment. The excitement over the Rhodes degree has been a London, and not merely an Oxford, concern. Here, it must be admitted, the prevailing opinion of sober-minded people is that, whilst it was a matter of questionable taste for Mr. Rhodes's friends to bring him forward in the middle of a Transvaal crisis, it was not worth while for any body of prominent University men to make a public protest over the degree—especially after the explanation that Mr. Rhodes had been invited in 1892, when he could not be in Oxford, "to take the degree whenever it should be convenient for him to do so." Undergraduates do not worry themselves much over these considerations, and it was a matter of course that Mr. Rhodes should have a tumultuous gallery welcome. The occasion was one to encourage undergraduate wit, and the "Don't look so Boered" was almost as good as "Khartoum College head of the river!" with which Lord Kitchener was saluted.

ANOTHER May term gone. Tripos lists, degree Cambridge. days, dancing and merriment, all are things of the past, and for a fortnight Cambridge will have peace before the Long Vacation term. Much has been compressed into seven short and merry weeks, and complex memories will remain of one of the brightest and most prosperous May terms Cambridge has known for many years.

Each succeeding June makes it clearer that Cambridge is actually becoming a place where serious students form a majority. The last twenty years have seen a most notable development; and an analysis of the class lists for 1899, now all published, shows a rather remarkable state of affairs. Roughly, 204 men have proceeded to the B.A. degree by the poll course, while no less than 457 have taken Honours. It should also be noted that, of the 204, 20 to 30 are going through the M.B. course, and are doing work for that degree quite up to the Honour standard; this would put the figures roughly at—Poll-men, 180; Honours, about 480; or in the proportion of 3 to 8. The Science Tripos, with 40 first-class men and a grand total of 131, is responsible for much of the increase in Honour degrees; while the Classical and Mathematical Triposes, with numbers of 106 and 82 respectively, show little falling off from previous years. Law (40), History (30), and Mechanical Science (17) are active and growing schools; but the Natural Science work is certain to yield still more remarkable developments in the near future. Among the special examinations, Theology takes the lead with 64 passes; Law has 39, Physiology 18, Chemistry 21, and History 15.

The Jubilee of Sir George Stokes was the occasion for a series of impressive functions, most of which were graced by the presence of the Chancellor of the University, the Duke of Devonshire. Our foreign visitors lent an air of variety to the College Courts, while at the receptions and in the Senate House the gorgeous robes and sparkling decorations of the foreign representatives produced a *tout ensemble* not soon to be forgotten. The reception at the Fitzwilliam Museum was attended by about a thousand guests, and was a great success. Prof. Stokes was ubiquitous, receiving congratulations in his gayest and most youthful manner; while Lord Kelvin, in his happiest manner, made speeches, and presented busts of Sir George Stokes to the University and to Pembroke College. Among our distinguished visitors were the seven recipients of honorary degrees in Science: Professors Cornu (Paris), Darboux (Paris), Michelson (Chicago), Mittag-

Leffler (Stockholm), Quincke (Heidelberg), and Voigt (Göttingen). It was universally remarked that our foreign guests showed, by their decorations and honours, the fact that their work was appreciated by the State; while among our English scientists marks of royal favour or State recognition were comparatively rare.

It is now settled that Mr. Chawner, Master of Emmanuel, will be the next Vice-Chancellor, in succession to Dr. Hill, of Downing College. The retiring Vice-Chancellor has earned golden opinions by his courtesy, as well as by his untiring devotion to the duties of his office. Those who knew Dr. Hill when filling a humbler rôle in our University system are not in the least surprised to find that advancement has only brought out the qualities which his intimate friends knew to exist. Mr. Chawner, after the customary two years of office, will be succeeded by Dr. Ryle, President of Queens', unless in the meanwhile the claims of the Episcopal bench render another selection necessary.

The forthcoming Paris Exhibition of 1900 is to be graced with some exhibits representing the work of the University of Cambridge. The Council of the Senate have asked for the large sum of £125, in order that we may make a show which befits our position in the educational world. Doubtless the result will be in proportion to the magnitude of the sum voted.

The success of the ladies has not this year been very marked in the older Triposes—Miss Laphorn, between 21st and 24th Wranglers, and Miss Cave, First Class, Third Division, of the second part of the Mathematical Tripos being the most notable representatives of their sex. In Classics, Miss McCutcheon and Miss Hicks have won first classes. In Science, however, no less than four ladies gain first classes in Part I.—Misses Garrioch, Hartle, Smith, and Sollas; and, in Part II., Miss S. O. Ford and Miss G. L. Matthæi, all of Newnham. Six first classes are also credited to the gentler sex in History, and four in Modern Languages, making twenty in all—a very creditable record, considering the number of candidates sent up.

The election to the Professorship of Agriculture will take place during July. The 13th of the month is the last day for the reception of candidates' names. If rumour is to be believed, the appointment is practically settled through the superior qualifications of one particular candidate.

HISTORICAL EXAMINATION PAPERS.

ON June 14, Mr. J. Wilson, M.A., took the chair at the monthly meeting of members of the College of Preceptors, when Mr. H. E. MALDEN, M.A., read a paper on "Historical Examination Papers: How to Set and Answer Them." The following is an abstract of Mr. Malden's paper:—

It is impossible, when speaking of examinations in any one subject, not to be more or less guilty of the diffuseness of which examiners complain, and to separate entirely the subject chosen from all others. How to set, mark, and answer examination papers, with special reference to historical examples, would be, perhaps, a more completely accurate description of this paper. To the uninitiated, and to the thoughtless, it would appear that the object aimed at in an examination paper is quite simple. Surely it seems to be the finding out what candidates know about a subject. This by itself is not so easy as it may appear; neither is it the sole object of examinations—neither of examinations as they are, nor of examinations as they should be. At any rate, a little experience will soon show that other objects are sometimes present to the minds of those who set papers. I speak now of bad papers only; but from some of these it appears possible that those who set them are aiming at advertising what they know themselves. They ask questions upon curious points lately raised, or which they intend to raise themselves in the transactions of some learned society; or they inquire after recondite opinions expressed somewhere in the works of some voluminous and unintelligible German. If a candidate should happen to have had his attention drawn previously to such points, he will gain great credit and many marks—probably undeservedly, for his achievement will only mean a fortunate reference on his part, not a complete mastery of all the latest and most learned literature of the subject.

Again, another style of bad paper aims at finding out what the candidate does not know. This is not equivalent to discovering by inference what he does know. By questions upon obscure and minute points, by a species of historical puzzle, it is easy to find out that a candidate does not know many things. If one recognizes and another does not recognize a few of these matters of small importance, no just criterion is afforded thereby of the comparative knowledge by these two of men and events which really matter. I have seen the question: "What kings of England had uncles drowned at sea?" How many learned historians could be sure of answering this correctly offhand?

I venture to suggest myself four—Edwy, Edgar, Henry the Second, George the First. But I feel open to correction from that examiner. In fact, what any candidate does not know is, if not infinite in amount, at any rate enormous, and no useful result follows the fishing for specimens out of this shoal of facts. In an examination of one kind it is fair and useful to ask after minute points. If the candidates have been required to master a certain book, it is right to test their industry by asking for a few matters of slight importance, a recollection of which will show that they have read the whole book with attention.

But to turn from bad papers to the true uses of good papers. Undoubtedly these should not aim at drawing out what the candidate knows, irrespective of the question whether this is worth knowing or not. Herein historical examination papers differ from some others. There is no room for dispute as to what a student of "Euclid" ought to know; but the very essence of a real understanding of history lies in the intelligent appreciation of the really important features. No one knows all the detail without reference to a book, but the real historical scholar knows what the story means. When teachers examine, they naturally treat the same points as of importance in their teaching and in the examinations upon their teaching. Examining bodies have a function of teaching the teachers, and ought to frame their questions from year to year so as to impress upon them what are the really important features of history. This they have done with partial success. In papers set during the 'sixties, for instance, any questions about colonial or naval affairs were very rare, the American War and the defeat of the Armada forming the usual exceptions. Teaching was usually silent, I believe, upon these most characteristic sides of English history. The influence of Sir Robert Seeley, and then of Captain Mahan, began to appear in papers before it was felt in schools. Such questions began to be set, but were very badly answered. Now, *crede experto*, questions upon the Colonies and the Navy produce many good answers—many bad answers too, but enough good to show that the right importance is being attached to such subjects. But to produce this good effect examiners had undoubtedly to begin by asking for what most candidates did not know. But good examiners did not severely visit ignorance of these subjects till after sufficient attention had been called to them by repeated questions.

The teacher, whose subsistence may depend upon the results of his pupils' examinations, watches the tendencies of examiners, and sometimes provides candidates with what are known as "tips," samples of information to meet the examiners' ideas of what is important. We all know the favourite points, the supposed safe cards which a candidate is considered sure to have an opportunity of playing. But the properly constructed paper, aiming at drawing out what ought to be known, is, of course, not liable to be "floored" by the candidate who has committed a sufficient number of "tips" to memory. This sort of examination memory is a very useful aid to a business man or a barrister, who wishes to remember certain facts for a time for business purposes; but it can be cultivated by learning the winners of the Derby, or cricket averages, quite as well as by learning the heads of the Petition of Right or the battles of Edward the Third's reign. One sort of information so acquired is as useless as the other. History, properly understood, is a chain, each link of which is important because it is connected with something before and behind, and the understanding of the connexions is necessary for a true appreciation of the whole thing. The candidate furnished with "tips" has, as it were, a quantity of links loose in his pocket. He can bring them out one by one, though he is liable to bring out the wrong one very often; but he is quite unconscious even that they can be linked together. He is like the butt of the Greek Joe Miller, who is recorded to have carried about a brick as a sample of a house. If we want to mark for knowledge of history, we must not mark too favourably for the exhibition of even a good square brick, without some indication of what it supports and of what it stands upon.

Real knowledge of history implies habits of mind and thought. These may be tested to some extent in examination. Beyond the mere linking together of cause and effect, we may look for some judgment of the real importance of men and things, some power of weighing evidence, some readiness in recognizing the difficulties and disabilities of past men and times, some capacity for judging of policy from the point of view of the age of the politician, some idea of the patience necessary to bring about even a slight improvement in human affairs, some resulting charity, sympathy, and impartiality. It is impossible to examine in wisdom—that can be tested only by action; but it is possible in historical examinations to examine in some of the apparatus of wisdom.

I may seem to pitch the ideal of a paper very high. Of course we cannot look for profound judgments from young candidates. We ought to seek, however, for some evidence of attempts to think. Some questions on the grammar of history, accounts of events, details of statutes, even genealogies of kings, we must have. But the more highly marked questions should be in some such form as the following:—"Explain the difficulties with which Elizabeth had to reckon in the religious world in 1558-9"; "Show by a comparison of the positions, in 1640 and 1660 respectively, of Crown and Parliament, what were the net constitutional gains of the Civil Wars"; "What were the really important

consequences, down to 1815, of Nelson's victories at the Nile and Trafalgar?" "Show that the Great Charter was not a class nor party instrument"; "Give the reasons for the breakdown of the Lancastrian Parliamentary monarchy." These questions are not really very difficult; three are well within the compass of a boy of sixteen and of a girl of fifteen who have read school histories attentively and thought a little, but they do require some thought for their answer.

Candidates may, of course, be furnished with thoughts and views ready made by the book or the coach. But the examiner is a bungler who does not recognize these views at a glance. When, amid crude facts, stated in slipshod English, he comes across some well turned political reflection, or some moral truism, he hails an old acquaintance,

"And, smiling, puts the answer by."

From very small children, of course, thought is not to be expected. What we want to know in their case is whether they are interested or not, for which end they may be asked to repeat striking stories. Also it is right that they should have some idea of the sequence of events. To test this, they may be asked dates, always remembering that it is of more importance that they should arrange events in the right order than that they should assign them to the exact year. But, as soon as learners have got a fair idea of the sequence of events, they may be asked to express the results of some thought upon their meaning and connexion. A still more advanced examination should take the form almost entirely of essays and notes. The most advanced of all should be work with the authorities at hand, in order to test the power of candidates to find their way among the authorities, weigh evidence, deduce conclusions, and form judgments upon them. This form of examination, however, is rather beyond the range with which we are dealing.

The necessity for stocking the memory with details, avoided in this last highest form of examination, will always have a tendency to hamper the free exercise of judgment. The faculties which can be cultivated by historical study will flourish the better for that easy command of material which only access to books can give to those whose memories are not as the memory of a Macaulay. It is doubtful whether his decided judgments were not facilitated by a convenient forgetfulness of antagonistic facts. The mass of historical information extant is alarming, and it grows by leaps and bounds. To take only one of the school-books with which school-boys and -girls deal, Gardiner's "Student's History," Vol. III., I find 761 names in the index. About many of these there are many lines of reference. Each event or fact connected with each name has a date connected with it. If we estimate the facts and names and dates in the volume at seven thousand, we shall not err in excess. If for the whole history of England, treated in the same manner, we say fourteen thousand facts, names, and dates, our estimate will still be moderate. It is quite absurd to expect even a well prepared candidate to have an intelligent grasp of all these. A question involving thought and judgment necessitates a knowledge of fact to begin with, and a candidate may be very seriously hampered by a forgetfulness of some of these thousands of facts, by inability to recall a name or to recollect a date. This inability will confuse him, and, perhaps, frighten him off the question. A good historical student may be so hampered in one particular question. The student of algebra exemplifies his knowledge of a rule by solving any one example; the student of grammar is likewise master of his examples by rule; the lad of real historical instincts and of judgment, who understands the meaning of the whole story, may be very much thrown out by a lapse of memory. Therefore, in historical examinations, I should advocate considerable latitude of choice in questions. If we want, after all, to test, not the memory, but the judgment of the examinees, and their power of investigating causes and of deducing results, then we should give them fair opportunity for displaying these qualities. But, as familiarity with names and events is a result of the study of the subject, we are not called upon to give a student all his facts upon which to generalize. Only we must be sure that he has enough to generalize upon. I can imagine a comparative failure, upon one point, by a competent historian even, in such a wide field of time as most examinations offer. If he has a choice of questions, he will not be competent if he fails to deal intelligently with one of them.

This consideration leads me on to the question of marking papers. I should much prefer always to mark historical papers, beyond the most elementary, by impression. There is a specious appearance of fairness about a system of many possible marks. It seems so just to apportion so many marks to this point and so many to that, 25 marks out of 30 to this answer and 21 out of 30 to another. I do not think that such substantial injustice is done by this plan. A good many worthless candidates scrape up marks by fives and sixes for answers which are not every word of them hopeless nonsense. But I believe that the true comparative merit of the candidates appears better by giving marks by impression to each answer, and then by adding or subtracting a few marks by impression for the whole paper. I know if an answer is very well done, well done, fairly done, badly done, or worthless. I can apportion a numerical value much more minutely than this implies. But I do not feel sure that the bad or indifferent answer to which I gave ten marks one day might not have got twelve the next and eight the day before. It is not unfair to give to those

who have, and to take away from those who have not. A really first-class candidate, given more time, would show more knowledge; a very bad one would make worse blunders. A youth who told me last winter that "Napoleon, defeated at the Nile, had to retreat across the Sahara in very bad weather to Moscow" only wanted scope to perpetrate absurdities which should have deprived him of all marks for history. We do not want to know what knowledge or ignorance can be shown in a certain time. We want to know what knowledge or ignorance the candidates have of the subject, and we have two or three hours of their work and many hours of the examiner's time in which to find it out. If the examiner finds that the difference between A. and B. is practically infinite, the difference between something and nothing, may he not fairly express it in marks if marks are required of him? A. and C., moreover, though not infinitely removed from each other, may differ totally in kind if one gets 80 marks and the other 40. It is not merely that A. is twice as good as C. in the same scale. A. probably has real knowledge, C. has imperfectly remembered information.

There is probably no subject in which the labours of the examiner are more cheered by flashes of unintentional humour than in history. Every examiner, I think, must have been struck with the creative genius of boys in this subject compared with the reproductive power of girls, the former contributing nearly all the very good and very bad answers; but even the most wildly imaginative boys have very distinct limits to their invention, and repeat the same blunders from year to year. Besides the natural limitation of human ideas, error is not infinite in practice, bad teaching, especially a failure to explain the difference between persons and places bearing the same or similar names and titles, is responsible for many mistakes.

But, when examiners complain of differences and avoidance of the point in answers, they often are to blame for asking bad questions. For instance, "events leading to," or "results of such and such an event," is a dangerous form of question, unless a limit of time or place be strictly set. A candidate may not be blamed for going a long way back for a cause, nor for looking forward to a very remote result, unless such limits are set. Again "What do you know of" So-and-so? is a bad form of question. If I ask a boy what he knows of the Marquis of Rockingham, and he says truthfully, "Nothing," does he deserve a mark? The answer is a true answer. If he says, truthfully, "He won the first Doncaster St. Leger," does he deserve a mark? The examiner deserves a twinge of conscience for not having at least qualified his question by "as a statesman," or by some such words.

But, after all, the candidates should show some co-operating intelligence to smooth the path of examiners. They should remember that they are never expected to write all they know, like the probably mythical victims of the Chinese examinations. They are expected to give samples of what they know, arranged under certain heads, in a limited time. They must practise economy of truth, and one test of their powers is to be found in the skill with which they can select and indicate sufficiently the really important points in their knowledge. This economy of truth is specially conspicuous by its absence in the answers to those questions in the College of Preceptors' examinations which take the form of arranging notes for a lesson upon some given subject. Nine candidates out of ten appear to think that in the time indicated, perhaps three-quarters of an hour, they can tell the whole truth concerning the reign of Henry the Second or the Revolution of 1688, and cause a class to understand it. They would show not only their practical common sense, but their historical learning better, if they could separate the most important points for treatment in the time.

But neither examiners nor candidates are really answerable for all mistakes in papers. It stands to reason that much bad answering is the result of bad teaching, of bad books especially. If such a question is asked as "Discuss the rival claims of York and Lancaster to the throne in 1459," it is painfully apparent that many candidates have no idea that there is room for discussion upon any such point. They have never been accustomed to look at the matter as a practical question. They give a genealogy, right or wrong, and then leave the examiner to draw inferences, without even adding the other considerations which very seriously affect the question apart from genealogy.

A similar deficiency of judgment, or of attempt to train the judgment, comes out in the strong party views which are given—not the views of the candidate, but the views which have been supplied to him cut and dried, untempered by any experience or thought upon his part. That the world is divided into the whites and the blacks; that any political action of, say, Edward I., which would have been reprehensible in Her Majesty, is therefore to be roundly condemned in him; that statesmen and ecclesiastics of the past ages did not sometimes know their own business better than modern compilers of history know it, is a very natural idea to the young, but it is not typical of historical knowledge, nor the result of a training which has tried to make the most of historical teaching.

Indeed, I should be inclined to advise a clever candidate, who really has any knowledge of the circumstances, that if he finds a question about an unpopular character or policy—unpopular I mean with the ordinary run of school histories—he should try to see what can be said on the other side. If he has any historical knowledge, he can show

it so to better advantage than by repeating accusations and strictures which have been repeated better before.

I have heard of a candidate, in a Roman history examination, who gained great credit by a brilliant defence of Catiline. He was probably wrong, but he could make of his argument a fine exhibition of his knowledge of Roman politics and social life, and of the weak points of the senatorial government. Had he run down Catiline, he would have only faintly echoed Cicero. In defence he could show originality. Such an instance is of course only possible in more advanced examinations, but younger candidates may be taught to see and to show that no persons or parties have a monopoly of error.

Other people, besides the Athenians, may be tired of hearing Aristides called the Just. Examiners, however excellent, are human, and the refreshment of coming across a novel view, put with any appearance of truth and ingenuity, may prepossess them in favour of the candidate. Not that they make favourites—there is no favour in examinations. The examiner has not, as the mothers of plucked candidates suppose, a spite against Tom or a love for Jack. He regards them all as equally disagreeable incidents in his profession; but, if Jack shows some signs of superior intelligence, he is glad to note them, and give Jack the benefit; and, if Tom shows that the foolscap which he is blotting with nonsense would be more fitly employed in ornamenting his temples, the examiner will not give Tom the benefit of the doubt if he occasionally seems to possibly approximate to the truth. The human nature of the examiner may also be touched by the neatness, or the contrary, of the candidate. This should not be the case; but, "till we are shaped like angels," it will be very difficult to approach a well written, clear, neat, well arranged paper, and a paper nearly illegible, with the sheets disarranged in reverse order, fastened at the wrong corner, and with the questions wrongly numbered, in quite the same spirit. Answering with effect, in fact, resolves itself into the results of good teaching, backed up by the common sense and method of the candidate.

Teaching and examination can never be separated. The latter complements the former. The effort of reproduction of teaching for examination purposes undoubtedly helps to fix it in the mind. Examination directs teaching, as I said at the beginning. What is, perhaps, not the least important thing about examinations is that they also teach the examiner. It must be a particularly bad lot of papers which does not suggest to an examiner at least some reconsideration of the relative importance of different points. It must be a peculiarly well set paper which by the answers it brings forth does not suggest to him some improvement in his art.

The Rev. J. O. BEVAN said there were three factors involved in the question discussed by the lecturer—the teachers, the examiners, and the examinees—and the consideration of the relations of these factors to one another considerably complicated the matter. Further, the age of the candidates should properly be regarded in estimating the value of the answers given by them, allowance being made for different stages of mental development, which were dependent, for the most part, on age. It was very difficult for an examiner to form an opinion on this point in the case of a general paper, such as history; and the handwriting was often an unreliable guide. Therefore the examiner was compelled to assign marks mainly according to the amount of knowledge of the subject shown by the candidate, without too much regard to the intelligence and judgment exhibited in the answering. In the case of mathematical subjects—arithmetic, algebra, &c.—intelligence entered to a much larger extent, and the examiner was better able to take account of it. Bad answering was often, undoubtedly, the result of bad methods of teaching and of the insufficient preparation of lessons on the part of the teacher. In the setting of examination papers, it was most important that the examiner himself should work out, his own questions, in order not only to see whether the time allowed was sufficient, but also whether the questions themselves were such as to admit of clear and definite answers from average candidates.

Mr. EVE remarked that history was one of the best and most fruitful of subjects to teach, but one most difficult to examine in. There were practically three classes of questions wanted in history papers. First, those answering to grammar questions, requiring very short answers, uninteresting, but necessary. Next, those requiring the reproduction of continuous narrative, a useful exercise from several points of view, but a little like writing out bookwork in mathematics. The last and most valuable class of questions was, as the lecturer pointed out, the hardest to set, questions namely which should elicit the power of drawing inferences. In fact, "riders" and "unseens" could hardly find a place in a school history paper, and that was the great drawback to history as an examination subject.

Mr. G. BROWN said the lecturer showed that he knew what ought to be expected of candidates. There was, he thought, more scope for the vagaries of examiners in history than in other subjects; and history papers more often gave dissatisfaction to candidates and their teachers. It was the habit of examiners to lay the blame of bad answering on the teachers; but this was, he thought, hardly just. In the teaching of history, the teacher was greatly handicapped by the mass of details and

the limitation of the time that could be given to the subject, which almost compelled him to give his chief attention to the learning of the bare facts. Complaint was made of unintelligent text-books; but it should not be forgotten that the writers of text-books had always in view the examinations for which the pupils had to be prepared; and the publishers of text-books very naturally brought out what they thought would sell. There was, no doubt, a tendency on the part of examiners to get into a groove; and, in a notorious case which took place some years ago, this tendency had been taken advantage of by the teacher to such purpose as to give rise to strong suspicion that access had been illegitimately obtained to the papers prior to the examination. The object of an examination was to test knowledge, and the knowledge required to be shown should be connected with the important facts of history, to the exclusion of insignificant details. No doubt the study of history might be made a valuable means of exercising the judgment; but this would not go very far in answering an examination paper, when there was but little time allowed for thinking out historical problems. It had been suggested that one function of an examination was to direct the teaching; and he thought the examinations of the College did this with some success. It was not necessary, he considered, to take historical periods in consecutive order, and there was no reason why the Victorian era should not be taken as one of the periods to be dealt with.

Mr. ORCHARD concurred with Mr. EVE that the questions set should admit of short, concise answers, and that there should be "alternative" questions. One use of an "alternative" question lay in the very necessity of choosing which it imposed on the candidate. The lecturer had done good service in showing what questions ought not to be, and in indicating what they ought to be—on which last point it could be wished that he had said more. The responsibility for bad answering was, for the most part, distributable among examiner, examinee, and teacher. The lecturer had said that a question should have the double aim of testing what the pupil knew and what he ought to know. He (the speaker) suggested that, besides this, there should be the further aim of finding out to what extent he was able to connect his knowledge and perceive the relations of its various parts. In order to prevent unfairness, the character of a question should, as far as possible, be conditioned by the pupil's opportunity. The proposal that an examiner should work his own paper was reasonable; but the time allotted to the examinee ought to be double that occupied by the examiner. History had been compared by the lecturer to a linked chain. Might it not also be regarded as the unfolding of social and political life, as the development of forces, mental and spiritual, asserting and illustrating themselves in chronological events? Thus, the Catiline conspiracy indicated the condition of Roman society; fealty and loyalty asserted themselves in the Wars of the Roses; Magna Charta spoke of the love of freedom; whilst the English Revolution illustrated both this force and that of the love of truth.

The CHAIRMAN said that, in his view, an examiner in history should, in addition to adequate knowledge, possess saving common sense, a sense of proportion, and such power of imagination as would enable him, when setting his questions, to keep before his mind all the circumstances of age, time limits, claims of other subjects, &c., by which the particular examination was conditioned. A curious illustration of the unreasonable demands that an examiner sometimes makes on his examinees was given by the late Mr. Froude, the historian, in his St. Andrews address. It appears that in the early days of competitive examinations a board of examiners met to settle the scale of requirement before drawing up their papers of questions. The highly distinguished man who was to examine in English history announced that, for himself, he meant to set a paper for which Macaulay might possibly get full marks, and he wished his colleagues to imitate him in the other subjects. Mr. Froude saw the paper this examiner set, and confessed that he could have answered two questions out of a dozen. Now, a paper for which only the most talented specialist could hope to obtain full marks, and on which one talented specialist could answer only two questions out of a dozen, seemed to entirely defeat its purpose. The number and choice of questions in a given period are no easy matters. To cover the ground, the device of alternative questions may be resorted to; but as to what are the important events to be included in a paper, and the comparatively unimportant to be excluded, different examiners would decide differently. Questions of colonial and maritime history, as the lecturer had pointed out, were now commoner in English history papers than formerly. This seemed quite right; and in almost any period of our history, from the Norman Conquest downwards, a question might be fitly set in respect to the loss or gain of colonies or territories beyond the seas, and the relation of such loss or gain to the development of our sea power—a naval defeat or victory. From the point of view also of history being one continuous chain of causes and effects, a question might properly be asked as to what causes produced certain effects. No doubt, such questions should be guarded, and limited to events that followed their causes at no great distance of time. In respect to marking, he thought the numerical evaluation of answers was the fairest, and what he most prized, next to full knowledge, was terseness and directness in setting it out.

Mr. MALDEN having replied to the remarks of the various speakers, a vote of thanks to the lecturer concluded the proceedings.

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FORECASTS AND COMMENTS.

July 1, 1899.

THE half-yearly general meeting of members of the College of Preceptors will be held on Saturday, July 22, at 3 p.m.

AN autumn course of lectures on "The Practice of Education" will be delivered at the College of Preceptors by Mr. P. A. Barnett, M.A., H.M. Inspector of Training Colleges.

THE Teachers' Diploma Examination of the College of Preceptors will begin on Tuesday next, July 4.

THE Old Rugbeian dinner will be held in the Whitehall Rooms on July 3, and the Old Cliftonian dinner—with the Bishop of Hereford in the chair—is fixed for July 4.

THE International Congress of Women, convened by the International Council of Women, was opened on June 26, and will continue until July 5. In the Educational Section, the remaining fixtures are as follows:—July 1, Co-Education in Schools and Universities, papers and discussions from 10.30 to 1. July 3, Training of Teachers, 10.30; Examinations and Examination Systems, 2. These meetings are held in the Westminster Town Hall. Miss C. S. Bremner is the honorary secretary of the Section.

ON July 6 the Duke of Cambridge will open the new buildings of King's College School, at Wimbledon.

A KINDERGARTEN demonstration will be given in the Portman Rooms on July 7, when the students of some half-dozen training schools will play simple kindergarten games, and otherwise "demonstrate the system." Representatives are expected from the Child-Study Society, the Parents' National Education Society, the Sesame Club, the Pestalozzi Society, &c.

THE Intermediate Examination in Arts and Science at London University begins on July 10.

A VACATION course of lectures for women in horticulture and kindred subjects will be opened at Reading on July 11.

PROF. JEBB, M.P., will distribute the prizes at King's College, London, on July 12.

A "NEW FRENCH HOLIDAY COURSE" will be held at Caen from July 30 to August 25. It enables an English student to spend twenty-seven days in one of the most beautiful provinces of France, to live in a first-class hotel or a good family, to attend twenty-five lectures, thirteen excursions, and several friendly meetings, for about £10. Inquiries should be addressed to Mr. A. Pratt, B.A., Lyndale, Burgoyne Road, Harringay, N. Some of the lectures of this Course will be given by Prof. L. Bascan, who contributed to the Educational Times, in November 1897, an interesting paper on "Public Education in France."

THE Education Department has received from Berne an

announcement that an educational exhibition will be held in that city in the autumn. The authorities organizing the exhibition will welcome exhibits illustrating education in this country. They are specially anxious for exhibits showing methods of physical training, and the nature and organization of school games. Communications from those willing to take part in the Exhibition should be addressed to the Director, Schweizerische Permanente Schulausstellung, Berne, from whom further particulars can be obtained.

Education Gossip. MORE and more of our great towns are taking up the task of co-ordinating the various institutions devoted to education. We are glad to see that Bristol is now considering a scheme for this purpose, and negotiations are proceeding between the authorities of the University College, the Merchant Venturers' Technical College, the Bristol School Board, and the School of Art. The municipalization of the Bradford Technical College is a fact which may be regarded as tending in the same direction.

AT Sheffield there is a proposal to sell the site and buildings of Wesley College, a proprietary institution, and, if this is agreed to, it is anticipated that they would be purchased on behalf of the University College. The original Firth College would then be offered to the School Board, whose central buildings it adjoins. The provision of the purchase money by the Board would probably carry the whole scheme into effect.

A COMMITTEE has been formed at Bath with a view to preventing the collapse of Bath College, the College Company having gone into voluntary liquidation.

AT a meeting of the Council of University College, London, held on Saturday, June 17, Prof. Montelius was appointed Yates Lecturer in Archæology for the year 1900. Andrews Entrance Scholarships of £30 each were awarded to Mr. K. E. Aitken, of Berkhamsted School, and Miss Mary S. Lilley, of Arbroath High School. A Slade Scholarship in Fine Art of £35 per annum for two years was awarded to Mr. C. J. Sharp. The Research Medal was awarded to Dr. S. B. Schryver.

THE zeal of Birmingham is spreading over the Midlands. A Committee has been formed at Hanley to prepare "a statement of the case" for a new University College for North Staffordshire, and to convene a public meeting as soon as its report is ready for presentation.

AN educational monthly paper is somewhat handicapped in reporting meetings which take place on one of the latest days of the month. The Froebel Society held its annual meeting on May 29, when Madame Michaelis occupied the chair as President, and Lady Isabel Margesson read a paper on "The Importance of Self-Expression." Miss Kate Stevens had for her subject "Lessons from the Standpoint of the Child," and Mr. Earl Barnes addressed the meeting on the same theme.

FOR some time past negotiations have been on foot between the Governors of the Leeds Grammar School, the Council of the Girls' High School, and the Charity Commissioners, with regard to the purchase of the High School by the Governors of the Grammar School. At a recent meeting of the Girls' High School Company, Limited, the assent of the shareholders was given to the proposals laid before them, which include the rebuilding of the school, to accommodate 300 girls.

THE question, "Who invented the lucifer match?" is succeeded by a little controversy in the *City Press* as to who was "the pioneer of technical education." Mr. John Warren writes to our contemporary:—

I have heard it declared by successive Lord Mayors at the Mansion

House, and by others in public, that the Turners' Company were the first of the City guilds to hold exhibitions and give prizes for technical education, and I know that my uncle, Mr. John Jones, who is "the father of the Company," was the first to start the idea in the Company. The exact date of the first exhibition I do not at this moment remember, but it must be about forty years ago. Mr. Jones often in Common Hall years ago also advocated the necessity of encouraging technical education.

John Jones, then, let it be—subject to the reflection that "post hoc" is not always "propter hoc."

By the resignation of the Vice-Provost of Trinity College, Dublin, and the death of Dr. Shaw, two men of letters well known to the English reading public, Dr. Mahaffy and Dr. Traill, succeed to the responsible position of Senior Fellows.

"TOM BROWN'S" only begetter, His Honour Judge Hughes, is now commemorated by a marble statue at Rugby. It was unveiled on Speech Day by Mr. Goschen. The statue cost £1,000, and there was a balance of a quarter of that amount for the Rugby School Mission.

WE have received from the Yorkshire Ladies' Council of Education an elaborate curriculum for a training school of commercial education. The object is to enable girls of sixteen and upwards to prepare themselves for commercial life. We wish success to this excellent new departure.

SIR CLEMENTS MARKHAM, Lord Kelvin, Sir H. Howorth, Sir Joseph Hooker, and other Fellows of the Royal and Geographical Societies, went on June 22 as a deputation to Mr. Balfour to ask for Government aid towards fitting out an Antarctic expedition. Mr. Balfour was very complaisant, and held out hopes that the Chancellor of the Exchequer "would find it in his power to give substantial aid." Not only so, but he declared that he should be much surprised "if the expedition did not come across a great number of things which they did not expect to find, which would throw new light on many of their most important scientific theories." A giver can afford to be genial and expansive.

MR. HAROLD LITLEDALE, M.A., Senior Moderator of Trinity College, Dublin, now Vice-President of Baroda College, has been appointed to the Chair of English Language and Literature at Cardiff University College, in succession to Prof. Vaughan.—At the same College, Mr. Sydney J. Chapman, M.A., is appointed Lecturer in Political Science.

THE Curators of Edinburgh University have appointed Prof. E. A. Schäfer, F.R.S., Professor of Physiology, University College, London, to the vacancy in the Chair of Physiology caused by the death of Prof. Rutherford. The new Professor succeeded Prof. Burdon Sanderson in the Jodrell Chair of Physiology in University College, London.

THE University Court of Aberdeen have appointed Dr. J. L. McIntyre to the Anderson Lectureship in Comparative Psychology, in succession to Dr. G. F. Stout, who was recently elected Wilde Lecturer at Oxford.

THE Boden Professorship of Sanskrit at Oxford will be filled in the Michaelmas term.

APPLICATIONS for the Chair of Greek in Glasgow University are to be sent in on or before July 8.

By the death of Dr. W. G. Blaikie, of Edinburgh, the Chair of Theology (Free Church) filled by him becomes vacant.

THE REV. E. H. PEARCE, Vicar of Christ Church, Newgate

Street, has been elected Professor of Bible History at Queen's College, Harley Street.

PROF. W. JAMES, of Harvard, has been selected as Gifford Lecturer at Edinburgh.

THE *Athenæum* says that Mr. P. Hume Brown is expected to be the first Fraser Professor of History and Palæography in the University of Edinburgh.

THERE is a vacancy in the Professorship of the Theory, Art, and Practice of Education at Owens College, Manchester; and a new Professorship of Law has been founded at the Yorkshire College, Leeds.

AN Assistant-Lecturer in Mathematics is required at University College, Liverpool. "Applications as soon as possible."

THE following appointments have been made at Cambridge:—Mr. J. W. Clark, Registrar of the University, to be Sanders Reader in Bibliography; Mr. H. M. Macdonald to be Lecturer in Mathematics for five years; Mr. A. E. Shipley to be Lecturer in Advanced Morphology of Invertebrates for five years; and the Rev. H. C. Beeching to be Clark Lecturer in English Literature at Trinity College.

DR. HERBERTSON has been appointed Assistant-Reader in Geography at Oxford; Mr. H. N. Dickson, Lecturer in Physical Geography for two years; and Mr. G. H. Grundy, Lecturer in Ancient Geography for one year.

THE REV. R. WATERFIELD, M.A., New College, Oxford, has been elected Principal of Cheltenham College in succession to the Rev. R. S. de C. Laffan. Mr. Waterfield, who was for a time tutor to Prince Arthur of Connaught, has been an assistant-master at Rugby since 1893.

THE Governing Body of the City of London College are about to appoint a Principal. Applications should be made on or before July 8.

MR. HOBHOUSE, Headmaster of the Durham Cathedral School, has been compelled by ill-health to resign his position, after a tenure of five years.

MR. J. W. ILIFFE, M.A., has been appointed Headmaster of the Central Higher School, Sheffield. He is succeeded at Cambridge by Mr. James Wallis.

THE Council of Aberystwyth College have appointed Miss C. P. Tremain, B.A., Gilchrist Travelling Student, to be Mistress of Method and Assistant-Lecturer in Education.

WE omitted last month to record the appointment of Mr. F. Collins, Science Master at Tonbridge School, as Headmaster of the Central Foundation School, in succession to Dr. Wormell.

Literary Gossip. MR. A. J. BALFOUR and Mr. Lecky have been added to the Committee of the London Library, in the place of Mr. Gladstone and Sir Henry Barkly respectively. Mr. Leslie Stephen presided at the annual meeting on June 15, and mentioned that a total sum of £18,900 had been expended on the new buildings. The number of subscribers is now 2,631.

THE last grant of books from the Clarendon Press is that made to the Reference Library at Monte Cassino, on the eleven hundredth anniversary of the death of Paulus Diaconus.

This is a specially interesting gift, and it may be looked upon as an acknowledgment of the debt which Oxford, in common with all scholars in Western Europe, has owed for many centuries to the historian of the Lombards.

PAUL WARNEFRID lived as a young man at the court of the ill-fated Desiderius, at Pavia; and, on the smashing of the Lombards by Charles the Great, he withdrew to the monastery of Monte Cassino. From thence he was induced by Charles to migrate to his court at Aachen, where he worked with Alcuin the Englishman for the promotion of learning amongst the Franks. But he found the monastery more congenial; and there he completed his well-written and truthful history.

THE case of the Universities of Oxford and Cambridge against Messrs. Gill & Son, which was heard in Chancery by Mr. Justice Cozens-Hardy, and ended in the granting of an injunction against the defendants, was by no means all plain sailing. The "Cum Privilegio" is a sacrosanct phrase; it is right that the Universities should reap some profit in return for their responsible labour in producing flawless Bibles; and, in any case, an Act of Parliament has given them a copyright.

ON the other hand, the Rev. F. Marshall, the editor of the "St. Luke" and "The Acts of the Apostles," and Messrs. Gill, his publishers, do not seem to have had any idea that they were infringing a copyright. What they did was to collect together the principal emendations in the Revised Version, in the case of two out of many books in the Bible. This may amount to excessive quotation, but it is never easy to say when excessive quotation amounts to legal infringement of copyright. However, the case has been heard and decided, and the decision must be accepted.

A COMMITTEE formed some months ago, in accordance with a resolution of the Association of Headmasters, "to consider ways and means of conducting, through the Press and otherwise, a movement for the purpose of placing before the country the claims of Secondary Education to national aid and recognition," of which Dr. R. P. Scott is the chairman, publish to-day a volume of short essays with the title, "What is Secondary Education?" (Rivingtons). The twenty or thirty writers include many who may claim a hearing on this important and complicated subject. We hope to notice the book next month.

A CORRESPONDENT asks us for a book on anthropometrical and psycho-physical measurements "as subsidiary to education." By a coincidence we receive this month from Mr. Arthur MacDonald, Specialist to the United States Bureau of Education, an elaborate and well illustrated volume on the "Experimental Study of Children" (Government Printing Office, Washington), with an account of such measurements, and of the apparatus employed in taking them, together with a bibliography of the subject.

MR. E. C. MARCHANT, of St. Paul's School, has undertaken to edit for Messrs. Bell & Sons an "Illustrated Classical Series" for the lower and middle forms. The idea of systematically illustrating classical texts for school purposes is both novel and good. Mr. Marchant's list of editors for particular texts includes several of his colleagues at St. Paul's, the headmasters of Christ's College, Brecon, Plymouth College, Blackheath School, and St. Edmund's, Canterbury; the Rev. F. Conway and Mr. G. H. Wells, of Merchant Taylors'; the Rev. E. H. S. Escott, of Dulwich; Mr. J. W. E. Pearce, of University College School; and Mr. J. F. Charles, of the City of London School. The texts so far announced are all Latin. Mr. Marchant is also preparing for the same publishers a translation of the sixth and seventh books of Thucydides.

MESSRS. J. M. DENT & Co. have in preparation two additions

to their "Modern Language Series," viz., "The First German Book," by S. Alge and Walter Rippmann, and "German Daily Life," adapted by Walter Rippmann from Dr. R. Kron's "Der Kleine Deutscher."

* * *

MESSRS. LONGMANS & Co. have arranged for the publication of a series of books dealing with the functions of the State and Society in America, under the title of the "American Citizen Series." They will be under the editorship of Dr. Bushnell Hart, of Harvard University, one of the editors of the *American Historical Review*. The first volume, which is nearly ready, is the "Outline of Practical Sociology," by Dr. Carroll D. Wright, the United States Commissioner of Labour.

FRENCH EDUCATION AND POLITICS.

A CORRESPONDENT writes: "An educational experiment of some interest is to be tried in France in the near future. M. J. Duhamel, now a master at Harrow, is in charge of the scheme, and will in all probability be the first headmaster of the new school, which is to be called 'Le Collège Normand.' He states as his object 'the moral, physical, and mental training of individuals so carried out as to secure the strength of the nation,' and has created a scheme which he claims will achieve this end. He holds that the disease from which France is suffering to-day is directly due to her system of education, and believes that a radical reform of the latter will eventually lead to a more healthy national life. The rioting in Paris during the Dreyfus agitation, the scenes in the Chamber, the tone of the Press, are all symptoms of the same disorder, which, it is hoped, may be cured by the one remedy. In England it is impossible that such scenes as have disgraced France could occur, for the simple reason that by our education we, as a nation, recognize the interdependence of individuals. This leads us to acquiesce in, if not to approve, the laws of the country, and to look with tolerance on the opinions of others. All this is the outcome of our school training. In youth we are taught that our individual actions may injuriously affect the prestige of the school, that school rules are generally for the good of all, and that freedom of thought and speech must justly be granted to all equally with ourselves. Naturally these ideas remain with us when we join the larger community outside, and influence our conduct throughout life. In France, on the other hand, the schools are merely mental forcing-houses through which it is necessary for the child to pass in order that he may, if possible, obtain a lucrative appointment under Government. Hence it follows that moral training is almost wholly neglected; indeed, it has been stated that immoral acts are the rule rather than the exception in the State secondary schools. But this again may be due to the absence of that *esprit de corps* an Englishman associates with his school. Physical training, too, is thought to be of no account, and so but two hours per diem are allowed for recreation; hence, possibly, the decline in French physique. This system necessitates cooping up the pupils for twelve hours per diem in more or less badly ventilated rooms, thus impairing their health, and often sowing the seeds of future fatal diseases. Indeed, many doctors attribute the prevalence of consumption in France to the *lycées*. It is the consideration of these differences, national and educational, which has led M. Duhamel and his friends to believe that an adaptation of the English public-school system will tend to develop across the Channel those attributes of good citizenship which are now lacking.

"Having clearly conceived what it is they wish to achieve, the promoters of the new school have mapped out the lines on which they will work. In so doing, M. Duhamel's twelve years' experience in England has naturally been of service, and, although our public-school system is not to be transplanted bodily, many of its salient features have been adopted. The school will be worked on the 'house' system, so as to break down, so far as may be, the existing hierarchy of administration which leads the pupil to mistrust his masters, and is, therefore, an impediment in the educational path. In order to establish a good moral tone, the number of pupils will be at first restricted to thirty-five, who, it is hoped, will benefit sufficiently, by close personal contact with the masters, to be able to influence new-comers when the school is enlarged. It is also expected that the personal example of the masters, and the knowledge that they are pioneers, will lead the earlier pupils to take an interest in games, and so create that healthy desire for distinction in the playing-fields which has done so much for the physical development of our own country. With this object in view, it has been decided to reduce the hours devoted to mental work from twelve to six; but it must be admitted that the founders have been largely influenced in this decision by the belief that the amount of knowledge acquired does not necessarily correspond with the number of hours spent on its acquisition. Most of the time thus saved will be devoted to football, fives, lacrosse, and manual training. Cricket, for some reason, is not to be played. No less important a revolution than the foregoing is also to take place in the schoolroom.

At present, it is customary for pupils to specialize from the age of ten. At 'Le Collège Normand' fourteen will be the limit. Up till then the aim will be, as was that of Thring, 'to find out in each individual boy his aptitude and capacity for a special sphere of action.' In the meantime, great attention will be paid to the teaching of natural science, modern languages, history, and geography. Latin and Greek will be left till later, and, even then, subordinated to subjects of more practical value in after life.

"In arranging the religious training of the pupils, many difficulties had to be overcome. In the first place, the conflicting claims of Roman Catholics and Protestants had to be considered, and the system moulded to include pupils of all faiths. To meet this difficulty it has been decided to allow the local pastors of all denominations access to boys whose parents may desire it. The masters will not preach any doctrine. They will merely seek to apply and obey the precepts on which we are all agreed, bearing in mind at the same time that a boy, like a man, believes what he can, not what he is ordered to believe. Another difficulty had to be met by compromise. The promoters believe implicitly in the English dormitory system, and would have only too gladly introduced it, had it been possible; but, unfortunately, there is a very strong prejudice against the system in France, heightened, no doubt, by its practical failure in the State seminaries. Under these circumstances, it has been decided to provide a separate room for each pupil. This arrangement is, however, not without its corresponding advantages, for it will secure such privacy as boys may require for the conduct of the devotions they have been accustomed to.

"In conclusion, it should be stated that M. Duhamel is prepared to commence his school as soon as satisfactory premises can be obtained. What he wants is an old *château*, with plenty of ground and trees and good water, in order that the boys may live among healthy surroundings; but, so far, he has been unable to secure a suitable estate. The scheme is being financed by a party of Rouen cotton-spinners, who are only asking 3 per cent. on their money."

SCHOOLBOYS' BOOKS.

No one who is well acquainted with boarding-school life at the present time will dispute Mr. A. C. Benson's remarks in *Literature* (May 13, 1899):—"Books are now a part of the normal furniture of life for the ordinary schoolboy; they are a source of leisurely enjoyment which plays a large part in nearly every boy's life." The statement probably requires some modification when applied to day boys, though it is wonderful what interest they can be led to take in books with a little guidance and stimulus. It would be a good plan in day schools if one hour a week were kept for reading extracts from library books to middle forms, which are usually more easily moved than higher ones, so that a habit of reading good books may be more easily formed.

Schoolboy readers fall mainly into three classes. There are the clever boys who read poetry, pretty much as Dean Farrar says he did at school, and who take an interest in literature generally. During a recent visit to Winchester College, for example, the writer noticed with pleasure the number of books of good literature in the room where the studies are. At the opposite end of the scale are those who read the vulgar comic papers and the dreadful stories that every schoolmaster hates with his whole heart as the plague-seed of foolish visions and idle dreams. Between these two classes comes the great class of the average boy, and it is with him that we have to do.

The average boy reads the magazines, such as the *Windsor*, the *Strand*, *Pearson's*, with great avidity. He also likes to turn over weekly the illustrated papers, such as the *Graphic* or *Black and White*. He is not quite so fond of the *B.O.P.* as he used to be; at least, that is the writer's personal experience. Occasionally he finds the *Strand* a little dry; but it gained a hold on his affections in the days of "Sherlock Holmes" that he is slow to give up. Many boys like *Chums*; but it is not thought quite so "class" as the *B.O.P.* Then all athletic boys, and, in fact, boys generally, follow the athletic columns of the newspapers with the greatest enthusiasm. Their knowledge of details is often amazing, and different boys keep different records with great care. For instance, one will follow a particular player's career for several years, another a particular county or football club. *Answers*, *Tit-Bits*, and *Pearson's Weekly* are constant favourites, and quite deserve the praise bestowed on them recently by Dr. Field, of Radley. They form a tolerable *via media* between the things that a schoolmaster would like boys to read, but which he knows they will not read, and the things that he knows many of them would like to read, though he does not approve them.

Now, as regards books, it is not quite so easy to judge of boys' tastes. They can buy magazines and papers for themselves, and what they buy faithfully reflects their real feelings. Books they like to have and skim, whether they read them thoroughly or not; but these they do not often buy. Hence they are dependent on presents and on the school library. Of certain writers they never tire. Henty, Jules Verne, Manville Fenn, Captain Marryat, Mayne Reid, are favourites

everywhere. Boarders read with avidity all tales on school life, and "Eric" and "St. Winifred's" are still firm favourites. Perhaps "The Fifth Form at St. Dominic's" holds the first place in their favour, and all books by Talbot Baines Reed are popular. Day boys are somewhat shy of these books till they hear a chapter; then they read them as eagerly as boarders do. "Tom Brown's Schooldays" is not, in the writer's experience, the favourite that it is with older people. The first part chokes boys off. If they are told to start later on, they will read it. Otherwise they often return it very dolefully. Scott and Dickens have gone out of favour to an amazing extent. The more thoughtful boys read "Ivanhoe," "Kenilworth," "Pickwick," and "Oliver Twist"; but the majority do not care for these authors. Still, a little persuasion works wonders. Two of Kingsley's books are typical boys' books; but not many take to them as older persons do. The historical parts of "Hereward the Wake" frighten boys; but they like the book if they are told to skip them. A large number do read "Westward Ho!" but it does not "find" them as it does older people. All books by Conan Doyle, Max Pemberton, Stanley Weyman, Rider Haggard, and R. L. Stevenson are read with eagerness. Among these authors, perhaps, the last has the pre-eminence. Some boys take kindly to such books as "John Halifax, Gentleman," and very many like three or four of Mrs. Henry Wood's novels, especially "The Channings" and "Roland Yorke." The historical novels of Edna Lyall are always liked, and older boys read "Donovan" with great interest. "The Cloister and the Hearth" is liked when read, but it often needs a little introducing. If the bear story be read, it goes, and becomes a friend.

It is an undoubted fact that the average boy likes a good book rather than a poor one, and no one derives more keen enjoyment from the standard novels of the day.

"Robinson Crusoe," "Swiss Family Robinson," and "Gulliver's Travels" find a place in most libraries and go out regularly; but it is very doubtful whether boys read the last through. They like pieces and they enjoy the illustrations. Harrison Ainsworth's books are generally popular, and occupy the place one would like Scott to occupy. "The Pilgrim's Progress" is scarcely a general favourite. The British schoolboy is very sceptical about any book that has the reputation of being "good." He reads a story and takes its lessons to heart quite seriously; but, if you tell him that a book will do him good, he does not want to read it after that. In this he is only a chip of the old block, for Englishmen usually hide their deeper feelings. Biographies are not over-popular, though Garfield's and Lincoln's lives are often read. A boy will also take such a book as Clark Russell's "Nelson" ("Heroes of Nations" Series), and look it through carefully, but he does not often read much of it. Benson and Tait's "Men of Might" is often read when spoken about. Many of the pieces in Green's "Readings from English History" (Macmillan) are deservedly popular. The present writer has been very much disappointed with the small success he has met with in trying to get boys to read such books as Smiles's "Self-Help." But perhaps that is expecting them to like one's own books. The little stories in "Heart" are always liked, and afford excellent material for longer compositions. The little reader just issued by Cassell's, called "In Danger's Hour," at once took hold of boys' fancies, and it would be hard to say which story is most liked.

SOMERSET BATEMAN.

REVIEWS.

RHETORIC AND THOUGHT.

Euripides and the Attic Orators. By A. Douglas Thomson. (Macmillan.)

This study of ancient opinion, suggested to Mr. (now Dr.) Thomson by Prof. Butcher, and presented as a thesis to the Senatus of Edinburgh University, raised expectations in the mind of the present writer which, he is bound to confess, have been somewhat disappointed. To be sure, a mass of information on topics of much interest to students of psychology has been brought together and tabulated; but, were it not that Dr. Thomson expresses himself distinctly on the matter at the outset, we should almost have supposed that he had mistaken the nature of his mandate. It would, we venture to say, have been a much more fruitful subject of inquiry—and one, we must add, for which the author appears to us to be better qualified—to compare the language of Euripides, the rhetorician of the boards, with the language of the Orators, the rhetoricians of the courts. To tabulate the opinions put forward by Euripides through his characters on the graver problems of life is a task worth undertaking. To set in order the views thrown out by the great advocates on those problems is, perhaps, less useful, but is not waste labour. But what result was to be expected from a comparison of those views we confess we do not understand. Euripides is a great teacher and a deep thinker. The Orators—so far as the "great problems" are concerned—are of necessity trivial and

commonplace; and it seems odd that Dr. Thomson should have had to write a book to discover the fact. Discover it he does in the end; for when he comes to sum up his results, such as they are, he tells us that the Orators "never think of inquiring, as the poet did, what the origin of evil is, or to what standard conduct is to be referred." No, indeed—and why should they? Fancy Sir Edward Clarke treating the Judges to an inquiry on the origin of evil! "But they agree with him in extolling virtue as the highest of all things, in inculcating temperance and moderation"—and so on. Of course they do; for Euripides was a good man and they were good advocates.

And yet we repeat that Dr. Thomson has collected a quantity of interesting facts. What he has enabled the student to do is, first, to find at a glance what sort of commonplaces the Orators indulged in when they had occasion to touch on the "great problems," and, secondly, what views Euripides puts forward in his different plays on religion, politics, women, and so forth. That Euripides represents a later stage of Greek thought than is represented by Æschylus and Sophocles is obvious; and that fact does not receive any new light from the discovery that the Orators agree with him "in extolling virtue as the highest of all things, in inculcating temperance and moderation."

Not Euripides the preacher is to be compared with the advocates as a whole; but surely Euripides the rhetorician, the stylist. This task calls aloud for performance, and Dr. Thomson would, we are convinced, have performed it admirably. For he has all the patience necessary, and the gift of marshalling facts. Doubtless, too—it is, indeed, evident from his last chapter—he could draw important conclusions from facts from which any conclusions of importance were to be drawn. The present writer once attempted to make tables exhibiting the similarity of language used by Thucydides and Euripides, but was deterred from pursuing the task on hearing from an eminent American scholar that he was engaged in a similar work. It would be highly interesting to trace the resemblance in style and language between these two, and to throw in Demosthenes, not only as rhetorician, but as professed follower of Thucydides. But, when we come to opinions, it is manifest that the Orators, being good advocates, were, as a rule, bound to express, not their personal views on "great problems," but merely the views of the average Athenian. The only exceptions here would be the public harangues of Demosthenes and the exercises of Isocrates. These, no doubt, might be fairly compared as *teaching* with the teaching of Euripides; and so, in the comparison of opinions, we should get Euripides, Demosthenes in part, and Isocrates in part. To these we would attempt to add Thucydides in his speeches and reflections. And thus our programme would be complete in both parts, one part dealing with language, the other with thought.

On the whole, though Dr. Thomson's book is not what its title led us to hope, yet he has performed a service by making these collections.

R. H. QUICK.

The Life and Remains of R. H. Quick. By Francis Storr. (Cambridge University Press.)

Mr. Parkin's life of Edward Thring recently excited much interest in the educational world, and our attention is now called to the life of a not less interesting man, the late R. H. Quick. Though differing widely in character and in the circumstances of their life-work, these two men have much in common. Both have left permanent memorials of their work—Thring, in the great school that he created at Uppingham; Quick, in his "Essays on Educational Reformers." But the main interest in each biography lies in the vivid picture it gives of an original and taking personality, and the main value to the succeeding generation of teachers lies chiefly in what each man thought and said in his ceaseless struggle with what he felt to be wrong methods of education in this country. What they have in common is well expressed by Thring in a letter to Quick: "You are the only man I have met with who has not been a mere partisan in education, who has not looked at it through professional spectacles of more or less self-interest, and been a modernist because that was his line, or a classicist because that was his line; but has quietly looked and thought about what is best."

Quick had the habit of recording his thoughts on all sorts of current topics. The selections in this volume, we are told, are culled from forty note-books. Like other very sensitive persons, he had a way of depreciating himself. As John Bunyan wrote himself down the chief of sinners for playing tip-cat on a Sunday, as Carlyle in his lonely sorrow after his wife's death found relief in exaggerating or inventing his own shortcomings, so we might

suppose from Mr. Quick's references to his work in the school-room that he was an incompetent master. It is, we think, an open question whether the editor has done wisely to include such passages, though we admit that they cannot fail to endear the memory of a teacher so humble and so conscientious. There is plenty of evidence printed from other teachers and from pupils that, in spite of a certain occasional want of tact, he was both successful and beloved. The true explanation of any want of success that he may have incurred in the practice of his profession is probably to be found in frequent ominous references to headache and "brain-tiredness." It was his headaches, we are informed, that finally caused him to leave Harrow.

Quick held an assistant-mastership in several schools for short periods—Lancaster, Guildford, Hurstpierpoint, Cranleigh. Here he soon found a field for the exercise of his dominant critical faculty.

We cry up our business, and insist on the importance of education; and then, when boys are entrusted to us, we compel them to cram lists of useless words, and call that education! As far as I can see, no one here thinks whether one thing is better worth knowing than another.

But Quick, though not without some talent for grumbling, was pre-eminently a constructive critic. Widely read, even at that time, in German *Pädagogik*, he was amazed to find how narrow are the interests, how contractive is the mental horizon of an average assistant-master. From the first he perceived that no improvement in the educational method could be expected under a system that forced the men to shun the occupations and limit their interests wholly to those of the boys. The one thing necessary is that the master should receive some professional training, or, at least, should acquire some effective desire to know what other teachers are doing. At Harrow, where he was appointed to a mastership in 1869, he found a condition so remarkable that we must quote the words in which, in later years, he summed it up:—

Sainte-Beuve says that the University teachers of the middle of the sixteenth century have come to the worst stage possible, "la diversité dans la routine." This was very much the state of things when I was a master at Harrow. Every man taught just as he liked. No attempt was made at any uniform system, but men were so overworked that they could not get on without routine.

To the question of the training of teachers Quick naturally gave much attention. His notes on the subject are extremely interesting. We learn from them a good deal about the opinions and, to some extent, the methods of such eminent educationalists as Abbott, Temple, Eve, and Walker. Occasionally the reminiscences are diverting.

We had met to consider a scheme for a Training College for secondary masters. In the middle of the discussion, Temple said casually: "By the way, what have they of this sort in France?" Sir J. K. S. didn't know, but thought it didn't matter. "French education lies in ruins." I muttered, "*Ecole Normale Supérieure*," but not very loud. Like most Englishmen speaking a foreign language, I avoid false pronunciation as much as possible by not pronouncing the words loud enough for any one to understand them. Nobody else volunteered information, or seemed to think further information desirable.

Some time after leaving Harrow, Quick became Rector of Sedbergh and a governor of the school. Here his attention was given to another aspect of English education in the government of a school by a committee, and the difficulty of giving a life trustee an adequate motive for doing his duty.

Of the chief work of Quick's life, or at any rate of his literary work, we have singularly little in this volume. His book, written apparently after his leaving Cranleigh, attracted little attention in England, though in America it was pirated and sold largely. It took this country twenty years to find out its merits. The last years of his life were spent by Quick in literary retirement at Redhill. He had become a recognized authority on his subject, whose advice and whose books were always accessible. Foreigners in search of information (or a small loan), or American students of pedagogy, gravitated naturally to Redhill. He died somewhat suddenly in 1891, at the house of his friend, Prof. J. R. Seeley.

In this brief notice we have been able to draw attention only to some of the more prominent characteristics of a writer whose knowledge of the history of education was unusually wide, whose power of fructifying the best thoughts of past thinkers was equalled by his own power of origination. The excerpts in this book, ranging over all sorts of subjects—literary, religious, and educational—will be found of great interest by all who enjoy a

vigorous and candid treatment, not untouched by humour, of questions of the day and of personages in the educational world, many of whom are still living. Whether the latter will always equally enjoy these passages is another question.

MATTHEW ARNOLD AGAIN.

"Modern English Writers."—*Matthew Arnold*. By Prof. George Saintsbury. (Blackwood & Sons.)

Here is a new literary series which should be sure of a welcome from all whose taste is satisfied by daintily wholesome, studiously simple fare. "Modern English Writers" will be uniform in shape, length, and price with the publishers' "Ancient Classics for English Readers" and "Foreign Classics." The volume before us heads the list, and it is to be followed by "R. L. Stevenson," by L. Cope Cornford; "Tennyson," by Andrew Lang; "Ruskin," by Mrs. Meynell; "George Eliot," by Sidney Lee; "Browning," by Augustine Birrell; "Froude," by John Oliver Hobbes; "Huxley," by Edward Clodd; "Thackeray," by Charles Whibley, and "Dickens," by W. E. Henley. The assignment of the "Tennyson" and the "Froude" is, perhaps, in a measure, experimental; but we have no doubt that these ten monographs will, in any case, be thoroughly good reading.

Within the past two years we have had at least two small books on Matthew Arnold by Englishmen, and at least another two from America. That seems to be the natural outcome of Mr. G. W. E. Russell's authorized edition of Arnold's "Letters" in 1895. Prof. Saintsbury frankly admits that "Arnold, like other good men of our times, disliked the idea of being made the subject of a regular biography"; and he adds that "it seems to be a duty to confine oneself" to the information of the letters, to that which is already public property, and to "things literary." Things educational played a large part in Arnold's life, and, though Prof. Saintsbury passes over them somewhat lightly, he does not fail to present us with an estimate of the work and influence of Arnold in respect of education. He does not profess to be in sympathy with Arnold's educational views:—

It may undoubtedly be claimed for him—by those who see any force in the argument—that events have followed him. Education, both secondary and University education in England, has, to a large extent, gone since on the lines he indicates; the threatened superiority of the German bagman has asserted itself even more and more; the "teaching of literature" has planted a terrible fixed foot [!] in our schools and colleges. But, perhaps, the weight actually assigned to this kind of corroboration is rather imaginary. That a thing has happened does not prove that it ought to have happened, except on a theory of determinism, which puts "conduct" out of sight altogether. There are those who still, in the vein of Mephistopheles-Akinetos, urge that the system which gave us the men who pulled us out of the Indian Mutiny can stand comparison with the system which gave France the authors of the *débâcle*; that the successes of Germany over France in war have no necessary connexion with education, and those of Germany over England in commerce, diplomacy, &c., still less. They will even go further—some of them—and ask whether the Continental practices and the Arnoldian principle do not necessitate divers terribly large and terribly ill-based assumptions, as that all men are *educable*, that the value of education is undiminished by its diffusion, that all, or at least most, subjects are capable of being made educational instruments, and a great many more.

Mephistopheles-Akinetos may on occasion, it is only too evident, become serious enough for the rôle of "Athanasius contra mundum," for on these "terribly ill-based assumptions" is built "the system which gave us the men who" organized English labour, reconciled the United States, redeemed Egypt, stamped out fanaticism in the Soudan, withstood Jingoism, maintained free trade, stood fast for peace and arbitration, quintupled the readers of the best English literature, filled the technical institutes, depleted the gaols, and brought us as a nation (so the magistrates and police are telling us) almost within sight of the goal of national temperance. Does this look like the value of education being diminished by its diffusion?

Prof. Saintsbury interests us a good deal more with his appreciation of Matthew Arnold as a man of letters and a critic. He is quite sufficiently discriminating—indeed, we can hardly say if it be discrimination—to speak of Arnold's playing "the part of Chesterfield-Socrates, to the diversion of some, to the real improvement of many, but a little to his own disaster." That note is often struck; but, at any rate, we should not have preferred a mere eulogy, and, if Prof. Saintsbury seems occasionally to lack the sympathetic touch, he is not conventional in his estimate. In fact, this volume is full of stimulation, and keeps its readers ever on the alert.

A SCOTTISH PHILOSOPHER.

"Famous Scots Series."—*James Frederick Ferrier*. By E. S. Haldane. (Oliphant, Anderson, & Ferrier.)

The "Famous Scots Series" grows apace and has now reached the twenty-eighth volume. The biographies of Hume and Reid have previously appeared, and we have here a further contribution to the history of the Scottish schools of philosophy. Historically, a life of Sir William Hamilton might fitly have preceded this work. Ferrier marks a stage when the authority of English philosophers was fast disappearing before the wave of German thought that was soon to engulf it. Sir William Hamilton was but slightly affected by the results of German metaphysical inquiry, but Ferrier—about twenty years his junior—having spent some time in Germany, was, as Mr. Haldane says, probably more influenced by German thought than he was himself aware. Although Ferrier's lectures were held in high esteem in his day, it seems clear, from the many appreciations of his learning and character by contemporaries, that his power over his students was derived more from his enthusiastic and sympathetic character and bearing than from a deep or subtle intellect. This is, doubtless, the secret of his high reputation as a teacher, and of the affection felt towards him by his students. His wife's playful summing up of his philosophy—that "it made you feel that you were sitting up on a cloud with nothing on, a lucifer-match in your hand, but nothing to strike it on"—had doubtless a substratum of truth. But we fear the teaching of many other philosophers is open to the same criticism. If the problem of the true relation of mind to matter and of the universe to the soul was not simplified by Ferrier's inquiries, they were amply justified by the effect upon his own character, and by its influence on all who knew him. After all is said, a philosophy must be judged from an individualistic standpoint; and later developments in philosophy, as in science, are not a fair test of the value of a man's teaching. This book is a very readable and worthy addition to the series.

SHREWSBURY SCHOOL.

Annals of Shrewsbury School. By George William Fisher, M.A. (Methuen.)

Three headmasters have presided over Shrewsbury during the nineteenth century—Samuel Butler, B. H. Kennedy, and H. W. Moss; and, throughout the whole of this time, the exceptional distinction of the school has been maintained from year to year at the highest pitch. It is not long since we noticed Mr. Butler's excellent "Life and Letters" of his grandfather, who raised Shrewsbury from a day of small things to its later splendour, and refounded it upon solid and enduring traditions of classical scholarship. Mr. Fisher makes good use of those volumes for the period to which they refer, and adds a thoroughly genial and appreciative account of the pioneer headmaster. Dr. Kennedy's thirty years are adequately recorded. Kennedy, of course, was a pupil of Butler's, just as Mr. Moss (after an earlier career at Lincoln) was a pupil of Kennedy's. The latter was head boy of the school at the age of fifteen, and eventually, like two of his brothers and his nephew Mr. Justice Kennedy, Senior Classic at Cambridge. He became headmaster in 1836, and in 1841 the numbers in the school had fallen to less than half of what they were in Butler's best days. After the foundation of Cheltenham, Marlborough, and Rossall, there were rarely as many as a hundred and thirty on the books, and at one time the number was as low as eighty. Yet within the thirty years from 1841 to 1870 Shrewsbury had thirty-seven men in the first class of the Classical Tripos, of whom nine were Senior Classics, twelve were University Scholars, eight were Chancellor's Medallists, eighteen took the Brown Medal, nineteen the Porson Prize, three the Camden Medal, and eight the Members' Prize, whilst fourteen were firsts at Oxford. It is a marvellous record—as good in its way as Butler's.

The experiment of appointing as headmaster a young man less than two years after his graduation and within six years of his leaving the school—which was the case with Mr. Moss when he succeeded Kennedy in 1866—was a bold one; but it has been amply justified. The high standard of Shrewsbury has not been lowered under its present head. In his first fifteen years there were twenty-two firsts at Cambridge, including two Senior Classics and three Chancellor's Medallists. The new school buildings at Kingsland were occupied in 1882, and the governing body which effected the removal—not without considerable opposition from the town residents and Old Salopians—have modified the statutes and regulations of the school in many important particulars. It may be fairly said that

Shrewsbury has reached the high-water mark of its efficiency as a classical school with a modern side, and with all the adjuncts and appliances which we are accustomed to look for in our public schools, including a splendid chapel built in memory of Kennedy, large playing fields, a great hall 120 ft. in length, ample classrooms, laboratories, drawing schools, a gymnasium, two libraries, assistant-masters' rooms, a common room for day boys, and so forth.

Mr. Fisher died before the publication of his book, and his labours have been supplemented by Mr. Spencer Hill, who has added sundry items to the very interesting appendix.

A PRIVATE VENTURE.

Memories of Half a Century. By Richard W. Hiley, D.D. (Longmans.)

Dr. Hiley may be remembered by some of our readers as having succeeded his father, the writer of a considerable number of school books, in the headmastership of a private school at Thorparch Grange, near Tadcaster, in Yorkshire. He himself took his degree at Oxford, and was for some time an assistant-master under Dr. Howson at Liverpool; he settled down at Thorparch in 1861, and carried on the school to the end of 1889. He does not claim to have made it a financial success; on the contrary, he tells us that he sold for £3,500 what had cost him £15,000. The story of his life is related in this substantial volume with the utmost candour and simplicity, and it reflects the troubles and difficulties of hundreds of men who have spent their private fortune in an effort to found and maintain a high-class secondary school, and have been obliged to confess in the long run that they could not guarantee its efficiency, or even its continued existence. When a private-venture school is successful, nothing can be more independent, more pliable as an instrument, more adapted for the employment of special methods and systems of training. But the profession of a private schoolmaster is often extremely precarious; and Dr. Hiley offers his experience as a document for the use and warning of others.

We cannot say if the reader will find the story in any way self-explanatory—whether, for instance, he will see any connexion between defective syntax and a deficiency of pupils. Dr. Hiley writes very freely and copiously, but we are bound to say that, for an Oxford man and a Doctor of Divinity, his English is peculiar. "On a pause in any debate, and a speaker was desired . . ." "By constant reading newspapers and magazines . . ." "He was also for a time one of the Yeomen of the Guard, or some post of that character; but, being unable to complete the purchase, the occupation ceased." These phrases, together with a remark on the Oxford "Little-go," occur in the opening of two pages taken at hazard. That is all which need be said by way of criticism; it is far more pleasant to add that these four hundred good-sized pages are full of gossip and anecdote, which we owe to the author's life-long habit of putting down all the good things which he heard in the course of his earthly pilgrimage. Some of his gossip about individuals is just a little risky, and some of it, inevitably, is of the threadbare sort which does duty over and over again in connexion with a hundred different people. The venerable story of the American visitor and the obtrusive spittoon is here located in the house of a Liverpool merchant. We have noticed a few other "chestnuts," but they will not interfere with the reader's enjoyment of a lively and chatty volume. As an autobiography it cannot be called important; its meditations are not profound, and Dr. Hiley does not seem to have had much insight or initiative as a private schoolmaster. But he chats and gossips, and when a man does that he stands a very good chance of being read.

GENERAL NOTICES.

CLASSICS.

A Greek Anthology, being Passages from the Greek Poets, chosen by E. C. Marchant, of Trinity College, Oxford, and Peterhouse, Cambridge (Methuen), contains selections from twenty-seven poets. Much of the finest ancient poetry, Mr. Marchant tells us, "moves our admiration, and yet at the same time does not interest us. This happens whenever the subject handled by the poet has ceased to excite our sympathy." Of such poetry very little is admitted in this Anthology. Alcman is wholly passed over, while Alcæus and Anacreon are not represented by their most characteristic work. The reason for this apparent neglect is, not that their art is inferior to that of Solon or Theognis, for example, but rather that "wine and wantonness are no longer the subjects

in which men of cultivated mind find an absorbing attraction." The dramatists are well represented, as also are Hesiod, Pindar, and Theocritus. The choice of pieces is altogether admirable, and the book will serve thoroughly well as a reader, for translation at sight, or for repetition. There are also some excellent notes, conspicuously literary.

Cicero, Pro Cluentio, edited by W. Peterson (Macmillan), adds yet another valuable book to the popular "Red Series of Classics." Indeed, Principal Peterson's contributions to our knowledge of this difficult speech merit more than a general and cursory notice in this column. The circumstances of the case, the part played by the various rascals who come into the problem, the language in which Cicero has clothed his subtle and caustic defence, the manuscripts in which that language is more or less preserved—everything, in fact, connected with this awful tale of depravity and crime—bristles with difficulties. On all of these new light is here shed; and Dr. Peterson has more than justified the claim of his book to existence, even after the well known editions by Mr. Yorke Faussett and the late Prof. Ramsay. From the many ingenious suggestions of the editor may be singled out a very attractive theory, that the text has been contaminated with what he terms "index words," such as "agitur causa," "queritur se ab Oppianico destitutum." The theory is not wholly new, but we do not remember to have seen it so distinctly put forward. The commentary is full of interest, replete with acute explanations, and a very store-house of the knowledge accumulated by others. We venture to add a note on a much-discussed passage in the eighty-first section. Cicero represents the prosecutor of Oppianicus as denying that he had used money to get a conviction in these terms: "Condemnatum adducebam, ut ne cripi quidem pecunia posset." Dr. Peterson decides with Mr. Faussett for rendering: "Oppianicus was (practically) a convicted criminal when he came into court; why, it would have been beyond the power of bribery even to balk justice of her lawful prey." The objection to this explanation is that the prosecutor wants to impute bribery to Oppianicus, and he hardly supports his point when he admits that Oppianicus could not have got himself off with bribes. Dr. Peterson justly calls this objection "apparent rather than real"; but we do not think that Mr. Faussett, or even he, has fully grasped the wholly sophistical nature of the argument used. If a man is *condemnatus* already, he may try to extricate himself (*eripi*) from the condemnation already passed by bribery; but he cannot make himself *non condemnatus*. Cicero says then, "the prosecutor need not use bribery against a condemned man, who found he could not even extricate himself from the penalty practically pronounced on him by bribery." The point is, of course, valueless, except as sophistic. The orators of Athens and Rome were addicted to discharging blank cartridges, which, though perhaps they had little real effect, doubtless made plenty of noise and raised a deal of smoke.

Satura Grammatica, or Latin Critical Notes, by E. G. A. Beckwith (Bell & Sons), though professedly "a mere collation of notes," should prove of real service to the Army candidate and those who are looking forward, more or less, to the London Matriculation, the various Locals, or the Pass Examinations of the great "seats of learning." The ordinary rules—the things with which Mr. Beckwith has found, lucky man, that "the student for some reason is generally conversant"—are omitted. But the real "tips" that the pass examiners delight in—a knowledge of any one of which is apt, we have found, to make the "passee" wild with joy—they are all in the book, all tersely explained and printed in good prominent type: *antequam* and *jamdudum* and *nedum*; *quominus*, *quia*, and *quin*; *winds*, *wishes*, and *time* (we do not find *place*). There are blank pages, too, on which the *passee* may make notes of his own! In the examination known as the "Little-go," a round hundred marks go for Latin grammar. But fifteen is the total that passes; and, if the candidate cannot make them off Mr. Beckwith's bowling, he is past praying for. Seriously, the compiler has provided a collection of grammar notes that seems admirably adapted to its purpose.

Cicero's Catiline Orations, edited by C. H. Keene (Blackie), is a new volume in Messrs. Blackie's "Elementary Latin Classics," issued under the general editorship of Prof. Tyrrell. We have already expressed approval of the series as a whole; and, though we are bound to qualify that approval with the statement that the books, so far as we have tested them, are rather over-elaborate for an elementary series, we can honestly praise Prof. Keene's notes as well suited for their purpose. The introduction, extending to forty-six rather close pages, seems to us altogether too long, and the wood-cuts are not of much interest. Critical notes also appear to us to be out of place in elementary books. It is possible to kill with too much kindness.

The Odes of Horace, Book II., edited by Stephen Gwynn (Blackie), is another volume in the same series, and is good on the whole. Mr. Gwynn is not always quite clear. Thus, his note on *patrix essul* leaves the reader to guess whether *patrix* is genitive or dative; and, in his otherwise useful appendix on "Me truncus illapsus cerebro susulterat," he does not point out that the licence of the construction consists in the omission of *pæne* or a similar qualifying adverb.

An Introduction to Greek Prose Composition, by H. Pitman (Macmillan), is a progressive exercise book intended to lead from the simplest

form of sentence up to easy continuous pieces, to bring a beginner to the point where he may pass on to a more advanced book, such as Mr. A. Sidgwick's "Greek Prose Composition." The exercises are preceded by chapters on grammar that correspond with them, and must be used *pari passu* with them. This book, conscientiously used, will enable the learner to master all the important sentence-forms; and the plan of combining syntax with exercises is to be commended. The scholarship shown in the book is adequate, though not wide.

Forum Latinum, a First Latin Book, by E. V. Arnold (Edward Arnold), seems to labour under the disadvantage of being the work of a University professor and not of a practical schoolmaster. Like several other exercise books, Greek and Latin, written by considerable scholars, it is far too long, and attempts too much. Instead of driving broad lines through the subject, Prof. Arnold wanders into all the sidings of Latin syntax. The book, it is true, is designed for those "who begin Latin at a rather later age than has hitherto been usual"—perhaps, we venture to suggest, for the kind of pupils with whom Prof. Arnold so ably deals. In any case, we fear the book is of no use to schoolmasters. It contains about five hundred long exercises, and is closely printed. In some University colleges it may serve its purpose.

Higher Greek Prose, by H. W. Auden (Blackwood), goes from simple narrative passages to such pieces as might be set for entrance scholarships at the Universities. But these passages are preceded by (1) hints on composition, which contain much that is useful, but are, to our thinking, a little too discursive; (2) a collection of sentences for putting into Greek, intended to revive the pupil's knowledge of the idiom and language before he starts fair on the passages. A special and commendable feature is an excellent English-Greek vocabulary. On the whole, this manual is deserving of much praise. Mr. Auden, as usual, has done his work thoroughly. Of course this is not an *introduction* to Greek prose, so that there are but few syntax rules in the introduction; and some of these even might, perhaps, have been dispensed with. Certainly the remarks on writing and accents will be superfluous to any one who can use such a book as this intelligently.

A Handbook of Translation: Latin, Part II. (Stanford) is part of a new edition of a book that has been long before the public, and has been widely used in schools as an "unseen" book. Time was when the Greek and Latin were bound together in one modest volume. Now the Latin alone has overflowed into two volumes. Most of the passages are taken from papers set to candidates for scholarships at the Universities or for the Civil Service. The book is, therefore, an advanced manual—too difficult for ordinary class use; but it will be found useful by those for whom it is intended.

Vergil: Aeneid II., edited by A. Sidgwick (Cambridge University Press), is a new volume in the series for schools and training colleges. Substantially, the book is taken, with the addition of a vocabulary, from Mr. Sidgwick's well known school "Vergil." There is a list of Homeric parallels, and a scheme of the subjunctive, with references to the book. "C." is Conington; but we cannot find that the editor says so. As "V." = Vergil, the intelligent student may be concluding that "C." = Cæsar.

Euripides: Hecuba, edited by T. T. Jeffery (W. B. Clive), we gladly praise for its practical sense; but the notes should have been revised by a good scholar. It is late in the day to be explaining *ὁσθ' ὄνδ' ὄρασον* (which means simply "you know what you must do") as an *ellipse*. Mr. Jeffery is not familiar with the use of *ὄρε* after *ἀκούω*, *οἶδα*, *μνήμημαι*, and as found in the "De Corona"; he is not sound on the Greek negative (e.g., his note on line 235 is mistaken). On line 614, he says that *προθήσομαι* is to be supplied to *έχω*, whereas the sentence is in reality merely continued from the preceding *προθῶμαι*, as our readers will perceive:—

ὡς παῖδα λούτροις τοῖς πανυστάτοις ἐμῆν
νύμφην τ' ἐνυμφον . . .
λούσω, προθῶμαι θ'—ὡς μὲν ἄξια πόθεν;
οὐκ ἂν δυναίμην—ὡς δ' ἔχω.

Space prevents us from pointing out other errors in the grammatical comments.

Caesar: Gallic War IV., edited by A. H. Allcroft and T. B. Mills (Clive), is a very satisfactory piece of work which calls for no special remark.

SCIENCE.

Elementary Physics and Chemistry. By R. A. Gregory and A. T. Simmons. (Macmillan.)

This book is intended for the higher standards of elementary schools in accordance with a recent scheme in the Code. The experiments are carefully arranged for inexpensive apparatus, and the arrangements and style show practical acquaintance with the conditions of elementary science teaching. The boy or girl who works through the practical course here set out and the accompanying readings will acquire both knowledge and education of a valuable kind.

Measurement and Weighing. By E. Edser. (Chapman & Hall.)

This contains the author's first year's course in experimental physics at a school of science. He regards practice in accuracy of measurement and the concrete illustration of mathematical conceptions as the main objects of such a beginner's course. The book

gives instructions for ninety-one well chosen experiments, under which head are included graphic calculations and the plotting out of curves. They deal with length, area, volume, mass, and density, to be measured in a variety of ways. A list of the complete set of apparatus required should have been given.

Practical Work in Physics. By W. G. Woolcombe. Part IV., *Magnetism and Electricity.* (Clarendon Press.)

This volume completes the series of four, of which the earlier ones have already been noticed in these columns. It deals with measurements of magnetism and current electricity and their associated phenomena. Electrification phenomena have no place in it. While necessarily more technical in character, it maintains the standard of its predecessors.

A Text-Book of General Physics. By C. S. Hastings and F. E. Beach. (Boston, U.S.A.: Ginn & Co.)

This work of over seven hundred and fifty pages has all the good features of the series to which it belongs—accuracy of presentment and clearness of type and illustration. Its severity of method, however, renders it unsuitable for beginners, and its proper place is in the library of a physical laboratory for more advanced students, to whom it will serve as an introduction to more elaborate studies in the special branches of physics.

A Laboratory Manual in Astronomy. By Mary E. Byrd. (Boston, U.S.A.: Ginn & Co.)

The publication of such a work as this seems to indicate that utilization of the heavens for educational purposes is much more usual in the United States than in Britain. To any teacher who wishes to train his pupils in accurate observation of the stars and planets we can recommend this book; he will find it highly suggestive, with abundance of methods to choose from.

"University Tutorial Series."—*An Introduction to the Carbon Compounds.* By R. H. Adie. (Clive.)

The subject of organic chemistry does not, perhaps, lend itself to lucidity of treatment, especially when, as in the present case, rigid economy of space seems to be a primary object of the author. There are here instructions for fifty-five experiments on carbon compounds, selected to cover the requirements of the Intermediate Science and Preliminary Science London Examinations and the first M.B. of Cambridge; but the accompanying reading does not rise to the same level of clearness and interest as in some of the other books on chemistry in this series.

A Course of Practical Chemistry. By M. M. Pattison Muir. Part II. *Intermediate.* (Longmans.)

The second part of this course includes the various methods of volumetric analysis, the preparation of certain compounds and the study of their reactions, the qualitative analysis of mixtures of salts, the determination of equivalent and molecular weights, and gravimetric analysis. Like its predecessor, it is an eminently practical work.

Elementary Physiology. By Benjamin Moore. (Longmans.)

The author has aimed at giving a bird's-eye view of the subject which can be followed by those with no previous knowledge of physiology. In this he has succeeded on the whole, though now and again we find terms used without previous explanation. The book goes deeper into the matter than is usual in books of the same title; it is illustrated with very clear diagrams, and altogether can be recommended as answering its purpose.

MODERN LANGUAGES.

French as Spoken. Being the "Thirty Exercises" on French Pronunciation taught on the Plain-English System. By E. A. Williams. (Burleigh.)

It is a painful duty to review a book like this. The author calls it "the natural rival of the phonetic method advocated by the Association Phonétique." There have been many such "rivals" before the appearance of this plain-English method, an attempt being made to represent the foreign words by using the English letters. We remember seeing something of the kind quite twenty years ago: *j'expire*, so we were told, was to be pronounced like *Shakespeare*. More recently, the "imitated pronunciation" in a number of books published by a well known firm has caused amusement. Perhaps, however, no one yet has made as systematic an attempt as Mr. Williams. It is quite evident that he has given much time and thought to the writing of this volume. We cannot deny him a certain amount of ingenuity and some power of observation. But it is woefully misapplied—a warning example to all who do not realize the importance of becoming acquainted with the more salient results already obtained by other workers in the same field. Mr. Williams can have given but little attention to the meritorious work of the Association Phonétique; otherwise, he would have recognized that it is quite impossible to utilize the English letters for showing the French pronunciation. We shall only point out a few of the many misleading statements and transcriptions. Comments will be superfluous for those who have had any phonetic training. "The circumflexed *d* has a long, open sound." *Le collègue* is to be pronounced *look or leg*; *l'herbe sèche*, *lairb sesh*; *un élève*, *urn ay lev*; *la fontaine*, *luff orn ten*, &c. Exercise III. "will

betray the fact that *ai* in French is not like *ai* in English, though it is like some other English sound." "There are two ways of pronouncing the consonant *r* in France. One way is the *trilled r* (*R roulé*), such as we hear among Scotch people; the other is that which may be called the *smooth r*." Examples given: with *smooth r*, *hardi* is to be pronounced "acker dee" ("pass over the *ck* without pronouncing it, but pronounce the rest of the word as if every letter were sounded"); with *trilled r*, "arra dee" ("pronounce the *a* as little as possible"). In the word *table*, "the ending is not 'l, but -loo (as in *look*)." We give a few more transcriptions: *l'histoire*, *least wire*; *vous voyez*, *voov v'why-ai* (this, and the treatment of *r*, show that Mr. Williams uses southern English speech). We have given so much space to this book because we wish to make it clear to teachers that it is written on entirely wrong lines, and cannot be relied upon to supply "a remedy for the bad pronunciation of French which exists in nearly all schools." It is also claimed in the preface that "the exercises contain a good deal of idiomatic French phraseology." We have found very little, indeed, that could be so described.

Le Trésor de Monte-Cristo. Edited by B. Proper. (Blackie.)

This, of course, makes a very good reader for boys, who rightly pay more attention to the plot than the style. The text runs to about seventy-five pages, in clear type, and carefully printed. There are a few respectable full-page woodcuts, by some French artist. The notes only cover four pages. Certainly the book is one to be read quickly, and might, indeed, be set for private reading, or as a holiday task. The vocabulary is fairly satisfactory, but not quite complete; thus, on page 79, we find the words *acheter*, *condition*, *don*, *impatience*, *livrer*, *loin*, *moment*, *vendre*, *village*, not one of which occurs in the vocabulary; "to pay" is not given as a meaning of *compter* (page 79, line 28), and the use of *mieux* as a substantive (page 79, line 8) is ignored.

Illustrated First Conversational French Reader. With Notes and Full Vocabularies. By T. H. Bertenshaw, B.A., B.Mus. (Longmans.)

We have here a collection of thirty-five simple reading lessons, freely illustrated, with the liaisons marked throughout, and a serviceable grammatical apparatus. It is a book which may be recommended as a first French Reader in English schools.

Cassell's Lessons in French. By L. Fasquelle, Prof. De Lolme, and Prof. E. Roubaud. (Cassell.)

The new edition of this book has been revised by Mr. Boiëlle, and "it is now in all respects suitable for the Oxford and Cambridge Local Examinations, the College of Preceptors' Examinations, or the Queen's Scholarships." Each lesson has been brought within the compass of an hour's work. A book which is in its 145th thousand requires no further recommendation; such popularity speaks for itself. It is undoubtedly a good example of the old method, which makes the early teaching revolve round the grammar. The text has been reset with some care, but (perhaps owing to the paper employed) the "machining" seems to have given some difficulty, with the result that some pages are too black, others too pale, and a good many smudged.

Hints on French Syntax. By F. Storr. (William Rice.)

In this (the seventh) edition of his useful "Hints" Mr. Storr has supplied an appendix, containing about a hundred easier examples for translation. They are well chosen, and many teachers will be glad to have them.

Johanna Spyri: Rosenrösli. Edited by Helene H. Boll. (Isabiter.)

A very short story (29 pages) by the well known author of "Heidi." It is a sweet tale of country life, healthful and simple, which children will be sure to read with pleasure. The notes are adequate, and there is a vocabulary to each page. It is rather amusing to see the references to M.H.G. and O.H.G. in the notes. In England we have recognized that they are quite out of place in elementary reading-books. What is the good of burdening a child's memory with the statement that *gefallen* used to be *gifallan*? Some of the notes on grammar are queerly worded—e.g., "*freundlich*, *freundliches Wort*. The ending of adjective after indefinite article *ein*, nominative and accusative cases, *neuter* gender, the ending '*es*' is attached to adverb to form adjectives."

C. Deslys' Benjamin. Edited by F. Julien. (Longmans.)

An exciting tale, which will be read with interest, in spite of its manifest improbabilities. The text is printed in clear type. We have noticed a few slips: e.g., *tâche*, on page 11, line 25; *effort*, on page 16, line 2; *brulant*, on page 76, line 32. The notes give a good deal of translation, and of elementary grammar. We miss a note on the order of words in *tout de noir vêtu* (page 3, line 10), and *l'un à côté de l'autre assis* (page 8, line 8). The rendering "a kind of circus forming a grove," is not very happy. According to the title-page, the vocabulary is "comprehensive." To test this, we took a page at random: in ten lines there were no less than fifteen words not given in the vocabulary.

MISCELLANEOUS.

Roman Africa: Archaeological Walks in Algeria and Tunis. By Gaston Boissier. Authorized English version, by Arabella Ward. With four Maps. (G. P. Putnam's Sons.)

M. Boissier's archaeological works are sufficiently well known to

English readers without any further introduction. Their translators have not all been equally happy; but Miss Ward seems to have performed her task with adequate care and much success. The present volume deals with the parts of northern Africa which came under the dominion of the Romans, including the Numidian country, Carthage, and the neighbouring settlements, with sundry cities of which we have now but slight traces, either in stone or in written records. The author treads an almost unbroken track (except in so far as the city of Carthage is concerned), and his readers will find him a pleasant, if somewhat discursive, guide.

"The Story of the Nations."—*Modern England under Queen Victoria*. Two volumes. By Justin McCarthy, M.P. (T. Fisher Unwin.)

For the ordinary purposes of reading, and even for school work of a less exacting and formal kind, Mr. McCarthy's volumes, though rather, loosely written and queerly illustrated, will be found by no means inappropriate. They present an easy and attractive narrative of the chief events of the past sixty-two years, told without heat or prejudice and in a manner well calculated to interest an intelligent reader. Mr. McCarthy has touched on so many details that he can rarely allow himself space for more than the briefest abstract. Six pages have to suffice for the literature, science, and art of sixty crowded years. But so much as could be done on such a scale has been done remarkably well.

Analysis of English History. By W. C. Pearce and Dr. S. Hague, LL.B. Revised by W. F. Bangust. (Murby.)

This is the ninety-third edition of a well known and serviceable compendium of English history, revised and brought up to date. We could not dispute its utility as a cram-book.

The Merchants' Handbook of Money, Weights, and Measures, and their British Equivalents. By W. A. Browne, M.A., LL.D. (Stanford.)

The fifth edition of Dr. Browne's valuable handbook (650 pages) of coinage tables and tables of weights and measures. As a book of reference, it is remarkably comprehensive. As a test, we look for information on the market price of silver, and find that the standard ounce has fallen steadily in value from 60'5d. in 1870 to 27'125d. in 1897. The Mint price is maintained at 66d. per ounce; so that the seignorage accruing to the State has risen from 9'09 per cent. in 1870 to 136'77 per cent. in 1897.

Commercial Correspondence. By E. H. Coumbe, B.A. Lond. (Effingham Wilson.)

Mr. Coumbe seeks to provide a practical manual for the use of junior clerks and foreigners who are learning English. He supplies hints on composition, explanations of business terms, and a large number of specimen letters, together with miscellaneous information on the subjects with which the letters deal. The author is very much up to date; he "wires" and he "phones"; he revels in "same" and "such," and makes many sacrifices in order to put himself in touch with the junior clerk. To be businesslike, it is *not* necessary to be ungrammatical or even bald—as "we cannot agree the entry of 18th November"; "you deduct £—, which we find alludes [!] to several different transactions, but on carefully going over same . . ."; "we shall be pleased to have an opportunity of quoting you again." Apart from these things, which are doubtless a matter of shibboleth, Mr. Coumbe's book is fresh and serviceable.

A Short History of England. By Mark Hunter, M.A. (Madras: Srinivasa, Varadachari, & Co.)

"This book is prepared specially to suit the requirements of high-school classes in the Madras Presidency." In what respect the requirements of the high-school classes in the Madras Presidency differ from those of high-school classes in other parts of India we are not informed. We gather from a perusal of the book that they involve a knowledge of many minor details which we should have thought unnecessary for students in any part of India, but that at times a very general sketch is thought sufficient. For instance, the wars of the Saxons are treated in more detail than those of Charles I. and the Parliament; and in a comparatively lengthy notice of the French Revolution the only actors in it thought worthy of mention are the King, Queen, and Bonaparte. It is in this way that the author seeks to carry out the somewhat enigmatic ideal set forth in the preface, "not to burden the beginner's memory with a multitude of facts, but to awaken his interest in the facts admitted by pointing out their significance."

Northern English: Phonetics, Grammar, Texts. By R. J. Lloyd, D.Lit. (David Nutt.)

This is one of Professor Viator's "Skizzen lebender Sprachen." It is a convenient illustration of the newer development of scientific phonetics, and is certainly stimulating, whether one can see eye to eye with the writer or not. We note (at hazard) that Dr. Lloyd uses the same character for the vowel sound of "once," "was," and "would" (pp. 89 and 91). But one of these is evidently a misprint.

"The Books of the Bible."—*The Book of Judges*. Edited by the Rev. H. F. Stewart, M.A. (Livingtons.)

A very interesting treatment of one of the most interesting books in the Old Testament. We have a good introduction, good notes, and a

map, with an appendix of "changes made by the Revised Version in the Book of Judges."

Two Aspects of Education. By Lucy H. M. Soulsby. (Longmans.)

There is much common sense in this little pocket volume. The chapter on "Self-Control" has many valuable thoughts.

Philips' Brushwork Copy-Book. By Elizabeth C. Yeats. With Hints and Instructions. (Philip & Son.)

A good series of copies in a handy oblong, stiff-backed volume. The examples might have been a little more carefully graduated; but, on the whole, this work is admirably conceived, and will be found very serviceable for its purpose.

Parsing and Analysis Scheme. By Rev. Sydney C. Tickell. (Newmann.)

This is a sort of tabular English grammar, and it is called "a new grammar" on the title-page. Too elaborate for students learning to parse and analyse, it is still suggestive and helpful in its way. But we fear it falls between two stools—the stool of the learner who would be puzzled by it and of the teacher who does not need it.

WE HAVE ALSO RECEIVED the following publications and new editions:—

The Code for Day Schools, 1899-1900, edited by Herbert Cornish (Grant & Co.).

An Apology for the Intermediates (for Boys), by Maurice C. Hime, M.A., LL.D. (Simpkin, Marshall, & Co.).

Black Beauty, the Autobiography of a Horse, by Anna Sewell (Jarrold & Sons)—a re-issue of a pleasant reading book about horses.

Practical Problems in Arithmetic for Course B, Standards III. and IV. (Blackie & Son.)

The Art Portfolio, containing four Photogravure Reproductions of National Art Treasures, Part III. (Simpkin, Marshall, & Co.)—good samples, which will bear framing: "produced entirely in England."

The Vivid Map-Sheets (A. G. Dawson)—bold outlines, on hanging cards.

The Oxford Shorthand, No. 2, The Book of the Vowels (Oxford Shorthand Company, Dover)—fifteenth edition.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held at the College, Bloomsbury Square, on June 17. Present: Dr. Wormell, Vice-President, in the chair; Rev. R. Allott, Miss Bailey, Rev. J. O. Bevan, Mr. Bidlake, Mr. Brown, Dr. Buchheim, Mr. Butler, Mr. Charles, Mr. Chettle, Mr. Eve, Miss Jebb, Mr. Millar-Ingles, Mr. Pinches, Mr. Rule, Mr. Sergeant, Rev. T. W. Sharpe, and Rev. J. Stewart.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the number of entries for the forthcoming Certificate and Junior Forms Examinations, to take place on June 27-30, was about 6,100, and the entries for the following Diploma examination about 180.

A letter from the President of the Medical Council, conveying the observations of their Education Committee on the letter and "Memorandum" which had been forwarded to him on behalf of the Council of the College, was referred to the Examination Committee for consideration and report.

A memorial was directed to be sent to the Duke of Devonshire, setting forth the claims of the College to be recognized for the purpose of inspection of secondary schools.

Mr. P. A. Barnett, M.A., was appointed to deliver the autumn course of lectures to teachers on the Practice of Education.

The Report of the Examination Committee was adopted.

The Draft Report of the Council to the General Meeting was considered, and referred to the President, Vice-Presidents, and Dean for final revision.

Mr. W. G. Rushbrooke, LL.M., Headmaster of St. Olave's School, Southwark, was elected a member of the Council.

The following persons were elected members of the College:—

Mr. L. H. Moonen, B. Æs L., 6 College Villas Road, N.W.

Mr. F. Quickfall, A.C.P., 52 Upper TOLLINGTON Park, N.

The following books have been presented to the Library since the last meeting of the Council:—

By the AUTHOR.—Abbott's Das System der englischen Lehrerbildung.
By Mr. EVE.—Higham's Scott's Ivanhoe (Black's Continuous Readers); Strong's Shakespeare's Merchant of Venice; Thomson's Homer's Odyssey, Book IX.

By G. BELL & SONS.—Beckwith's Satura Grammatica.
By BLACKIE & SONS.—Gwynn's Horace, Odes, Book II.; Keene's Cicero's Catiline Orations; Proper's Dumas' Le Tresor de Monte-Cristo; Smith's Shakespeare's King Henry VIII.

By W. B. CLIVE.—Jeffery's Euripides' Hecuba.
By HACHETTE & Co.—Meissner's German Prose Composition.
By MACMILLAN & Co.—Peterson's Cicero, Pro Cluentio.
By NEWMANN & Co.—Tickell's Newmann's Parsing and Analysis Scheme.
By the OXFORD SHORTHAND Co.—The Book of the Vowels.
By RILEY BROS.—Irvine's British Possessions and Colonies; Knight's First Algebra; Perrault's Contes des Fees.
Supplement to the R. U. I. Calendar for 1899

MATHEMATICS.

14157. (REV. T. MITCHESON, B.A.)—A straight line is drawn from O, the intersection of the directrix and the axis of x , meeting an ellipse in P and Q, so that OP = PQ; show that the length of the chord PQ = $\frac{b^2(17a^2-9b^2)^{1/2}}{4a(a^2-b^2)^{1/2}}$, and its inclination to the major axis is $\cos^{-1} \frac{3a}{(17a^2-9b^2)^{1/2}}$.

Solution by G. BIRTWISTLE, B.Sc.; F. H. PEACHELL, B.A.; and the PROPOSER.

Oy is directrix, Cx major axis. Equation of ellipse referred to Ox and Oy as axes is

$$\frac{1}{a^2} \left(x - \frac{a}{e} \right)^2 + \frac{y^2}{b^2} = 1,$$

or $\frac{1}{a^2} \left(r \cos \theta - \frac{a}{e} \right)^2 + \frac{r^2 \sin^2 \theta}{b^2} = 1.$

Therefore $r^2 \left(\frac{\cos^2 \theta}{a^2} + \frac{\sin^2 \theta}{b^2} \right) - \frac{2r \cos \theta}{ae} + \frac{b^2}{a^2 e^2} = 0$

or $Ar^2 + 2Br + C = 0.$
If r_1 and r_2 are roots of this, $r_1 = OP, r_2 = OQ$; therefore $r_2 = 2r_1$;

therefore $2r_1^2 = \frac{C}{A}, 3r_1 = \frac{-2B}{A}$; therefore $9AC = 8B^2$;

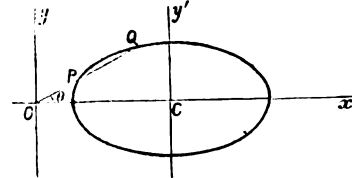
therefore $8 \cos^2 \theta = 9b^2 \left(\frac{\cos^2 \theta}{a^2} + \frac{\sin^2 \theta}{b^2} \right)$;

therefore $8a^2 \cos^2 \theta = 9 \{ b^2 \cos^2 \theta + a^2 (1 - \cos^2 \theta) \}$;

therefore $\cos^2 \theta = \frac{9a^2}{17a^2 - 9b^2}.$

Also $PQ = r_1 = \frac{-2B}{3A} = \frac{2 \cos \theta}{3ae} \sqrt{\frac{b^2 \cos^2 \theta + a^2 \sin^2 \theta}{a^2 b^2}}$
 $= \frac{b^2}{4a^2 e} \sqrt{(17a^2 - 9b^2)} = \frac{b^2}{4a} \sqrt{\left(\frac{17a^2 - 9b^2}{a^2 - b^2} \right)},$

using the value of $\cos \theta$ just found.



14153. (ROBERT W. D. CHRISTIE.)—Resolve $x^{6m} - x^{3m} + 1$ into factors. (This theorem fills the hiatus in the general theorem, Quest. 8098, given in Vol. XLVIII., p. 108.)

Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.

In all cases $x^{6m} - x^{3m} + 1 = \frac{x^{9m} + 1}{x^{3m} + 1}$

When m is odd (but not $= 3\mu$), this is known to be further divisible by $(x^9 + 1) + (x^3 + 1)$; i.e., by $(x^6 - x^3 + 1)$. By actual division it will be found that the quotient consists of a set of pairs of terms $\pm(x^{3t} + x^{3t-3})$, which can be easily written down at sight, together with certain central terms. Thus, commencing from both ends, the quotient is

$$(x^{6m-6} + x^{6m-9}) - (x^{6m-15} + x^{6m-18}) + (x^{6m-24} + x^{6m-27}) - (x^{6m-33} + x^{6m-36}) + \dots + (x^9 + x^{12}) - (x^3 + x^{12}) + (x^{18} + x^{21}) - (x^{27} + x^{30}) + \dots$$

and, when $m = 3\mu$, the two series coalesce.

When $m = 3\mu + 1$, the two series stop at a single middle term $\pm x^{3(m-1)}$.

When $m = 3\mu + 2$, the two series stop at a group of central terms $-(x^{3(m-2)} + x^{3(m-1)} + x^{3m})$.

When m is an odd prime, the above is the only algebraic factorization; but, when m is an odd composite, there will be other algebraic factors depending on the prime factors in m .

[The rest in Volume.]

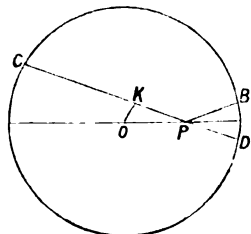
14034. (G. W. PRESTON, B.A.)—O, P are two fixed points in a given straight line, and PB, PC are two other fixed straight lines equally inclined to the given straight line and on the same side of it. If a circle be described, with centre O and any radius, so as to cut PB, PC in B and C, show, geometrically, that the difference of the projections of PB, PC on the given straight line is a constant. [Suggested by a problem in LONEY'S Statics.]

Solution by LIONEL E. REAY, B.A.; H. W. CURJEL, M.A.; and the PROPOSER.

OK is perpendicular to PC. CP is produced to D. PD = PB and their projections on OP are equal.

$CP - PB = 2PK = \text{const.},$

since OP and $\angle OPC$ are const.; therefore the difference of the projections of CP, PB on OP = twice the projection of PK = constant.



14016. (PROFESSOR UMES CHANDRA GHOSH.)—Prove that the n -ple integral

$$\int_0^{\pi} \int_0^{\pi} \int_0^{\pi} \dots e^{-(u+v+w+\dots)} u^{(1-u)/n} v^{(2-u)/n} w^{(3-u)/n} \dots du dv dw = \sqrt{\frac{(2\pi)^{n-1}}{n}}$$

Solution by H. W. CURJEL, M.A.

The given integral evidently

$$= \Gamma(1/n) \Gamma(2/n) \dots \Gamma(n/n) = \sqrt{\Gamma(1/n) \Gamma(1-1/n) \Gamma(2/n) \Gamma(1-2/n) \dots \Gamma[(n-1)/n] \Gamma[1-(n-1)/n]} = \sqrt{\left\{ \frac{\pi^{n-1}}{\sin \frac{1}{2}\pi \sin 2\pi/n \dots \sin [(n-1)\pi/n]} \right\}} = \sqrt{\frac{(2\pi)^{n-1}}{n}}$$

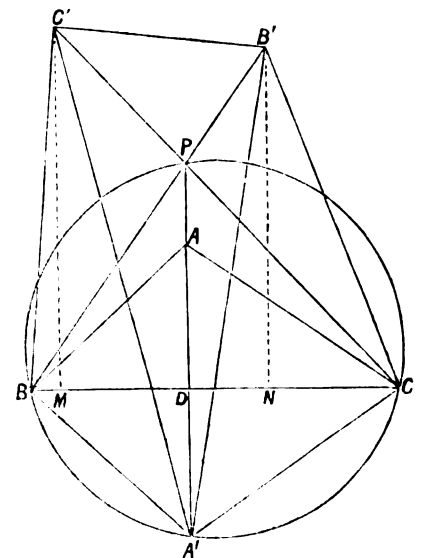
13969. (C. WAFELBAKKER.)—The triangle ABC is supposed to revolve round the axis BC, till the vertex A, having described a semi-circle, has reached the position A'. In the same manner the points B' and C' are derived from B and C. It is asked how to construct ABC, being given the points A', B', C'.

Remarks by D. BIDDLE.

The following facts, relating to this Question, are noteworthy:—(1) BB', CC' intersect in P, the ortho-centre of ABC, at an angle supplementary to A, and A', B, P, C are concyclic.

- (2) $A'BC' = 3B,$
and $A'CB' = 3C;$
also $BC' = CB' = a.$
- (3) $(A'B')^2 - c^2 : (A'C')^2 - b^2 = \sin 2C : \sin 2B = B'N : C'M,$

whence $\{(A'B')^2 - c^2\} b \cos B = \{(A'C')^2 - b^2\} c \cos C;$
also $ab \{(A'B')^2 - c^2\} = ac \{(A'C')^2 - b^2\} = b \{a^2 + c^2 - b^2\} = bc \{(B'C')^2 - a^2\} = a \{b^2 + a^2 + c^2\}$



And, of course the case of a right-angled original triangle, one of the unknown sides is equal to one of the known values

- Let $\theta = \angle A'B'C'$ and $A'A = 2x \cos \theta,$
whilst the sides and angles of $A'B'C'$ are $a', b', c', \alpha, \beta, \gamma.$ Then (4) $(c' - 2x)^2 \cos^2 \theta + c'^2 \sin^2 \theta = c^2, \{b' \cos(\alpha - \theta) - 2x \cos \theta\}^2 + b'^2 \sin^2(\alpha - \theta) = b^2,$
and $c^2 : b^2 = \sin^2 C : \sin^2 B = BN : CM.$
- Now $MN = c' \sin \theta + b' \sin(\alpha - \theta)$
and $BM : CN = 1 - 2 \sin^2 B : 1 - 2 \sin^2 C.$

(5) Four equal circles can be drawn, namely, A'CPB, B'PAC, C'PAB, and the fourth, with centre P, passing through the centres of the other three, the joins forming $\Delta = ABC.$ Therefore a fifth circle, equal to the others, is the circumcircle of ABC.

[This Question, having long been published on the Continent without eliciting any satisfactory solution, was, in hopes of better things, sent to the Educational Times, where, however, it seems likely to meet with the same fate. No solution whatever has come to hand.]

14087. (R. F. DAVIS, M.A.)—Extract from the *Life and Letters of Lewis Carroll*, by S. D. COLLINGWOOD. (Fisher Unwin, 1898.)—“Dec. 19th, 1897 (Sunday). Sat up last night till 4 a.m. over a tempting problem sent me from New York—to find three equal rational-sided right-angled triangles. I found two whose sides are 20, 21, 29; 12, 35, 37; but could not find three.”—Prove that the missing triangle was $7\frac{1}{2}, 56,$ and $56\frac{1}{2}$, and find general formulæ for such triangles.

Solution by C. E. HILLYER, M.A.

If a, b, c be the sides of a right-angled triangle,

$c^2 = a^2 + b^2$ or $a^2 = c^2 - b^2 = (c+b)(c-b).$

- Suppose $a = m/n(c-b) = n/m(c+b);$
- then $an + bm = cm$ and $am - bn = cn;$
- therefore $a = \frac{2mn}{m^2 + n^2} c$ and $b = \frac{m^2 - n^2}{m^2 + n^2} c.$

The formulæ, then, for all integral-sided right-angled triangles are

$$a = 2mn, \quad b = m^2 - n^2, \quad c = m^2 + n^2,$$

where m and n stand for any two numbers of which $m > n$, and the area of the triangle = $\frac{1}{2}ab = mn(m^2 - n^2)$ or $mn(m+n)(m-n)$.

We have to find as many as possible different pairs of integers m, n , making the product $mn(m+n)(m-n)$ the same.

Now, if we find equal triangles by giving fractional values to m and n , we shall only have to multiply by the least common denominator to deduce as many equal triangles with integral sides; we may therefore remove the restriction that m and n are to be integers, so that we may suppose either that $m = 1$ and $n =$ some positive number less than 1, or that $n = 1$ and $m =$ some positive number greater than 1.

[The rest in Vol.]

5019. (J. J. WALKER, M.A.)—If A be the refracting angle of a prism, and θ, ϕ the differences between the angles which the part of the ray within the prism makes with the normals to the faces, and between the deviations at incidence and emergence respectively, while D is the total deviation, prove (1) that $\sin \frac{1}{2}(A + D) = \frac{\mu \cos \frac{1}{2}\theta \sin \frac{1}{2}A}{\cos \frac{1}{2}(\theta + \phi)}$, and thence (2) deduce the position of minimum deviation.

Solution by Professor SANJANA, M.A.

In the annexed figure

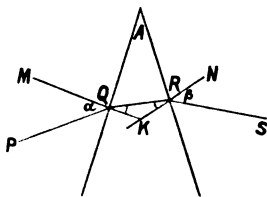
$$\begin{aligned} \sin \alpha &= \mu \sin \alpha', & \sin \beta &= \mu \sin \beta'; \\ \text{also } \theta &= \alpha' - \beta', \\ \phi &= \alpha - \alpha' - (\beta - \beta') = \alpha - \beta - (\alpha' - \beta') \\ &= \alpha - \beta - \theta. \end{aligned}$$

$$\begin{aligned} \text{As } \sin \alpha + \sin \beta &= \mu (\sin \alpha' + \sin \beta'), \\ \text{therefore } 2 \sin \frac{1}{2}(\alpha + \beta) \cos \frac{1}{2}(\alpha - \beta) &= 2\mu \sin \frac{1}{2}(\alpha' + \beta') \cos \frac{1}{2}(\alpha' - \beta'); \end{aligned}$$

$$\text{therefore } 2 \sin \frac{1}{2}(D + A) \cos \frac{1}{2}(\theta + \phi) = 2\mu \sin \frac{1}{2}A \cos \frac{1}{2}\theta;$$

$$\text{so that } \sin \frac{1}{2}(D + A) = \frac{\mu \cos \frac{1}{2}\theta \sin \frac{1}{2}A}{\cos \frac{1}{2}(\theta + \phi)}.$$

If now $\alpha > \beta, \alpha' > \beta'$, and θ and ϕ are positive; but $\cos \frac{1}{2}\theta > \cos \frac{1}{2}(\theta + \phi)$, and hence $\sin \frac{1}{2}(D + A)$ is greater than $\mu \sin \frac{1}{2}A$. Thus D is not a minimum, unless ϕ vanish; which is the case when $\alpha = \beta$, or when the ray passes symmetrically, and then $\sin \frac{1}{2}(D + A) = \mu \sin \frac{1}{2}A$. If $\alpha < \beta$, reversing the path of the ray, the same conclusion will be obtained.



14115. (H. FORTY, M.A.)—A cheese is a cylinder of 2 feet in diameter, and is of variable quality, the part at the axis being worth 1s. 2d. per lb., and the quality deteriorating as the distance from the axis increases, so that at the circumference it is worth only 10d. per lb. An epicure buys a concentric cylindrical piece cut out of the centre and pays 4s. 11d. for it. What is the diameter of this piece? Given that the whole cheese is worth £1. 18s. 3d.

Solution by Rev. J. H. BLUNN, Chaplain R.N., retired; H. W. CURJEL, M.A.; and the PROPOSER.

The decrease in value of the cheese is at the rate of $\frac{1}{4}$ d. per inch of distance from centre. Therefore value per lb. at a distance $x = (14 - \frac{1}{4}x)$ d.

Hence, evidently, if a be the radius of the cylinder cut out,

$$\int_0^a 2\pi x dx (14 - \frac{1}{4}x) \bigg/ \int_0^{12} 2\pi x dx (14 - \frac{1}{4}x) = \frac{5}{9} \frac{9}{5}.$$

$$\text{Therefore } (7a^2 - \frac{1}{8}a^3) / (7 \times 12^2 - \frac{1}{8} \times 12^3) = \frac{5}{9} \frac{9}{5};$$

$$7a^2 - \frac{1}{8}a^3 = \frac{5}{9} \frac{9}{5} (1008 - 192) = \frac{5}{9} \frac{9}{5} \times 816 = \frac{1}{2} (59 \times 16).$$

$$\text{Therefore } a^3 - 63a^2 + 59 \times 16 = 0, \quad (a-4)(a^2 - 59a - 236) = 0.$$

$a = 4$ is the only possible solution. Therefore diameter of the piece = 8 inches.

14110. (Professor SANJANA, M.A.)—In a triangle ABC , K is the symmedian point and O the circumcentre; on KA, KB, KC points A', B', C' are taken such that $KA' : KA = KB' : KB = KC' : KC = e$ (which may be positive or negative and less than unity or greater); through A', B', C' are drawn $Y'A'Z, Z'B'X, X'C'Y$ anti-parallel to BC, CA, AB meeting these sides in X and X', Y and Y', Z and Z , respectively. Prove (1) that $Y'Z = Z'X = X'Y = 2(1-e)abc / (a^2 + b^2 + c^2)$; (2) that YZ' is parallel to BC and $= a \{ (2e-1)a^2 + b^2 + c^2 \} / (a^2 + b^2 + c^2)$, with similar results for ZX' and XY' ; (3) that

$$XX' = a \{ a^2 + (b^2 + c^2)(2e-1) \} / (a^2 + b^2 + c^2),$$

with similar values for YY' and ZZ' ; (4) that the triangles $XYZ, X'Y'Z$ are equal to each other and similar to ABC ; and that XYZ and ABC have the same positive BROCARD point, and $X'Y'Z'$ and ABC the same negative one; (5) that

$$AZ : BX : CY = b/a : c/b : a/c, \quad \text{and } AY' : CX' : BZ' = c/a : b/c : a/b;$$

(6) that the points X, X', Y, Y', Z, Z' are situated on a circle whose centre lies on OK and coincides with the circumcentre of $A'B'C'$; (7) that the radius of this circle is $R \{ e^2 + (1-e)^2 \tan^2 \omega \}^{\frac{1}{2}}$; (8) that for values $1, \frac{1}{2}, 0$ of e the circle $XX'YY'ZZ'$ becomes respectively the circumcircle the triplicate-ratio circle, the cosine circle; (9) that when

$$e = -\cos A \cos B \cos C,$$

the circle becomes the TAYLOR circle, and its radius

$$= R (\sin^2 A \sin^2 B \sin^2 C + \cos^2 A \cos^2 B \cos^2 C)^{\frac{1}{2}};$$

(10) that when $e = \sin^2 \omega$, the centre of the circle bisects the line joining the BROCARD points, and its radius = $R \sin \omega$, which is the least value that the radius can ever have; and (11) that in a right-angled triangle the TAYLOR and cosine circles coincide. [All properties of TUCKER circles can thus be obtained by elementary trigonometry; the result in (11) is inaccurately given in MILNE'S Companion at p. 146.]

Solution by G. N. BATES.

We have

$$BZ'/a = BX/c = Z'X/b = \rho,$$

and

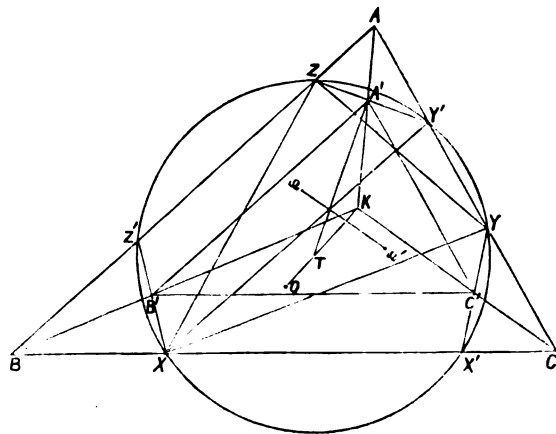
$$4BB^2 = 2BZ'^2 + 2BX^2 - Z'X^2;$$

therefore

$$\rho^2 = \{ 4(1-e)^2 a^2 c^2 \} / (a^2 + b^2 + c^2);$$

therefore

$$Z'X = 2(1-e)abc / (a^2 + b^2 + c^2) = X'Y = Y'Z \dots \dots \dots (1).$$



$$CY : CA :: a\rho : c :: BZ' : AB;$$

therefore YZ' is parallel to BC , and

$$YZ'/a = (c-a\rho)/c = \{ a^2(2e-1) + b^2 + c^2 \} / (a^2 + b^2 + c^2) \dots \dots (2).$$

$$XX' = a - c\rho - (b^2/c)\rho = a \{ (2e-1)(b^2 + c^2) + a^2 \} / (a^2 + b^2 + c^2) \dots (3);$$

[The rest in Volume.]

13926. (Professor A. DROZ-FARNY.)—Sur une parabole on donne un point A , la tangente en ce point, et la droite qui joint A au foyer F . Une tangente variable coupe la tangente en A au point B , et AF en C . On prend sur cette droite le symétrique D de B par rapport à C . Lieu géométrique de D ? On demande une solution analytique et une solution géométrique.

Solution by R. F. DAVIS, M.A.

The exterior angle ABC between two tangents is equal to the angle AFB , subtended at the focus by one of them (MILNE and DAVIS, p. 30). Thus

$$CB^2 = CA \cdot CF.$$

But $CB = CD$;

hence $CD^2 = CA \cdot CF$.

Completing the parallelogram $BADM$, and drawing perpendiculars AN, CR upon DM ,

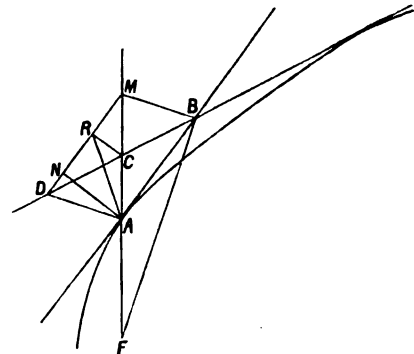
$$CR^2 + DR^2 = CA^2 + CA \cdot AF$$

$$DR^2 = RM^2 + CA \cdot AF$$

$$= \lambda AR^2 + \mu AR,$$

for the right-angled triangle AMN is of fixed species, and AM, AN have fixed directions, and therefore so has AR .

The locus of D is thus a hyperbola touching the given parabola at A .



14103. (Prof. CROFTON, F. R. S.)—If $u = x^2 + ax + b$, a solution of the equation $u (d^2y/dx^2) = n(n+1)y$ is $y = D^{n-1}u^n$, and another solution is $y = D^{-n-2}u^{-n-1}$. Also, if $u^2 (d^4y/dx^4) = n(n+1)(n+2)(n+3)y$, one solution is $y = D^{n-1}u^{n+1}$.

Solution by Rev. J. CULLEN, B.A.

If $u = x^2 + ax + b = (x - \alpha)(x - \beta)$, we have, by a well known theorem (WILLIAMSON'S *Int. Cal.*, p. 325, 5th ed.),

$$u^m D^{m+r} u^r = \frac{(r+m)!}{(r-m)!} D^{r-m} u^r.$$

Putting $r = m + n - 1$, we get

$$u^m D^{2m} D^{n-1} u^{m-1} = n(n+1) \dots (n+2m-1) D^{n-1} u^{m-1},$$

so that clearly $y = D^{n-1} u^{m-1}$ is one solution of

$$u^m D^{2m} y = n(n+1) \dots (n+2m-1) y \dots \dots \dots (1),$$

also, since (1) remains unaltered when $-(n+2m-1)$ is written for n , we have another solution in the form $y = D^{n-2m} u^{n-m}$. Hence the results in the question follow at once by putting $m = 1$ and 2 .

QUESTIONS FOR SOLUTION.

14255. (Professor ELLIOTT, F.R.S.)—A surface is given by three equations expressing the coordinates x, y, z in terms of two parameters p, q . Prove that, if u, v, w denote the coefficients of ξ, η, ζ in the equation

$$\left(\xi \frac{\partial x}{\partial p} + \eta \frac{\partial y}{\partial p} + \zeta \frac{\partial z}{\partial p} \right) \left(x \frac{\partial x}{\partial q} + y \frac{\partial y}{\partial q} + z \frac{\partial z}{\partial q} \right) - \left(\xi \frac{\partial x}{\partial q} + \eta \frac{\partial y}{\partial q} + \zeta \frac{\partial z}{\partial q} \right) \left(x \frac{\partial x}{\partial p} + y \frac{\partial y}{\partial p} + z \frac{\partial z}{\partial p} \right) = 0,$$

the equation

$$\begin{vmatrix} u & v & w \\ \frac{\partial u}{\partial p} & \frac{\partial v}{\partial p} & \frac{\partial w}{\partial p} \\ \frac{\partial u}{\partial q} & \frac{\partial v}{\partial q} & \frac{\partial w}{\partial q} \end{vmatrix} = 0$$

is one satisfied at points of the surface where normal planes to lines of curvature pass through the origin, and only at such points of the surface and umbilics.

14256. (Professor G. B. MATHEWS, F.R.S.)—Let $f(x) = \sin x + \frac{1}{2} \sin 2x + \frac{1}{3} \sin 3x + \dots + (1/n) \sin nx$, and suppose that when n increases indefinitely x becomes infinitesimal in such a way that the limit of nx is an assigned real quantity η ($-\infty$ and $+\infty$ included). Prove that the ultimate value of $f(x)$ is $\int_0^\eta \frac{\sin x}{x} dx$.

What is the precise bearing of this result upon the form of the graph corresponding to $y = \sin x + \frac{1}{2} \sin 2x + \dots$ ad inf. = $\sum \frac{\sin nx}{n}$?

[See a recent correspondence in *Nature* on FOURIER series.]

- 14257. (Professor COCHEZ.)—Etudier $x^4 + y^4 + 3x^2y + y^2 = 0$.
- 14258. (Professor E. J. NANSON.)—If a minor M of order m of a determinant Δ of order n does not vanish, and the $(n-m)^2$ minors of order $m+1$ obtained by bordering M with an additional row and column from Δ do vanish, then it is known that all minors of Δ of order $m+1$ vanish. If Δ be symmetrical, and M be a coaxial of Δ , it is obvious that the $(n-m)^2$ minors all vanish if $\frac{1}{2}(n-m)(n-m+1)$ conditions are satisfied. Prove that the same result is true if M be not a coaxial, and determine the $\frac{1}{2}(n-m)(n-m+1)$ conditions when M is given.
- 14259. (Professor NEUBERG.)—Eliminer x, y, z entre les équations $(x+y)(y+z) = ayz, (y+x)(y+z) = bzx, (z+x)(z+y) = cxy$.
- 14260. (Professor UMES CHANDRA GHOSH.)—Solve the differential equation $r(y^2 - p^2) \frac{\partial^2 r}{\partial p^2} + (2r^2 - p^2) \frac{\partial r}{\partial p} - pr \cdot \frac{\partial r}{\partial p} = 0$, and interpret the result geometrically, if r and p be respectively the radius vector and perpendicular from the origin on the tangent at any point of a curve.
- 14261. (Professor THOMAS SAVAGE.)—Show, by assuming the truth of FERMAT'S theorem, that $x^n + y^n = z^n$ is not true for integral values of x, y, z, n , being greater than 2; or, otherwise, that $\left\{ \frac{1}{2}(4m^3 - 1) \right\}^{\frac{1}{2}}$ is not integral when m is integral.
- 14262. (Professor SANJANA.)—Prove that $\frac{1}{1} \cdot \frac{1}{4} + \frac{1}{2} \cdot \frac{1}{4.5} + \frac{1}{3} \cdot \frac{1.2}{4.5.6} + \frac{1}{4} \cdot \frac{1.2.3}{4.5.6.7} + \dots = \frac{6\pi^2 - 7^2}{36}$; and show how to find the value of $\frac{1}{1} \cdot \frac{1}{n} + \frac{1}{2} \cdot \frac{1}{n(n+1)} + \frac{1}{3} \cdot \frac{1.2}{n(n+1)(n+2)} + \dots$, where n is any positive integer.
- 14263. (D. BIDDLE.)—T is a multiple of $(N-T)^{\frac{1}{2}}$: prove that N is factorizable, unless $N-T = 1$; and, conversely, that N is either a prime or the square of a prime, when no lower value of T than $N-1$ will fulfil the conditions.
- 14264. (R. TUCKER, M.A.)—P is a point on a parabola, focus S and vertex A. With P as centre and radius PS, a circle is described. The tangent to the parabola cuts this circle in L, M, and AL, AM cut the parabola in Q, R. Find the equations to AL, AM, and to the chord QR.

14265. (R. F. DAVIS, M.A.)—If O be the centre of inversion (constant = κ^2) investigate the formula of transformation tangent from point P to the circle C = λ (tangent from inverse point P' to inverse circle C'), and show that $\lambda = OP$ (or κ^2/OP)/tangent from O to C'. Apply this to Quest. 13801. (See *Mathematical Reprint*, Vol. LXX., p. 73.)

14266. (V. R. THYAGARAGAIYAR, M.A.)—Find the equation of a curve (in CARTESIAN coordinates) which is such that the radius of curvature at any point is equal to the length of the curve measured up to that point from a fixed point on the curve. Trace the curve.

14267. (B. N. CAMA, M.A.)—If an equiangular spiral be inscribed in a rectangle, prove (i.) that the angular points of the rectangle lie on another spiral, (ii.) the lines joining the points of contact of opposite pairs of sides intersect at right angles in the pole, (iii.) the area of the quadrilateral of the chords of contact varies as the area of the rectangle.

14268. (Rev. W. ALLEN WHITWORTH, M.A.)—Show that the equation $x^2 + x^2 + y^2 + z^2 = 2012$ admits of 756 solutions in positive integers.

14269. (Rev. J. CULLEN.)—Through a given point P in the plane of a triangle ABC lines are drawn cutting the sides in L, M, and N; LF, LE, are drawn parallel to AC, AB; MD, ME, to AB, BC; and NE, ND, to BC, CA, denoting the points where (AD, BE, CF), (AD₁, BE₁, CF₁) concur by K.P and K₁.P. Prove that K'.P = K₁.P if $r+q \equiv 0$ (mod 6) and that K".P is always one of six points.

14270. (H. MACCOLL, B.A.)—If k be a positive constant, and the variables x and y be each taken at random between 0 and 1, show that the chance that the fraction $k(1-x-y)/(1-y-ky)$ will also lie between 0 and 1 is $(k^2+1)/\{2k(k+1)\}$ or $(1+2k-k^2)/\{2(k+1)\}$ according as k is greater or less than 1.

- 14271. (G. H. HARDY, B.A.)—Prove
 - $a^{\frac{1}{2}} \int_0^{\frac{\pi}{2}} \frac{e^{-ax^2}}{\cosh \pi x} dx = b^{\frac{1}{2}} \int_0^{\frac{\pi}{2}} \frac{e^{-bx^2}}{\cosh \pi x} dx$ if $ab = \pi^2$;
 - $a^{\frac{1}{2}} \int_0^{\frac{\pi}{2}} \frac{e^{-ax^2}}{1+2 \cosh \pi x} dx = b^{\frac{1}{2}} \int_0^{\frac{\pi}{2}} \frac{e^{-bx^2}}{1+2 \cosh \pi x} dx$ if $ab = (\frac{2}{3}\pi)^2$;
 - $a^{\frac{1}{2}} \int_0^{\frac{\pi}{2}} \frac{\cosh \frac{1}{2}\pi x}{\cosh \pi x} e^{-ax^2} dx = b^{\frac{1}{2}} \int_0^{\frac{\pi}{2}} \frac{\cosh \frac{1}{2}\pi x}{\cosh \pi x} e^{-bx^2} dx$ if $ab = (\frac{1}{3}\pi)^2$.

14272. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Factorize completely $(35^{2n} + 1)$.

14273. (Rev. T. MITCHESON, B.A.)—The angle between a semi-diameter of an ellipse and the tangent at its extremity is a minimum when the area of the rectangle contained by the coordinates of the tangential point is a maximum, i.e., when $x = a/\sqrt{2}, y = b/\sqrt{2}$.

14274. (R. F. MUIRHEAD.)—A block weighing m pounds is dragged along a rough plane by a massless spiral spring, whose stiffness is k pounds weight per foot extension, connecting it with a point constrained to move with horizontal velocity v feet per second. The coefficient of static friction is μ_1 , and that of kinetic friction μ_2 . Initially the block is at rest, and the spring unstrained. Find the subsequent motion.

Show that, if $\mu_1 : \mu_2 \geq 3$, the block will (1) remain at rest $\mu_1 m/kv$ seconds, (2) move during $\sqrt{\left(\frac{m}{kg}\right) \left(\pi + 2 \tan^{-1} \frac{v \sqrt{k}}{\mu \sqrt{mg}}\right)}$ seconds (where $\mu = \mu_1 - \mu_2$), (3) rest during $2\mu m/kv$ seconds, and thereafter repeat (2) and (3) alternately.

Show that, if $\mu_1 : \mu_2$ lie between 3 and 5, the various stages will be (1) rest during $\mu_1 m/kv$ seconds, (2) motion during $\sqrt{\left(\frac{m}{kg}\right) \left(\pi + 2 \tan^{-1} \frac{v \sqrt{k}}{\mu \sqrt{mg}}\right)}$ seconds, (3) backward motion during $\sqrt{\left(\frac{m}{kg}\right) \left(\pi - 2 \tan^{-1} \frac{v \sqrt{k}}{\mu \sqrt{mg}}\right)}$, where $\mu' \equiv \mu_1 - 3\mu_2$, (4) rest during $4\mu_2 m/kv$ seconds, and thereafter continued repetition of (2), (3), (4) in order.

Show that the other critical values of the ratio $\mu_1 : \mu_2$ separating different types of solution are 7, 9, 11, &c.

14275. (R. J. DALLAS.)—Being given four points A, B, C, D, prove that the nine-point circles of the four triangles formed by leaving out one point in turn all pass through one point.

14276. (R. KNOWLES, B.A.)—At a point R (eccentric angle θ) of the ellipse $a^2y^2 + b^2x^2 = a^2b^2$, chords RP, RQ are drawn at right angles; the normal at R meets PQ in M and the curve in N. Prove (1) that RM : MN = $a^4 \sin^2 \theta + b^4 \cos^2 \theta : a^2b^2$. (2) If R($am^2, 2am$) be on the parabola $y^2 = 4ax$, prove that RM = m^2MN .

14277. (ROBERT W. D. CHRISTIE.)—Find (1) a general value for x in the equation $3.2^x + 1 = pq$ when p is a prime. A few examples are $x = 3n - 2$ (n any integer); then $p = 7$ (v . Quest. 14158) $= 4n - 1$, $p = 5$ $= 10n - 3$, $p = 11$

14278. (I. ARNOLD.)—Two non-concentric spheres intersect, forming a shell. Find the centre of gravity of the larger shell and its distance from the centre of the larger sphere, the distance between the centres of the spheres being d , and the radii of the spheres being R and r .

14279. (G. W. MCGORRIDGE.)—PQR is a triangle circumscribing a conic, focus S, the sides touching at L, M, N. The bisector of the exterior angle LSM meets a fourth tangent in Z, &c. Show that PX, QY, RZ are concurrent.

14280. (H. A. WEBB.)—Show that a particle dropped from rest at any height will, relatively to an observer on the earth, describe a curve on the surface of a paraboloid of revolution whose axis is parallel to the axis of the earth; it being assumed that the earth rotates on its axis uniformly and exerts a constant attraction on the particle.

14281. (J. A. THIRD, M.A.)—If a conic touch the sides BC, CA, AB of a triangle at X, Y, Z, and another conic touch the sides YZ, ZX, XY of XYZ at P, Q, R respectively; then AP, BQ, CR are concurrent. When both conics are circles, the point of concurrence lies on the EULER line of XYZ.

14282. (Professor A. DROZ-FARNY.)—Dans le triangle ABC de forme donnée, $\text{tg } A = 1$, $\text{tg } B = 2$, $\text{tg } C = 3$; démontrer que la droite d'EULER est parallèle au côté AC.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

5879. (Professor MINCHIN, M.A.)—For a given system of coplanar forces construct (geometrically) a funicular polygon which shall pass through three given points. [Professor MINCHIN states that this problem, which admits of a very simple solution, is of practical importance to engineers.]

5882. (Professor COCHEZ.)—Calculer le rayon d'un cercle inscrit dans un triangle on fonctions des distances du centre aux trois sommets.

5884. (Professor MATZ, M.A.)—Determine the mean distance from the coordinate origin to all the points in the surface enclosed by the cisoid of DIODES and its appertaining circle.

5893. (W. R. ROBERTS, M.A.)—A system of conics is described having double contact with the polar conic of the line joining the three inflexions of a cubic, the chord of contact being the same line; any conic of the system meets the cubic in six points, the tangents at which all touch another conic of the same system.

5895. (R. A. ROBERTS, M.A.)—Find the locus of the centre of gravity of an arc of the lemniscate of BERNOULLI which is of constant length.

5916. (EDWYN ANTHONY, M.A.)—Show that, for all positive integral values of n except unity, $2n!$ is less than $\{n(n+1)\}^n$.

[In the Note to Professor SYLVESTER'S Question 5876, in our last issue of old and unsolved Questions, two misprints were allowed to pass. For "GORDON" read "GORDAN," and for "Bezontiant" read "Bezontiant," so-called after (ETIENNE) BEZOUT, a French mathematician (1730-1781), who published a *Cours des Mathématiques*.]

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to

D. BIDDLE, Esq., Charlton Lodge, Kingston-on-Thames.

NOTICE.—Vol. LXX. of the "Mathematical Reprint" is now ready, and may be had of the Publisher, FRANCIS HODGSON, 89 Farringdon Street, E.O. Price, to Subscribers, 5s.; to Non-Subscribers, 6s. 6d.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, June 8, 1899.—Lord Kelvin, G.C.V.O., President, in the Chair. Twenty-two members present.

The President announced that the Council had awarded the De Morgan Medal to Prof. W. Burnside, F.R.S., for his researches in mathematics, particularly in the theory of groups. Prof. Burnside, who was present, briefly thanked the Society for the honour conferred upon him.

The Secretary announced the recent loss the Society had sustained through the death of Mr. S. O. Roberts, M.A.

Prof. Mittag-Leffler was admitted into the Society, being an Honorary Member, and subsequently made a communication (in French) on "The Convergency of Series." Messrs. Elliott, Love, and Hobson offered some remarks, to which Prof. Mittag-Leffler replied; and, at the request of the meeting, consented to put his communication into writing.

The President next spoke on "Solitary Waves, Equivolumental and Irrational, in an Elastic Solid."

Prof. Love expressed himself as having been much interested in the

diagrams exhibited by the President. He then gave a sketch of a paper by Prof. J. H. Michell, on "The Transmission of Stress across a Plane of Discontinuity in an Isotropic Elastic Solid and the Potential Solutions for a Plane Boundary."

The following papers were taken as read:—

"On Several Classes of Simple Groups," Dr. G. A. Miller.

"On Theta Differential Equations and Expansions," Rev. M. M. U. Wilkinson, M.A.

"Finite Current Sheets," Mr. J. H. Jeans.

(1) "On a Congruence Theorem having reference to an Extensive Class of Coefficients"; (2) "On a Set of Coefficients analogous to Eulerian Numbers," Dr. Glaisher, F.R.S.

(1) "The Reduction of a Linear Substitution to its Canonical Form"; (2) "On the Integration of Systems of Total Differential Equations," Prof. A. C. Dixon, M.A.

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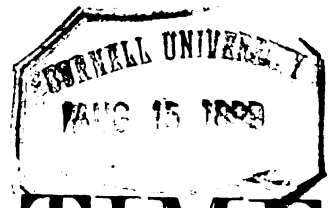
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As the above Classes will not be held unless a sufficient number join, it will be necessary for intending students to send in their names to the SECRETARY of the Froebel Society, 4 Bloomsbury Square, W.C., not later than Wednesday, September 20, stating clearly which subjects they wish to take.

BEDFORD COLLEGE, LONDON (FOR WOMEN),

YORK PLACE, BAKER STREET, W.

Principal—Miss ETHEL HUELBAAT.

The Session 1899-1900 will begin on Thursday, October 5th.

Students are expected to enter their names between 2 and 4 on Wednesday, October 4th.

Further information on application to the PRINCIPAL.

BEDFORD COLLEGE, LONDON (FOR WOMEN),

YORK PLACE, BAKER STREET, W.

DEPARTMENT FOR PROFESSIONAL TRAINING IN TEACHING.

Head of the Department—Miss HANNAH ROBERTSON, B.A.

The Third Term of the Session 1899 opens on Tuesday, October 3.

The Course includes full preparation for the Examination for the Teaching Diplomas granted by the Universities of London and Cambridge, held annually in December.

THE MARIA GREY TRAINING COLLEGE,

SALUSBURY ROAD, BRONDESBURY, LONDON, N.W.

A full Course of Training in preparation for the Cambridge Teachers Certificate in the Theory and Practice of Teaching is offered to Ladies who desire to become Teachers.

Scholarships offered in all Divisions. College year begins September 13, 1899. The Winkworth Hall of Residence, for 21 Students, will be opened, opposite the College, in September, 1899.

Address—Miss ALICE WOODS, Principal, The Maria Grey Training College, Salusbury Road, N.W.

THE DACHELOR TRAINING COLLEGE,

CAMBERWELL GROVE, S.E.

(In connexion with the Datchelor Collegiate School for Girls.)

Governing Body—The Worshipful Company of Clothworkers of the City of London.

Principal—Miss BIGG.

Mistress of Method and Lecturer—Miss CARPENTER. Assisted by other Teachers and Lecturers.

This College provides a full course of professional training for Women Teachers, together with abundant opportunity for regular class teaching in a school of over 400 pupils.

Students are prepared for the Examination of the Cambridge Teachers' Training Syndicate. Fees moderate.

A COLLEGE HALL OF RESIDENCE

is provided for Students in the Training College. Terms moderate.

A Free Studentship (Training and Residence) will be awarded in September. For conditions apply to the SECRETARY.

THE CAMBRIDGE TRAINING COLLEGE FOR WOMEN TEACHERS.

Principal—Miss M. PUNNETT, B.A. Lond.

The Students attend the Cambridge University Lectures on Teaching, and have ample opportunity for teaching in various schools in Cambridge.

The object of the College is to give a professional training to educated women who intend to teach. In addition to the course of training, it offers the advantages of a college life, and one year's residence in Cambridge.

Students are admitted in January and September. Full particulars may be obtained by application to the PRINCIPAL, Cambridge Training College, Wollaston Road, Cambridge.

HOME AND COLONIAL SCHOOL SOCIETY.

(Incorporated for Examination and Certificate purposes with the National Froebel Union.)

TRAINING COLLEGE FOR SECONDARY TEACHERS.

HIGHBURY HILL HOUSE, LONDON, N.

Principal—The Rev. DAVID J. THOMAS, M.A. Vice-Principal—Miss PENSTONE.

Students (Resident and Non-resident) trained for the Examinations of the National Froebel Union, and for the Teachers' Diploma of the College of Preceptors.

A High School for Girls, Transition Class, and Kindergarten are attached to the College for purposes of Demonstration and Practice.

LONDON COLLEGE OF MUSIC. Instituted 1837. Incorporated.

GREAT MARLBOROUGH STREET, LONDON, W.

FORMUSICAL EDUCATION, AND EXAMINATIONS IN PRACTICAL AND THEORETICAL MUSIC.

Patron: HIS GRACE THE DUKE OF LEEDS.

Dr. F. J. KARN, Mus. Bac. Cantab., Principal.

G. AUGUSTUS HOLMES, Esq., Director of Examinations.

EXAMINATIONS in PIANOFORTE PLAYING, SINGING THEORY, and all branches of Music will be held in London and 350 Provincial Centres in December, when certificates will be granted to all successful candidates.

The Higher Examinations for Diplomas of Associate (A.L.C.M.), Associate in Music (A.Mus.L.C.M.), Licentiate (L.L.C.M.), Licentiate in Music (L.Mus.L.C.M.), and Fellowship (F.L.C.M.), will take place in December.

Silver and Bronze Medals and Book Prizes are offered for competition in accordance with the regulations.

In the Educational Department students are received and thoroughly trained under the best professors at moderate fees. Day and Evening Classes are held.

T. WEEKES HOLMES, Secretary.

OWENS COLLEGE, VICTORIA UNIVERSITY, MANCHESTER.

PROSPECTUSES for the Session 1899-1900 will be forwarded on application.

I. DEPARTMENT OF ARTS, SCIENCE, AND LAW; and DEPARTMENT FOR WOMEN.

II. DEPARTMENT OF MEDICINE.

III. EVENING AND POPULAR COURSES.

Special Prospectus can also be obtained of:—

IV. DEPARTMENT OF ENGINEERING.

V. DEPARTMENT OF LAW.

VI. DEPARTMENT OF PUBLIC HEALTH.

VII. DENTAL DEPARTMENT.

VIII. PHARMACEUTICAL DEPARTMENT; and

IX. FELLOWSHIPS, SCHOLARSHIPS, EXHIBITIONS, AND PRIZES.

Apply to Mr. CORNISH, 16 St. Ann's Square, Manchester; or at the College.

SYDNEY CHAFFERS, Registrar.

UNIVERSITY COLLEGE, BRISTOL.

ENGINEERING EDUCATION. COURSES FOR CIVIL, MECHANICAL, MINING, AND ELECTRICAL ENGINEERS, ALSO FOR ARCHITECTS AND SURVEYORS.

Professor—J. RYAN, M.A., LL.M., D.Sc.

Special facilities are offered in the way of College Scholarships and Engineering Works Scholarships, favourable arrangements being made with firms in or near Bristol for practical training to be obtained in works concurrently with the College Course.

Surveying, Field Work, and Geology form prominent features of the Civil Engineering Scheme.

A College Diploma is awarded to students who pass the qualifying Examinations.

The Institution of Civil Engineers accepts the Preliminary Certificate of the College in lieu of its Entrance Examination.

Sessional Courses are also organized for the Matriculation, Preliminary Scientific, Intermediate Arts, and Intermediate Science Examinations of the University of London, and for the B.A. and B.Sc. Degree Work.

The work of women students is under the supervision of a Lady Tutor.

Applications for vacancies in October to be made as early as possible to the SECRETARY, from whom prospectus and particulars of residence in Clifton may be obtained.

JAMES RAFTER, Secretary.

ST. GEORGE'S TRAINING COLLEGE, for WOMEN TEACHERS.—This College provides a complete course of training for well-educated women who intend to become Teachers.

The Course includes attendance at Professor Laurie's Lectures on Education at the University of Edinburgh, and practice in Class-Teaching in several schools. Several Bursaries of £30 are offered annually. The College year begins in October. Apply to the PRINCIPAL, 5 Melville Street, Edinburgh.

KELLAND TRAINING COLLEGE FOR TEACHERS, LEICESTER.

Principals—Miss MORGAN, N.F.U. (Higher).

Miss J. MORGAN, B.A. (Lond.).

Head Kindergarten Mistress—Miss JOHNSON, N.F.U. (Higher).

Preparation for the National Froebel Union Certificates. Cambridge Teacher's Diploma. Entrance Scholarships. Grounds comprise Tennis Court, Croquet Lawn, &c. STUDENT-TEACHER required for September 19th.

LONDON UNIVERSITY EXAMINATIONS.



PRIVATE TUITION MAY BE TAKEN UP DURING THE SUMMER VACATION.

DAY AND EVENING CLASSES

FOR THE MATRICULATION AND OTHER

Examinations of London University

Commence at University Tutorial College, Red Lion Square, Holborn, as follows:—MATRICULATION (January and June), Monday, September 11; PRELIM. SOL, Monday, September 18; INTER. ARTS, B.A., INTER. SO., and B.S.O., Monday, October 2. Evening Classes are held in Organic Chemistry for Inter. M.B., Inter. Laws and LL.B.; Mental and Moral Science, Botany, and Geology for B.Sc.

The number of successes during the last two sessions at London University was 602, with 53 places in Honours, and over £1000 was gained in 1898 in Hospital and Entrance Scholarships.

Prospectus on application to

THE VICE-PRINCIPAL,

University Tutorial College, Red Lion Square, Holborn.

THE HYGIENIC HOME

AND

COLLEGE OF PHYSICAL CULTURE

provides a thorough training for ladies (as teachers) in the principles and practice of Hygiene, Swedish Gymnastics, and Vegetarian Cookery.

The course extends over two years, and complete theoretical, as well as practical, training is given.

Examinations are held and certificates given to successful students.

There are good openings for qualified teachers, who after training here are assisted to obtain posts. The College is situated in Worcestershire, six miles from Birmingham, and half-a-mile from Halesowen Station; the old historic mansion, The Leasowes, having been adapted for this purpose.

The Leasowes stands in its own extensive grounds, and is surrounded by beautiful woods. Its bracing air, elevated position, and charming situation make it an ideal place for a College of Health. It has an excellent Gymnasium fitted with Swedish apparatus, also fine Gardens.

Elocution, Dancing, Gardening, Games, &c., are also taught as a means of Health and Physical Culture.

Students are admitted in September, age 18 to 30. Apply for particulars to Miss ANSTREY, The Leasowes, near Halesowen, Worcestershire.

THE

FROEBEL EDUCATIONAL INSTITUTE,

TALGARTH ROAD, WEST KENSINGTON, LONDON, W.

Chairman of the Committee—MR. W. MATHUR.

Treasurer—MR. C. G. MONTEFIORE.

Secretary—MR. ARTHUR G. SYMONDS, M.A.

TRAINING COLLEGE FOR TEACHERS.

Principal—Madame MICHAELIS.

KINDERGARTEN AND SCHOOL.

Headmistress—Miss M. BOYS SMITH.

Further particulars may be obtained on application to the PRINCIPAL.

GOULIN SCHOOL OF LANGUAGES.

34 HARRINGTON ROAD, SOUTH KENSINGTON, 16 FINSBURY CIRCUS, CITY.

Principal—F. THÉMOIN, B.A.

Teachers trained on the Goulin Series Method. Holiday Courses in French and German.

CARLYON COLLEGE.

KERIN & LYNAM, 55 AND 56 CHANCERY LANE.

LONDON UNIVERSITY CLASSES. MATRICULATION CLASSES. INTER. ARTS and SCIENCE, PREL. SOL., B.A. and B.Sc. CLASSES. New Term, September and October.

Classes and Tuition for Legal and Medical Preliminaries, University and Hospital Scholarships, Civil Service Examinations, A.C.P., L.C.P., F.C.P., Higher Local, Oxf. and Camb., First M.B.; Royal Univ., Ireland, L.L.B. CLASSES FOR LADIES. PRACTICAL CLASSES in PHYSICS, CHEMISTRY, and BIOLOGY. Papers Corrected for Schools.

Inter. Sc. Hons. and B.Sc. Botany Class, B.A. Classical Honours Class.

Tuition and Classes in August.

College of Preceptors Classes. The Principal may be seen between 11.15 and 1 any day, and 2.30 and 5 p.m. any day (except Saturday), or by appointment at any other time.

New Laboratories fitted with electric light and supplied with all requisites for practical work.

For Prospectus and list of lecturers apply to R. C. B. KERIN, B.A. Lond., First of First Class Classical Honours, Editor of "Pro Plancio" and "Phædo," Author of "London Matriculation Course."

SUCCESSSES.

B.A. LOND., 1891, 1892, 1893, 8; 1894, 5, 2 in Honours; 1895, 7, 1 in Honours.

MATRIC. LOND., 1892-1898, 61

LOND. INTER. ARTS AND SCIENCE and PREL. SOL., 1892-1896, 49, 4 in Honours—1 with Double Honours, First and Third Class.

SCIENCE SCHOLARSHIPS, GUY'S, 1892; WESTMINSTER, 1894 and 1896.

ROYAL UNIVERSITY, 30.

OXFORD CLASSICAL SCHOLARSHIP, 1; INDIAN CIVIL, 1; OXFORD RESPONSIONS, 8; MEDICAL PRELIMINARY, 60; DOROCK SCHOLARSHIP, 1895 and 1896; CAMBRIDGE PREVIOUS, 6; and many successes at other Examinations.

JUNE MATRIC. '96, HONOURS, 1.

B.A. and B.Sc., 1896, 7.

INTER. ARTS AND SCIENCE and PREL. SOL., 1897 and 1898, 32. B.A., 1897, 5; 1 in Hons. M.A. (LOND.), CLASSICS, 1898 and 1899, 2. B.A. and B.Sc., 1898, 11; 2 in English Hons. Matric., 1899, 5.

A.C.P.,

L.C.P., & F.C.P.

PREPARATION BY CORRESPONDENCE

On a thoroughly individual system, which ensures to each student the closest care and attention. Weak subjects receive special help. Fees may be based on success.

Single subjects may be taken—Latin, Greek, French, German, Italian, Mathematics, Mechanics, Physics, Chemistry, Logic, Psychology, Political Economy, &c.

TUTORS.

The Staff includes a number of Graduates of London, Oxford, Cambridge, and Royal Universities, Science Medalists, and Specialists.

The following are a few extracts from letters of successful pupils:—

"Thank you heartily for your careful preparation, without which I am sure I could never have got through."

"I attribute my success entirely to your coaching, and shall be pleased to recommend you to my friends."

"I was pleased to find that many of the questions given to me by you were actually given in the examination."

"I have passed in every subject in the L.C.P., and am very pleased at the result. May I thank you for your kind and valuable help, which had everything to do with the result, for some of the questions I had were the same as I had previously answered in your papers."

"I have passed my examination (all subjects A.C.P.). I am simply delighted, and feel that it is owing to your excellent tuition."

For Terms, Testimonials, &c.,

Address—MR. J. CHARLESTON, B.A. (Honours, Oxon.; and Lond.).

BURLINGTON CLASSES,

27 CHANCERY LANE, LONDON.

KING'S COLLEGE, LONDON.—

Students received in Arts and Science, Engineering, Architecture, and Applied Sciences, Medicine, and other branches of education. Preparation for London and other Examinations. Day and Evening classes.

Students are classed on entrance according to their proficiency, and terminal reports on the progress and conduct of Matriculated Students are sent to their parents and guardians. There are Entrance Scholarships and Exhibitions.

Students who are desirous of studying any particular subject or subjects, without attending the complete courses of the various faculties, can be admitted as non-matriculated students on payment of the separate fees for such classes as they select.

Residence of Students.—There will be a few rooms vacant in the College next Term.

For prospectuses and all information apply to the SECRETARY, King's College, Strand, W.C.

DAY COLLEGE FOR WOMEN.

Term commences 25th Sept.



from

THE SECRETARY,

SOUTH-WESTERN POLYTECHNIC, OHELSEA, S.W.

DAY COLLEGE FOR MEN.

Next Term commences 25th Sept.

Course of Mechanical, Electrical, or Civil Engineering, or Applied Chemistry, Thorough Commercial Training. Classes in Art, Science, Music, Languages, Literature, and Elocution. Fees, £15 per annum.

Full illustrated prospectus of men's or women's classes, 2jd. each, post free.

WESTFIELD COLLEGE,

FINCHLEY ROAD, HAMPSHIRE, N.W.—TWO ENTRANCE SCHOLARSHIPS, of the value of £45 and £50 a year for two years, will be offered for competition among women students at an Examination to be held on September 12 and 13. Candidates must have passed the Matriculation Examination of London University in Honours or in the First Division, and the successful competitors will be required to enter into residence in October next, and to read for the B.A. or B.Sc. Degree of London University. Further particulars and entrance forms may be obtained from the Secretary to the Council, Miss S. M. SMER.

EPSOM COLLEGE, SURREY.

Headmaster:

Rev. T. N. HART-SMITH, M.A., late Assistant-Master at Marlborough College.

Sixteen Assistant-Masters. Classical and Modern Sides. First-Grade Public School, open to all, with Special Terms for the Medical Profession.

Special Preparation for the Universities, for London Matriculation and Science Exams., and for the Army and Navy Class.

House System. Boarders received by the Headmaster. Chapel, Library, Gymnasium, Swimming Bath, Carpenter's Shops, Fives-Courts, and excellent Playing-fields. Three Science Laboratories. Separate Lower School lately opened for 100 Boys.

For Prospectus apply to the BURSAR.

QUEEN'S COLLEGE, LONDON.—

First-rate Education Free. The GOVERNESSES' BENEVOLENT INSTITUTION will shortly PRESENT FOUR FREE PUPILS to Queen's College or Queen's College School, for a period of four years.

Candidates must be daughters of officers, professional men, or gentlemen of equal position, between 11 and 18 years of age, in some measure dependent on a Governess relative.

Applications can be made at this office until August 13.

C. W. KLUGH,

Secretary to the Governesses' Benevolent Institution.

32 Sackville Street, W.

ABERDARE HALL, CARDIFF.

Residence for Women Students of the University College of South Wales and Monmouthshire.

Principal—Miss KATE HURLEBATT.

Fees 30 guineas and 40 guineas per annum. College tuition fees £10 per annum. Scholarships of £30, £25, £15, and Exhibitions of £10 will be obtainable on result of Scholarship Examination to be held in September. A Medical School and Departments for Secondary and Elementary Training are attached to the College. Apply to the PRINCIPAL.

**ST. THOMAS'S HOSPITAL
MEDICAL SCHOOL,**

ALBERT EMBANKMENT, LONDON, S.E.

The WINTER SESSION of 1899-1900 will open on Tuesday, October 3, when the prizes will be distributed at 3 p.m. by Professor T. CLIFFORD ALLBUTT, M.D., F.R.S., in the Governors' Hall.

Three Entrance Scholarships will be offered for competition in September, viz., one of £150 and one of £30 in Chemistry and Physics, with either Physiology, Botany, or Zoology, for First Year's Students; one of £50 in Anatomy, Physiology, Chemistry (any two), for Third Year's Students from the Universities.

Scholarships and Money Prizes of the value of £500 awarded at the Sessional Examinations, as well as several Medals.

Special Classes are held throughout the year for the Preliminary Scientific and Intermediate M.B. Examinations of the University of London.

All Hospital Appointments are open to students without charge.

Club-rooms and an Athletic Ground are provided for students.

The School Buildings and the Hospital can be seen on application to the Medical Secretary.

The fees may be paid in one sum or by instalments. Entries may be made separately to Lecture or to Hospital Practice, and special arrangements are made for students entering from the Universities and for Qualified Practitioners.

A Register of approved lodgings is kept by the Medical Secretary, who also has a list of local Medical Practitioners, Clergymen, and others who receive students into their houses.

For Prospectus and all particulars apply to Mr. RENDLE, the Medical Secretary.

H. P. HAWKINS, M.A., M.D. Oxon., *Dean.***CHARING CROSS HOSPITAL
MEDICAL SCHOOL.**

The WINTER SESSION, 1899-1900, will commence on Monday, October 2nd, at 4 p.m., when an Introductory Address will be delivered by

DR. MITCHELL BRUCE.

The Livestone Scholarship (100 guineas), the Huxley Scholarship (55 guineas), and six other Entrance Scholarships, total value £550, are awarded annually.

Two Scholarships of the value of 60 guineas each are reserved for Students of Oxford, Cambridge, or London University.

FEES.—For the five years' curriculum of study required by the various Examining Bodies and for hospital practice, 110 guineas in one sum, or 121 guineas in five instalments.

The composition fee for sons of registered medical practitioners is 100 guineas, and the fee by instalments 110 guineas in five payments.

The composition fee for Dental Students is 54 guineas, or 60 guineas payable in two instalments of 30 guineas each.

A proportionate reduction of the above Fees is made to Students who have completed part of the curriculum elsewhere.

CHARING CROSS HOSPITAL is within three minutes' walk of the Dental Hospital of London, and the hours of Lectures are arranged to suit the convenience of both General and Dental Students.

The Hospital and School are situated within two minutes of both Charing Cross Stations, and the Athletic Ground at Eltham can be reached within half an hour from Charing Cross.

THE SCHOOL PROSPECTUS, containing full information concerning the classes, prizes, and all other arrangements connected with the Medical School, will be sent on application to the Dean, Chandos Street, Strand, W.C.

H. MONTAGUE MURRAY, *Dean.***KING'S COLLEGE, LONDON, and
KING'S COLLEGE HOSPITAL.**

The WINTER SESSION will commence on October 2nd.

SCHOLARSHIPS AND PRIZES.—At Entrance, £500 is awarded annually, of which £150 is for Divinity, Classics, and Mathematics; £220 is for Science and Mathematics; £130 is for Science.

During the curriculum, £300 is awarded annually in Prizes and Scholarships.

There are chambers and buttry for students at King's College, and an approved list is kept of medical men who receive students into their houses.

In addition to the regular courses of instruction for the University and for the Conjoint Board Examinations, Special Classes have been organized for the London Matriculation and for the Primary and Final Examinations for the F.R.C.S.

During the vacation, extensive additions to the accommodation of the Departments of Anatomy and Physiology have been made.

Detailed information of Classes, Scholarships, Prizes, and other matters may be found in the Prospectus, or may be obtained from the Dean or Sub-Dean by letter, or by interview at appointed hours.

ALFRED W. HUGHES, M.B., M.S., F.R.C.S., *Dean.*RAYMOND CRAWFURD, M.A., M.D. Oxon., M.R.C.P., *Sub-Dean.***GUY'S HOSPITAL, MEDICAL
SCHOOL.**

The WINTER SESSION will begin on Monday, October 2nd, 1899. Five Open ENTRANCE SCHOLARSHIPS of the combined value of £410 are offered for competition in September next, and numerous Prizes, Medals, and Scholarships are awarded annually. The COLLEGE accommodates 60 residents, and contains Reading Rooms, Dining Hall, and Gymnasium for the general use of the Students. During last year more than 6,500 patients have been treated in the Wards of the Hospital. The Preliminary Scientific Class for Students who matriculated at London University in July will begin on October 2nd. The Clubs' Union Athletic Ground at Honor Oak Park is easily accessible from the Hospital. A handbook of information for students about to enter the profession will be forwarded on application. For further particulars, or Prospectus of the School, apply personally or by letter to the DEAN, Guy's Hospital, London Bridge, S.E.

**THE MIDDLESEX HOSPITAL
MEDICAL SCHOOL.**

The WINTER SESSION (1899-1900) will commence on Monday, October 2. Mr. JOHN MURRAY, F.R.C.S., will deliver an Introductory Address, after which the prizes gained during the previous year will be distributed.

TWO ENTRANCE SCHOLARSHIPS (value £100 and £60) will be open for competition on September 21 and 22.

ONE ENTRANCE SCHOLARSHIP (value £60), open to Students of the University of Oxford and of the University of Cambridge, will be competed for on September 21 and 22. Notice in writing to be sent to the Dean on or before September 14.

Besides Scholarships and Prizes, there are annually EIGHTEEN RESIDENT HOSPITAL APPOINTMENTS open to Students, without extra fee.

The Composition Fee for general Students for the whole Medical Curriculum is 135 guineas. Special provision is made for Dental Students and for Candidates for the Preliminary Scientific (M.B.) Examination.

Special terms are made in favour of University Students who have already commenced their medical studies, and of University of London Students who have passed the Preliminary Scientific Examination.

The New School Buildings, which provide large and fully equipped laboratories for Physiology, Pathology, and Bacteriology, as well as a new Dissecting Room and Chemical Department, are now in regular use.

The Residential College adjoins the Hospital, and provides accommodation for thirty Students.

Prospectuses and all particulars may be obtained from W. PASTEUR, M.D., *Dean.*

**ST. MARY'S HOSPITAL MEDICAL SCHOOL,
PADDINGTON, W.**

The WINTER SESSION begins on October 2nd with an Introductory Address, at 3 p.m., by Mr. H. G. PLIMMER. The ANNUAL DINNER will be held in the Evening, at the King's Hall, Holborn Restaurant, Dr. SIDNEY PHILLIPS, J.P., in the Chair.

ENTRANCE SCHOLARSHIPS IN NATURAL SCIENCE.

One of £144, two of £78, 15s., one of £62, 10s., two of £57, 15s. (these two open to students from Oxford and Cambridge), will be awarded by Examination on September 21st and 22nd.

There are sixteen Resident Appointments in the Hospital open to students without expense. The School provides complete preparation for the higher Examinations and Degrees of the Universities. Special attention is directed to the fact that the authorities of the Medical School have for the first time thrown open all the Special Classes for the Higher Examinations free to Students.

The Residential College is at present at 33 and 35 Westbourne Terrace, W. Terms may be had on application to the Warden, Mr. H. S. COLLIER.

NEW OUT-PATIENTS' DEPARTMENT.

The New Out-Patients' Department, which covers an area of over 20,000 superficial square feet, was opened in May. It occupies the entire ground floor of the new Clarence Wing, which, when completed, will also provide additional wards and a Residential College for Medical Officers and Students.

ENLARGEMENT OF THE MEDICAL SCHOOL.

The New School Buildings and Laboratories, begun in the Midsummer vacation of last year, were completed by the middle of the Winter Session. The Physiological Laboratories have been further increased, and form a series of rooms which occupy the whole of the first floor of both the old and new buildings.

A fresh Laboratory, fitted with electric light and all modern improvements for the study of Biology, Pathology, and Bacteriology, has been added.

The whole of the buildings hitherto used for the Out-Patients' Department of the Hospital has been apportioned to the Medical School for purposes of new Laboratories, Class-rooms, and a new Museum. A complete reorganization of the Pathological Department has lately been made, with provision of extensive new Laboratories for Pathology and Bacteriology, and an improved Museum for Pathological specimens, with a special Anatomical Department.

HOSPITAL STAFF.

Consulting Physicians—Sir Edward Sieveking, M.D.; Sir William Broadbent, Bart., M.D., F.R.S.

Consulting Surgeons—Mr. H. Spencer Smith, Mr. Field (Aural), Mr. H. Howard Hayward (Dental).

Physicians—Dr. Chocaille, Dr. Lees, Dr. Sidney Phillips; *Out-Patients*—Dr. R. Maguire, Dr. A. P. Luff, Dr. H. A. Caley.

Physicians Accoucheurs—Dr. Montague Handfield Jones, Dr. W. J. Gower (Out-Patients).

Surgeons—Mr. Edmund Owen, Mr. Herbert W. Page, Mr. A. J. Pepper; *Out-Patients*—Mr. A. Q. Silcock, Mr. J. Ernest Lane, Mr. H. S. Collier.

Ophthalmic Surgeons—Mr. G. A. Critchett, Mr. H. Juler.

Aural Surgeon—Dr. William Hill.

Skin Department—Mr. Malcolm Morris.

Throat Department—Dr. Scanes Spicer.

Dental Surgeon—Dr. Morton Smale.

Physiology—Dr. Waller, F.R.S.

Chemistry—Dr. A. P. Laurie, M.A.

Mental Diseases—Dr. T. B. Hyslop.

Typical Diseases—Dr. John Anderson, C.I.E.

Bacteriology—Mr. H. G. Plummer.

For Prospectus apply to the School Secretary.

OTHER LECTURERS, &c.

Biology—Mr. W. G. Ridewood.

Anesthetics—Mr. Henry Davis.

Casualty Physician—Dr. Poynton.

Medical Registrar—Dr. John Broadbent.

Surgical Registrar—Mr. Ashdowne.

Curator—Dr. Dodgson.

G. P. FIELD, *Dean.*

THE DENTAL HOSPITAL OF LONDON MEDICAL SCHOOL, LEICESTER SQUARE.

The WINTER SESSION, 1899-1900, will commence on Monday, October 2nd.

Dental Anatomy and Physiology (Human and Comparative)—CHARLES S. TOMES, F.R.S., M.A., Oxon., F.R.C.S., L.D.S., on Tuesdays and Thursdays at 5 p.m. (Summer.) (Demonstrator—A. HOPEWELL SMITH, M.A., B.C. Cantab., F.R.C.S.)

Dental Surgery and Pathology—WILLIAM HERN, M.R.C.S., L.D.S., on Tuesdays and Fridays, at 8 a.m. (Summer.) (Demonstrator—R. HERSHELL, L.D.S.)

Mechanical Dentistry—E. LLOYD WILLIAMS, L.R.C.P., M.R.C.S., L.D.S., L.S.A., on Wednesdays at 5.30 p.m. (Winter.)

Metallurgy and its application to Dental Purposes—Dr. FORSTER MORLEY, M.A., F.I.C., F.C.S., on Thursdays at 5 p.m. (Winter.) (Demonstrator—PERCY RICHARDS, F.I.C., F.C.S.)

The Hospital is open both morning and afternoon. During the Sessions the Surgeons of the day will give demonstrations at stated hours.

The Medical Tutor holds classes before each Examination for the L.D.S.

The House Surgeons attend daily while the Hospital is open.

The Saunders Scholarship of £20 per annum and Prizes are open for competition.

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The Calendar may be obtained on application to the DEAN, who attends at the Hospital on Wednesday mornings from 10.30 till 12 through the year.

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The Educational Times.

As we write these words, the latest speech *Penultimate*. days and distributions of prizes emphasize the fact that another school year has come to an end. Some schools, indeed, prefer to take their opportunity at an earlier date in the summer term; but the last week of July witnesses the closing ceremonies at St. Paul's, Christ's Hospital, the City of London School, University College School, the Mercers' School, St. Olave's, Coopers Hill, Cranleigh, St. Edmund's, Epsom College, Marlborough College, and many others. We give a special report of the distribution at the Central Foundation School, which will have an interest of its own for many of our readers. To-day the Winchester boys will sing their *Domum*, and in a few other schools the month of August may catch the laggards at their desks. But practically the school year has drawn to a close, and the holiday month *par excellence* has begun.

We shall go to press without precisely knowing the fate which Parliament has in store for the Board of Education Bill. If Parliament has not exhausted its energy, the Bill should pass into the statute book this month; but the last omens are somewhat dubious. A final effort is to be made to expunge once more the words cut out of Clause 3 in the House of Lords, and restored in Grand Committee. We report in our Summary of the Month a meeting which plainly indicated the nature of the opposition to this clause, and which confirmed what we said upon the subject last month. Mr. Bryce undertook to move an amendment when the Bill was reported to the full House, the effect of which would be that the new Board of Education would have no authority to delegate its power of inspecting secondary schools. But, as this question has already been argued out and settled, and as the Committee for reconstructing the Education Department has been duly appointed, we presume that the Government have definitely made up their mind upon the details of the Bill, and that they will successfully resist any attempt to modify it in an important particular.

The proceedings in the Grand Committee on Law, when the Bill came before them for consideration, were unexpectedly quiet and peaceful. There was scarcely anything which could be called a fight over any of the amendments which had been put upon the paper. A general feeling seemed to prevail that

it would be inadvisable to restrict inspection to the Universities, or to add one or two educational bodies whilst excluding others equally competent to undertake the work. The only alternative was to leave the Board of Education with discretion to select.

The amendment moved by Mr. Jebb, one of the members for the University of Cambridge, proposed to substitute for the words, "the Board of Education through its officers or any University organization," the words, "the Board of Education through its officers, or, after obtaining the advice of the Consultative Committee, through any University or other organization approved in that behalf by the Board." In the course of his speech Mr. Jebb took occasion to refer to the College of Preceptors as an examining body which had been for many years engaged in the work of examining and inspecting schools, and whose examinations and inspections had been formally accepted by the Charity Commissioners as affording a satisfactory test of the efficiency of schools working under their schemes. He dwelt upon the extent of the examining work carried on by the College, on its recognition by various public authorities, and on its relations with a very large number of private schools in all parts of the country, as giving evidence of its fitness to be included, together with the Universities, in any schedule of bodies to which the Board of Education might delegate its power of inspecting secondary schools. The power of the Board to delegate, as Mr. Jebb further pointed out, is guarded against any possible tendency towards laxity, or premature new departures, by the necessity of obtaining the approval of the Consultative Committee to be created under the Bill.

Against this line of argument the only opposition worth mentioning came from Mr. Bryce, who, anticipating that the inspection under the Act would mainly apply to non-local schools, urged that the delegation of the power of inspection should be restricted to the Universities—at all events, until the statutory creation of the Local Authorities which will be empowered to deal with secondary schools in their respective districts. Mr. Bryce was clearly influenced on the Grand Committee, as we may assume that he will be in his motion on the Report stage—which may have been reached in the House of Commons when these words come under the notice of our readers—by the fears so vigorously expressed at the meeting of the National Education Association, and by the difficulty of recognizing one body without giving many other bodies a pretext and an encouragement to apply for inspecting powers.

We are very much in sympathy with Mr. Bryce's views, and even with the contentions of the National Education Association, a society of men worthy of all respect and consideration from the teaching profession. But we do not share the fears which are entertained in regard to the possible action of the Board of Education under Clause 3. The only bodies to which the Board would be in any way likely (as it seems to us) to delegate its powers are those which are mentioned in the editorial notes of the current *Record of Technical and Secondary Education*, as quoted by us in our Summary of the Month. And, when the new Local Authorities are set up by Act of Parliament, we see no reason to doubt that they will seek the assistance of one or other of the bodies there named, or of some body of equal competence and authority, or of the Universities. The choice will rest with the Local Authorities, not with the Board of Education, or even with the Consultative Committee. All that the Board can do is to limit the choice of the Local Authorities to certain designated bodies. That limitation must be made in any case; but that the power of the Board to designate inspecting bodies should relieve Government of the necessity of creating Local Authorities is, we honestly believe, an absolutely groundless fear.

Mr. Jebb's amendment was adopted without a division, and we may expect to find the words which we have quoted in the enacted Bill.

NOTES.

As we anticipated last month, the Senate of London University finally decided to accept the Government's offer of accommodation in the east wing of the Imperial Institute—but without prejudice to its indefeasible right to show its gratitude in the future by asking for more. We are frankly of opinion, as we have already said, that the transfer of the University from Burlington Gardens to the Institute at South Kensington raises a fair presumption that the University, after no long delay, will enter into definite possession of the entire range of buildings, and of the site on which they stand. Some will say at once that this is impossible, and that the part taken by our Colonies and Dependencies in building the Institute at the instance of the Prince of Wales is sufficient to preclude such an idea. But we maintain our opinion for all that. The star of the University of London is in the ascendant, and no consideration is strong enough to confine it perpetually in a half-building. The Colonies and India may have to sing with Virgil, if Virgil did sing it, "Sic vos non vobis nificatis aves"; but in that case they will sing it without much jealousy, and they may even retain a place in the nest.

THE question of ways and means for the developed University is one of very considerable importance. It should henceforth be the first and most pressing question of all for such as are interested in the future of the University, and the time has come—or will, at any rate, have come as soon as the vacation is at an end—to put forth a strong appeal for private as well as public endowment. We fully endorse what was said on this point in the *Athenæum* of July 15:—

We said some months ago that the Government contemplate the proposal next year of a Parliamentary grant of not less than £40,000 per

annum, in addition to the free accommodation. Considering the very large cost of maintaining the new University buildings, it is to be hoped that this cost will be borne by the Treasury, or else that the grant to be asked from Parliament will greatly exceed the sum above mentioned. It may further be hoped, now that the reconstitution of London University is so far advanced, that a public appeal will be made, and readily responded to, for the equipment and endowment of what is, in many respects, a new University. No more worthy object could be found for the benefactions of wealthy men with a zeal for education than a national University for teaching and research, in the greatest city in the world. Its adequate endowment clearly calls for a more ample provision than that which can be expected to be made by the Government and the London County Council.

THE Oxford class lists in *Literæ Humaniores* and History, coming out at the end of July, a few days after the exceptionally long matriculation list of London University, may be said to complete the academic record of the year. The History list of Honours is unusually long, and the value of a "First" may be measured by the fact that there are only seven men and two women in Class I. out of about a hundred and fifty men and women who have done well enough to deserve Honours. This marks a very high standard. We are glad to note that one of the two women "Firsts" is the daughter of Mr. Arthur Sidgwick, a home student, the other being Miss Carter, of Somerville. The list, indeed, has many distinguished names—that is to say, the names of men and women who have distinguished parents. Women have specially proved their aptitude for historical study, and Oxford has recently produced a group of able women writers on historical subjects. Miss Eva Scott's book on "Prince Rupert" and Miss Eckenstein's essays on the Guidi in the *English Historical Review* are cases in point. The younger generation of women historians cannot do better than emulate the distinction which has been gained, for instance, by Mrs. J. R. Green and Miss Kate Norgate.

THE "Public School Record" for the past twelve months, published in the *Daily News*, accounts for about three hundred and fifty scholarships at Oxford and Cambridge, mostly open, which have been won by boys from about one hundred and thirty-five endowed and proprietary schools. The following schools are credited with five or more scholarships each, close scholarships being included in the case of Merchant Taylors', Winchester, and Eton:—St. Paul's (High Master, Mr. F. W. Walker, number in the school, 609), scholarships, 29—total for thirteen years, 256; Merchant Taylors' (Rev. Dr. Baker, 508), 15—total, 215; Clifton (Rev. M. G. Glazebrook, 600), 12—total, 128; Marlborough (Rev. G. C. Bell, 580), 10—total, 129; Dulwich (Mr. A. H. Gilkes, 663), 10—total, 128; Christ's Hospital (Rev. R. Lee, 580), 10—total, 87; Winchester (Rev. Dr. Fearon, 400), 9—total, 135; Eton (Rev. Dr. Warre, 1,010), 9—total, 132; Rugby (Rev. Dr. James, 575), 9—total, 108; Charterhouse (Rev. G. H. Rendall, 555), 9—total, 100; Tonbridge (Rev. C. C. Tancock, 400), 9—total, 51; City of London (Mr. A. T. Pollard, 670), 7—total, 77; Harrow (Rev. Dr. Wood, 600), 7—total, 62; Cheltenham (Rev. R. S. de C. Laffan, 620), 7—total, 57; Manchester (Mr. J. E. King, 770), 6—total, 127; Felsted (Rev. H. A. Dalton, 250), 6—total, 27; Bradford (Rev. W. H. Keeling, 465), 5—total, 73; Malvern (Rev. S. R. James, 450), 5—total, 67; Bath (Rev. W. Y. Fausset, 135), 5—total, 64; Rossall (Rev. J. P. Way, 315), 5—total, 61; Uppingham (Rev. E. C. Selwyn, 415), 5—total, 47; Nottingham (Dr. J. Gow, 370), 5—total, 35; King's, Canterbury (Rev. A. J. Galpin, 172),

5—total, 25; Leicester (Rev. J. Went, 440), 5—total, 23. Thirteen schools, including Owen's, Islington (Mr. Easterbrook, 430), have won three scholarships; and thirty-one schools, including Highgate (Rev. A. E. Allcock, 230), have won two.

THE educational side of the co-operative movement steadily develops. The Co-operative Union organizes lectures and arranges for examinations on industrial history, co-operation and economics, &c., and the Women's Co-operative Guild does a similar work. At Hebden Bridge, the co-operators have for years run courses of University Extension lectures, and co-operators are among the most enthusiastic of Extension students at the summer meetings. At the August meeting, just begun, there is to be a Co-operative Conference held at Oriel College on August 12, and here a paper will be read on "The Teaching of Citizenship," by Mr. Albert Mansbridge, an enthusiastic co-operator, who has recently conducted a class in industrial history at Battersea. Oriel College, by the way, is peculiarly dear to the hearts of co-operators from its connexion with "Tom Hughes" and E. Vansittart Neale. It is interesting to note that one-half of the scholarships and prize-money offered by the Oxford University Delegacy has gone to co-operators. In other ways, too, co-operators are coming into touch with the University of Oxford. The Oxford Delegacy has undertaken to give what help it can towards improving the qualifications of the teaching staff of the Co-operative Union. To this end special examinations are to be held for teachers to enable them to qualify for a place on a special register. Any classes held in future under such registered teachers will be officially recognized and examined by Oxford University. In addition to this, the Co-operative Union has agreed to engage a qualified teacher on economics and kindred subjects for the coming winter session, half of the cost being defrayed by the Delegacy and half by the Educational Committee of the Co-operative Union.

THE Second Annual Report of Intermediate Education in Wales is distinctly encouraging—marking progress in numbers and general efficiency alike. The number of schools established under the Act has now risen to ninety-three. Of these, twenty are for boys, twenty-one for girls, forty-five provide for the education of both, but in separate buildings, and seven are mixed schools, in which the experiment of co-education is being tried. Nearly £12,000 has been given in the last year in scholarships and bursaries, the greater number of these being held by pupils from the public elementary schools. Of the sixty-eight headmasters all are graduates, whilst seventeen of the twenty-eight headmistresses hold degrees. An analysis of salaries shows the average salary of the former to be £272, and of the latter £227. Most of the school buildings are new, and are provided, in most cases, by the County Board, which has important and varied duties to perform. Here are some of them:—It distributes the County Fund, and provides scholarships to enable pupils to pass on to a University education. It looks after the inspection and examination of the schools, provides travelling teachers in various subjects, organizes the Teachers' Pension Fund, and frames general regulations for the guidance of the district bodies. These local bodies are responsible for local finance and school management, and administer the Local Scholarship Fund. The constitution of the County Board is as follows:—A majority

of the members is appointed by the County Council, and, in every case, at least one governor is appointed by one of the Welsh University colleges. The remainder are appointed by the district governing bodies, by co-optation, and, in some cases, by the head-teachers of the public elementary schools. It is thus sufficiently representative.

THE ladder of learning in Wales is a fair structure to the casual beholder. Its middle rungs are certainly admirably constructed for their work. But, alas! we learn that the lower rungs are all too weak, and that the progress of secondary education in the new county schools is seriously hampered by the weakness and inefficiency of the elementary education on which it is based. There are now nearly seven thousand children in the intermediate schools of Wales. Of these, more than one-third come from rural parishes, and five out of every seven come from some grade of elementary school. If it is asked: What are the weak spots in elementary education? the answer is simple and by no means unheard of in England. Bad attendance, child-labour, scarcity of teachers, inadequacy of their equipment. All these things need to be remedied, and, until they are, the success of a splendid scheme of intermediate education in Wales must fall far short of what it might otherwise attain. The house of education needs firm foundations if it is to be enduring and beautiful.

SUMMARY.

THE MONTH.

WHEN the Board of Education Bill was referred, on its second reading in the Commons, to the Grand Committee on Law, no difficulty was experienced in restoring the provision in Clause 3 which had been expunged by a surprise vote in the House of Lords. The opponents of the clause as drafted in the Bill were not content to be overruled without another effort to get rid of the obnoxious words. A meeting was held at the office of the National Education Association, when it was decided, on the motion of the Rev. E. F. M. McCarthy, of Birmingham, seconded by the Rev. Dr. Bruce, Huddersfield, "That the National Education Association is strongly of opinion that nothing should be done in the Board of Education Bill to prejudice the formation by Parliament of Local Authorities for Secondary Education, and hopes that Clause 3 may be omitted from the Bill, as tending to enable the Education Department to set up such an Authority by Departmental action."

THE Association above mentioned has prepared and circulated a special report, in which it is maintained that the only way to protect the schools and to preserve to Parliament the right and responsibility of designating the Local Authorities for Secondary Education is to strike Clause 3 out of the Bill.

The clause is outside the declared object of the Bill. It can be of no immediate use, for the Board of Education created by the Bill does not come into existence till April next, so it is possible for the Local Authorities to be created by Act of Parliament next Session at an earlier date than it could be done by Administrative Order under this clause; i.e., if the Government are honest in their intentions to introduce such a Bill. Every educational body, such as secondary schools of all types, the Universities, the diocesan organizations, the County Councils, the non-County Boroughs, the School Boards, the teachers' organizations, and others who are interested in the future Local Authorities, will be affected by the action of the Board under this clause. So far from safeguarding the interests of any of these bodies, the clause does not even provide that the organization selected shall be of an educational character. The issue at the present moment, however, is not what form the Local Authority for Education shall take, but whether that question (which is one of the most important the House of Commons could decide) shall be handed over entirely to the Minister and the Education Board to settle without reference to Parliament.

THE *Record of Technical and Secondary Education*—the quarterly journal of the National Association for the Promotion of Technical and Secondary Education—of which the Duke of Devonshire is President, refers in its July number to the attitude of the Government towards the Board of Education Bill. We quote from our contemporary's "Editorial Notes":—

At the instance of Earl Spencer, the Standing Committee took exception to this provision, and, by the deletion of certain words, limited the inspection of secondary education to the Board's officers or the officers of any University organization. We cannot understand why it should be sought to fetter the new Board of Education by the proscription of one of their most important functions. It is universally admitted that, if our secondary education is to be systematically organized, the forces now engaged in this field must be brought into harmonious relations with each other and with the new Board of Education. To accomplish this task, it will be necessary to utilize all such existing resources as may be suitable, and consequently the Bill should confer ample powers for the purpose. We feel sure that, if the Standing Committee of the House of Lords had contemplated the real effect of the amendment, their Lordships would not have agreed to the restrictive clause. But the misunderstanding which has arisen has not been without its uses; an opportunity was thus provided for the demonstration of the need for that "freedom, variety, and elasticity," not only for what may be termed secondary education proper, but also in those other forms of education which the Royal Commission held to be within the "secondary" sphere. Among the bodies who embraced this opportunity are the National Association for the Promotion of Technical and Secondary Education, the City and Guilds of London Institute, the London Chamber of Commerce, the Joint Scholarships Board, the College of Preceptors, the Technical Education Board of the London County Council, and the Association of Directors and Organizing Secretaries for Technical and Secondary Education. It is clear that manifestations of this character have not failed to impress the Grand Committee of the House of Commons with the serious nature of the issues which have been raised: for, when the Bill came before them, they agreed, on the motion of Prof. Jebb, to the insertion of words which will secure all that is desired.

THE Duke of Devonshire, questioned on July 20 as to the probable administrative effect of the Board of Education Bill, said it was impossible to sketch in detail what the organization of the future Education Department would be until the subject had been inquired into and reported upon by the Departmental Committee which had been appointed. The Committee would be composed of Sir Horace Walpole, who would be the Chairman; Sir Geo. Kekewich, Secretary of the Education Department; Capt. Abney, Director of the Science and Art Department; Mr. Spring-Rice, of the Treasury; and Mr. Tucker, Principal Assistant-Secretary of the Education Department. In the apprehensions that had been expressed, sufficient regard was not paid to the extremely close connexion between the various officials of the Board which would be established by the new reorganization scheme. There was not the slightest intention of placing schools and Educational Authorities in undue subordination to District Authorities, and, at the same time, nothing would be done to restrict the County Councils in the field of technical and scientific education which they were usefully occupying.

THE changes which took place early in the month in the staff of the Science and Art Department are doubtless, in some sense, provisional. Sir John Donnelly has retired from the Secretaryship, after forty years of public service; and, in consequence, the Duke of Devonshire, as Lord President of the Council, has made the following appointments:—Sir George W. Kekewich, K.C.B., the present Secretary of the Education Department, to be also Secretary of the Science and Art Department; Captain W. de W. Abney, C.B., to be the Principal Assistant Secretary of the Science and Art Department; and Mr. W. Tucker, C.B., to be the Principal Assistant Secretary of the Education Department.

At an adjourned meeting of the Senate of London University, held on July 5, the following resolution was proposed by Sir Edward Fry, seconded by Mr. Bryce, and carried by a large majority:—"That the Senate accepts the proposal of Her Majesty's Government as far as it provides in the buildings of the Imperial Institute accommodation for the work hitherto done by the University; and authorizes the Committee, consisting of the Chancellor, the Vice-Chancellor, and Sir J. G. Fitch, to settle the formal terms of agreement with the Government; and the Senate reserves the right of the University to hereafter request the Government to make further provision for such further needs as may arise in the future." The Treasury are making the

necessary arrangements, and it is understood that the transfer from Burlington Gardens to South Kensington will be finally effected before the beginning of next term.

A CONFERENCE of teachers of anatomy, physiology, and *materia medica* in the medical schools of London was recently held to consider the advisability of amalgamating the teaching of the early medical studies, and to discuss the best means of carrying out such an amalgamation in connexion with the reconstitution of the University of London. It is understood that the conference was summoned in response to informal representations which had been made on behalf of the Statutory Commission. As was to be expected, considerable difference of opinion was disclosed, and on the first occasion the conference was adjourned without coming to any definite decision. At the adjourned meeting two committees were appointed to embody in two separate reports the divergent opinions with regard to the advantages of centralization which had been expressed. These reports will eventually come before the committees of the various medical schools.

MR. JEBB, M.P., presided at the distribution of prizes at King's College, London, on July 12, and, in the course of his address, he said that the medical faculty was in a decidedly prosperous state. Another proof of the manner in which the work was growing was that it had been found necessary to appeal for funds to provide accommodation for biological work. The proposal was to erect a new block on the second floor of the college so as to obtain an additional laboratory for bacteriology, more accommodation for physiology, and a joint-lecture theatre for the two departments. With extended accommodation for science, and with the teaching of the eminent men who adorned the staff of the college in that and other departments, they might feel confident that King's College would uphold and enhance its distinguished record, and continue under new conditions to fulfil with even an increased measure of success the noble purpose for which it was founded.

BISHOP MITCHINSON, Master of Pembroke College, Oxford, attended the prize-giving at Cheltenham College, when Mr. De Courcy Laffan retired from his position as Principal. The Bishop made a speech which has apparently fluttered the dovescotes at Corioli.

The Principal had spoken of physical training. Personally he was not an athlete (though he would undertake to beat any old gentleman of his own age, and equal almost any middle-aged man, at walking), but he was interested to learn that they paid due attention to the scientific training of the body in the gymnasium. He represented a very primeval state of affairs as an old schoolboy, as the only athletic training they received at old Durham Cathedral School, whose primitive ways in his time he described amidst much amusement, was by the desecration of a neighbouring churchyard. He believed in the *mens sana in corpore sano*, but he appealed to them to keep athletics in their place. He was shocked at the absolute devotion to athletics in his own college, where the prospect of getting their own man into the University eight was considered a far higher distinction than getting a Double First. Muscles never ruled the world, but mind did and always would, and he warned them against letting themselves drift into the idolatry of athleticism. The besetting sin of Oxford to-day was idleness, absolute idleness. People did not care about being ploughed. The rank and file at the University gave themselves to play and not to work. There was much enjoyment got out of a life of work. He had had to make his own way from the days when he was a penniless lad of seventeen; but he believed there were few who had a better record or who had lived a brighter, happier, and more absolutely enjoyable life than the old man now speaking to them. The secret of his happiness was that he had had lots of pursuits as a boy at school, and that they had stuck to him like limpets to a rock throughout his career in England, in Barbadoes, and in his little country parish. He had ridden his hobbies, and continued to ride them, and he exhorted them to try to cultivate a hobby or two during their holidays. The enjoyment of these intellectual pleasures would never pall. Athletics would. These hobbies would save them from being the intolerable nuisance that boys at home without anything on earth to do were to their parents and their sisters.

THE following scholarships have been awarded at the Cambridge Training College for Women Teachers for next September:—The Council Scholarship of £30 to Miss Annie D. F. Salmond, M.A. Aberdeen (Honours in Philosophy, Seafield Gold Medal and Minto Memorial Prize in English); the Council Scholarship of £25 to Miss Minnie L. Arthur, M.A. Glasgow (Honours in Modern Languages); the Gilchrist Scholarship of £25 to Miss E. M. Lloyd, B.A. Wales (Honours in English), of University College, Aberystwyth; the Council Scholarship of £20 to Miss Gertrude

Williams, B.A. London (Honours in English); and the Scholarship of £20 offered by the Cambridge Training College Guild of Old Students to Miss E. Boyd, B.A. Royal University of Ireland.

At Bedford College, London, the Reid Scholarship in Arts has been awarded to Miss Elizabeth Florence Lowes, of Queenswood School, Clapham; the Arnott Scholarship in Science has been awarded to Miss Lilian Marian Warwick, of the North London Collegiate School; the College Hygiene Certificate has been awarded to Miss Mildred O. Power and to Miss Lucy M. Fryer. The Early English Text Society's Prize for English has been awarded to Miss Edith L. Calkin.

THE results of the L.L.A. Examination of the University of St. Andrews, which was held at numerous centres in Great Britain and Ireland, France, Germany, Belgium, Switzerland, Roumania, Natal, Cape Colony, Victoria, and the United States of America, on May 30 and 31 and on June 1, have been issued by the University. It appears that 959 candidates entered for examination at 77 centres this year, as compared with 950 at 74 centres in 1898, and 951 at 72 centres in 1897. 319 candidates entered this year for the first time, as compared with 285 in 1898; and, from the commencement of the scheme in 1877, 4,789 candidates in all have been entered for examination. 127 candidates have completed the requisite number of subjects, and will receive the L.L.A. diploma of the University.

THE results of the Degree Examinations of the University of Wales are published. The following women students of Aberdare Hall, Cardiff, have been successful:—In the Faculty of Arts: G. E. Holding, C. E. Davies, M. G. W. Evans, S. A. Evans, M. Salmon, E. C. Williams, M. G. Edwards, G. S. Pole Evans, A. E. George, C. M. Jenner, H. M. Davies. In the Faculty of Science: Philosophy, Special, A. Embleton; Elementary Logic, E. d'Auvergne; Mathematics, Special, C. E. Browne; Mathematics, Intermediate, E. d'Auvergne; Botany, Final, A. Embleton; Zoology, Final, A. Embleton; Biology, Intermediate, E. d'Auvergne. G. E. Holding has completed her qualification for the B.A. degree, and A. Embleton for the B.Sc. degree.

DR. WORMELL.

THESE were circumstances of exceptional interest connected with the annual distribution of prizes, on July 20, at the Central Foundation School for Boys. As our readers are aware, Dr. Wormell retires this term from the headmastership of the school, which he has held for the past twenty-five years, and the occasion was seized by many of his friends, with whom he has been associated in the various phases of his career as an educational expert, to bear witness to the esteem with which he is universally regarded. It would have been difficult, if the attempt had been made, to bring together a more widely representative gathering than that which spontaneously assembled in Cowper Street to do honour to Dr. Wormell on his last appearance as headmaster. The governors of the school were represented by Captain Gassiot, chairman, Sir Owen Roberts, vice-chairman, and others. Mr. Bryce, M.P., Canon Lyttelton, Mr. Yoxall, M.P., and Mr. Sadler were colleagues of Dr. Wormell on the Royal Commission on Secondary Education—and, in a measure, the same gentlemen may be taken as having represented the Education Department, the "Conference" Headmasters, and the National Union of Teachers. Sir Joshua Fitch and Mr. Sharpe are *emeriti* inspectors under the Education Department. Dr. W. Garnett represented the London County Council; Dr. Scott and Mr. Easterbrook stood for the London Endowed Schools. The College of Preceptors, of which Dr. Wormell is the senior vice-president, was represented by the Dean, Treasurer, and Secretary of the College, with two or three other members of the Council.

Mr. Bryce, who distributed the prizes and subsequently addressed the school and the visitors, bore testimony to the services which Dr. Wormell had rendered, not merely to the institution with which he had been connected from its foundation in 1866, but also to his colleagues on the Royal Commission—of which it will be remembered that Mr. Bryce was the chairman. "Dr. Wormell," he said, "was a member of the recent Royal Commission on Secondary Education, of which other members were present, and he believed he was expressing their feelings as well as his own when he said that they greatly enjoyed his co-operation, and profited by the knowledge and experience he was able to bring to bear on its work, while they quitted it with their respect for him greatly increased by the knowledge they gained of his character during those years. They felt that he was well qualified to express the failings and ideals of secondary education. They appreciated what he had done for the school, and wished him every good in his retirement, and many years of happiness, in which he

might still render great and valuable services to the cause of education."

On behalf of the present scholars, H. P. Farrell read the following address to Dr. Wormell:—"We, the boys of the Central Foundation School, take this opportunity of publicly expressing our deep regret at your retirement from the post which you have filled with such distinction during the past twenty-five years. We take advantage of this occasion to express our gratitude for the devotion with which you have laboured to make our school leave a sound preparation for the future. Being yet schoolboys, we probably do not fully appreciate all the good influence brought to bear upon us while under your care; but the experience of those who have left the school assures us that we shall, at no distant date, find full cause to be thankful for what you have done for us. Your readiness to give advice and assistance, and the firm and gentle way which you have exercised in matters of discipline, have left a lasting impression on the memories of all who have had the good fortune to be your pupils. While we regret your leaving, we must not omit to express our heartiest wish that you may yet have many years of usefulness to devote to the work of education."

Mr. John Guppy spoke on behalf of the past scholars. He was there, he said, as the representative of a very large constituency. He had a message from old boys in all corners of the world. He had had letters from Australia, from South Africa, from Vancouver, the Continent of Europe, and all parts of the British Isles. They were all sorry to learn that "The Doctor" was retiring, and hoped that he would live long and happily. They desired to thank Dr. Wormell for many reasons. First, they thanked him for his absolute fairness to every boy in the school. The Doctor's system had been to trust every boy until he proved that he could not, and he was rarely wrong. Next they thanked him for his many-sidedness. No one came to him for advice on a subject without getting what he wanted. In conclusion, he had to express the old scholars' thankfulness and gratitude for all that Dr. Wormell had done for them in the past, the love and respect which they bore towards him, and their hope for his assistance and friendship in the future.

A portrait of himself, painted by Mr. H. M. Paget, an old boy, and presented to Dr. Wormell by the past and present scholars, was then unveiled by Mr. Bryce amidst loud cheering, which was renewed as the Doctor rose to respond.

DR. WORMELL said:—Mr. Chairman, ladies, gentlemen, boys, and friends, I am sure you will understand the reason when I tell you that I cannot say many words to-day. I am too emotional to try to put into words a fraction of what is in my heart. When I heard that the time had come for my retirement, I prayed I might be allowed to pass away in peace and without demonstration. Your kindness and appreciation, I must admit, will go a long way to help me over a very trying crisis. In the many letters I have received in the last day or two, two words almost invariably come together—congratulations and regrets. Naturally, I have come to regard those two words as being almost synonymous. I have tried to congratulate myself, and I have always ended with regrets. I have quoted the poets. I have said, for instance,

"Merrily, merrily shall I live now,
Under the blossom that hangs on the bough."

I am sure, however, that the poets are not always true prophets. I have also tried the philosophers. Pericles said those who were born to govern had only two happy days—that on which they entered office, and that on which they left it. Now, all my happiest days lie between those two extremes. The pleasures of work in this place cannot be described. I have had an infinite number of problems in humanity to solve. Some I have solved, and some only partially; and there is a feeling of unfinished work rising in my mind. It is not the boys who have made great achievements who are most on my mind. You all know that the member of the family who brings most anxiety is the one around whom the cords of affection are most tightly drawn. Your kindness, however, has given me some hope that I may still be of use to somebody. To boys present and boys past, to colleagues, and to friends, I would say that if, in the future, I can be of any use to you, I shall be at your service for the asking.

THEORY AND PRACTICE.

IT is one thing to learn principles of mechanics out of a book; quite another to recognize these principles when hidden, as they are sometimes, in their practical applications to engineering problems, and the student often has his faith put to a severe test when he endeavours to reconcile practice with theory. It is well for the engineer to be equipped with a strong disposition to accept mechanical principles as laws incapable of being altered, and to attempt to reconcile practical engineering anomalies, as they appear to him, to these laws, rather than to choose the alternative of doubting principles when practice does not seem to indicate their infallibility.

As an illustration of what is meant, a student refused to believe that a definite number of foot-pounds was the equivalent of a thermal unit, because "he had undoubted proof to the contrary." On being asked to state his reasons, he said that bodily exertion, which he supposed,

quite rightly, was the expenditure of energy, left the body hotter than before the exercise began. Consequently, his proof was established satisfactorily to himself, for would not the body be colder after the withdrawal of energy equivalent to so much heat? The explanation lies in the domain of physiology, and, consequently, outside of his special lines, though it is sufficiently simple to become clear after a little thought. Our student never thought of applying this same reasoning to the case of a steam boiler, which, after a day's work of furnishing steam to the machinery is over, is certainly hotter than in the morning before the fires were started, and which has been giving forth mechanical energy all day in the form of rotating shafts and moving tools, to which the power of a steam-engine in a shop is applied. Such rash conclusions are strengthened by the fact that, to the untechnical mind, there does not seem to be any possible connexion between heat and mechanical energy. The hasty generalizer has the majority on his side; but evidence of this kind can often be turned against him, as a shrewd lawyer will use the false statements of opposing witnesses to strengthen his case.

This is only one instance out of many which the engineer comes across in the everyday practice of his profession, and the ability to make law and order out of chaos is by no means the least useful of his attainments, for the satisfaction alone which comes from understanding problems thoroughly is of itself almost full payment for the trouble of acquiring the knowledge.

The practical man sometimes places little confidence in formulæ which are supposedly free from error, and which mathematicians guarantee for their accuracy. If the workings of Nature were simple, and we could dissociate certain causes from their combined effects, we should be better able to apply formulæ to engineering problems. Thus, the well known formula for falling bodies, by which the space through which a body falls in a given time can be calculated, is only true when we neglect the resistance of the air—an assumption which we cannot make in many practical problems, and which, if made, plunges us at once into error and inaccuracy. The term "neglecting friction," so common on examination papers, cannot appear among engineering work unless the effect of taking it into account is balanced by other elements in the problem. Otherwise provision must be made for including the effect it has in modifying the result. The engineer might say that the mathematician does not go far enough. He ought to supply formulæ for the solution of the common problems which comprise the everyday work of the practising engineer, and, if such simple matters as the falling of a body in air are beyond his range, how can we trust his deductions in more complicated cases? The answer is that common sense supplies most of the shortcomings noticed in formulæ. It is nearly always possible, by the exercise of judgment, to supply the deficiencies and adapt formulæ to the special problems which occur in practice. A large number of formulæ of special utility to be found in handbooks are empirical in the sense that they are derived by tentatives, and are thus the results of practice put into a condensed and convenient form, and do not depend for their existence on theory alone. Those which are purely theoretical, though possessing absolute accuracy as far as the data from which they were derived is reliable, must be used with great care to avoid error, for, on close examination, the data of the special problem to which you are about to apply the formula may differ essentially from those to which the formula owes its origin.

Formulæ for beams are in general use, but special care must be taken to see that a formula copied from a handbook includes all the conditions of the problem, and excludes all others. It is a common mistake in proportioning beams to apply the formula which gives the fibre stress in a beam supported at the ends and loaded in a certain manner to the case of a beam which, as many beams are in practice, is not merely supported, but fastened at the ends to the supports. A widely different result is obtained if pains are taken to include all the conditions. There is a tendency to let the blame fall unjustly on the formula, for the innocent combination of symbols refers to something else for which it was designed. Illustrations of this kind could be multiplied to show that mathematically deduced formulæ must be handled with care for the purpose of the engineer. The habit of taking formulæ from handbooks to apply to problems without exact consideration of the results which can be expected from them is responsible for much lack of confidence in theory, and for the continued use of hit-and-miss methods.

ROBERT S. BALL, B.Sc.

COLLEGE OF PRECEPTORS.—HALF-YEARLY GENERAL MEETING.

THE Ordinary half-yearly General Meeting of the members of the College was held at the College, Bloomsbury Square, on Saturday, July 22.

The Secretary having read the advertisement convening the meeting, Dr. WORMELL, Vice-President, was appointed Chairman.

The Report of the Council was laid before the meeting, and was taken as read, a copy having been sent to every member of the College. It was as follows:—

REPORT OF THE COUNCIL.

The Council beg to lay the following Report of the proceedings for the past half-year before the Members of the College:—

1. They have to report that the number of candidates entered for the Midsummer Examination for Certificates is 4,830, while the number of entries for the Junior Forms Examination is 1,300, the total being about 4 per cent. below the number of entries for the corresponding Examinations in 1898. The Public Distribution of Prizes and Certificates to the successful candidates at the last Christmas Examination took place at the College on the 1st of March, when the Chair was occupied by the Rev. T. W. Sharpe, C.B., late Senior Inspector of Training Colleges. Due notice will be given of the time and place of the forthcoming Distribution.

2. The Professional Preliminary Examination for intending medical students and others was held, as usual, in the second week in March, and was attended by 229 candidates. The Medical Council, who have for some time been anxious to raise the minimum qualification for admission to the profession, acting on a Report of their Education Committee, decided in November last to withdraw recognition from the College Second Class Certificate on and after the 1st of January, 1900. The Education Committee's Report gives expression to views which are opposed to the published opinions of important educational authorities, and also contains errors of so grave a character as, in the opinion of the Council of the College, to vitiate entirely the conclusions based upon it. A letter calling attention to these errors, and asking for a revision of the Report, has been sent to the President of the Medical Council, and it is hoped that their final decision will be made known in November next.

3. For the Midsummer Examination of Teachers for the College Diplomas 186 candidates have entered (including 10 who offer themselves for the Practical Examination for Certificates of Ability to Teach). This number shows a considerable falling-off as compared with the corresponding Examination in 1898, which is entirely due to the recent limitation of exemption from examination in subjects other than Theory and Practice of Education, in the case of holders of Privy Council Certificates, to the highest grade of Certificate granted by the Education Department. The Examination will be held in London and at the following local centres:—Birmingham, Bristol, Leeds, and Manchester.

4. In addition to their own Examinations of pupils and teachers, and the Examination of schools by Visiting Examiners, the Council have conducted, during the past half-year, the Preliminary Examinations of the Pharmaceutical Society of Great Britain.

5. The Thirtieth Annual Series of Lectures to Teachers on "The Science and Art of Education" commenced on the 16th of February with a Course of Twelve Lectures on "Moral Education," by Prof. James Sully, M.A.; and a Course of Twelve Lectures on "The Practice of Education" will be delivered in the autumn by Mr. P. A. Barnett, M.A. The Winter Meeting for Teachers, which was held in the first fortnight in January, was in every way as conspicuous a success as the first Winter Meeting, which took place in January, 1898. The Council propose to arrange for a similar Meeting, with Courses of Lectures on special departments of education, to take place during the next Christmas vacation.

6. The usual Monthly Evening Meetings of the Members have been held during the past half-year, at which the following lectures have been delivered:—"On the Teaching of Modern Languages in German Schools," by W. C. Brown, M.A., F.C.P.; "Literary Inventiveness in School-Children," by H. Holman, M.A.; "The Growth of the Child Mind," by Prof. Woods Hutchinson, M.A., M.D.; "The Board of Education Bill and Secondary Education," by R. P. Scott, M.A., LL.D.; "Historical Examination Papers: How to Set and Answer Them," by H. E. Malden, M.A. The lectures and the discussions on them have been reported, as usual, in the *Educational Times*.

7. The Bill for the constitution of a Board of Education, to deal with secondary as well as elementary education, was introduced by the Duke of Devonshire in the House of Lords in March last, and, after passing through the various stages, was reported on the 12th of May. The clauses of the Bill give a large discretion to the Board in dealing with the varied and difficult questions connected with the organization of secondary education, in which the Board is to have the assistance of a "Consultative Committee," consisting mainly of "persons representing Universities and bodies interested in education." To this Consultative Committee is to be entrusted the framing of regulations for the formation of a Register of Teachers. The vagueness of the provisions for the inspection of secondary schools was made the occasion of an amendment in Committee, which limited the power of inspection to the officers of the Board and to University organizations. The effect of this amendment would be to exclude the College of Preceptors, whose inspections and examinations of schools have for many years been accepted by the Charity Commissioners as satisfactory tests of efficiency. The amendment was carried in spite of the opposition of the Duke of Devonshire, who pointed out the effect of it; but it is hoped that it may be found possible to secure the introduction of some provision in favour of the College, when the Bill reaches the Committee stage in the House of Commons. The Council believe that it is for the interests of secondary education that the Bill should become law during the present Session, and they trust that this may be effected without in any way injuring the work that they have carried on for the past forty years.

8. During the past half-year, the Diploma of Licentiate has been conferred on five candidates, and that of Associate on forty-eight, who had

passed the required examinations. Twenty-seven new members have been elected, and notice has been received of the withdrawal of seven. The Council regret to have to report the death of one of the oldest members of their body, Mr. W. J. Reynolds, F.C.P., and also of the following members:—Sir John Struthers and Prof. Bartholomew Price (honorary members), Mr. W. T. Adkins, the Rev. G. Frost, F.C.P., Mr. G. W. Gentleman, A.C.P., Mr. T. J. Leeming, A.C.P., Mr. J. Royds, A.C.P., the Rev. Dr. Schoell, the Rev. T. Rudd, and Mr. W. J. Stafford.

In reference to paragraph 7, the DEAN called the attention of the meeting to the fact that since the Report was sent out the Board of Education Bill had been discussed in Committee of the House of Commons, when Clause 3, which, as amended in the House of Lords, would have limited the inspection of schools to University organisations, was, by an amendment proposed by Professor Jebb, and carried without a division, extended so as to include the College of Preceptors and other bodies which might be judged by the Board of Education, after taking the advice of the Consultative Committee, to be competent for the work. In his speech in moving his amendment, Professor Jebb spoke in the most appreciative terms of the work which the College had done for so many years past in the examination and inspection of secondary schools, and stated clearly the reasons why the recognition which the College had hitherto received from the State for these purposes should be continued.

The Report of the Council was then adopted.

The DEAN presented his Report, which had been printed and distributed among the members present, and which was as follows:—

THE DEAN'S REPORT.

In addition to the general statement of the examination work of the College during the past half-year, which has been embodied in the Report of the Council, I have now to submit to you, in detail, the statistics and results of the various examinations.

The Midsummer Examination of candidates for Certificates took place on the 27th to the 30th June at 170 Local Centres and Schools. In the United Kingdom the Examination was held at the following places:—Alvechurch, Barnstaple, Barrow-in-Furness, Bath, Belfast, Berwick-on-Tweed, Betley, Buxhill, Birmingham, Bishop's Stortford, Blackpool, Bolton, Boston Spa, Bournemouth, Brecon, Brighton, Bristol, Bromyard, Broxbourne, Bruff (Co. Limerick), Bungay, Camborne, Camelford, Canterbury, Cardiff, Carnarvon, Cavendish, Cheltenham, Cheshunt, Coleraine, Cork, Croydon, Deal, Doncaster, Drax, Dumfries, Durham, Ealing, East Grinstead, Eaton Socon, Edgbaston, Epsom, Exeter, Eye (Suffolk), Fakenham, Falmouth, Faversham, Forest Hill, Goudhurst, Greenwich, Grimsargh (Preston), Handsworth, Hartlepool, Hastings, Hatfield, Hereford, Herne Bay, Horsmonden, Huddersfield, Hungerford, Hutton (Preston), Jersey, King's Lynn, Kingston-on-Thames, Kingston (Herefordshire), Langland Bay, Launceston, Leeds, Liskeard, Liverpool, Llandilo, Llandudno, London, Maidenhead, Maidstone, Manchester, Margate, Market Bosworth, Market Harborough, New Brighton, Newbury, Newcastle-on-Tyne, Newtownbarry, Northwich, Nottingham, Oswestry, Pencader, Plymouth, Pontardawe, Portsea, Portsmouth, Reigate, Richmond, Ripley (Surrey), Rochester, Romford, Ruthin, Rye, St. Davids, St. Leonards-on-Sea, Salisbury, Sandwich, Seaford, Shebbear, Sheffield, Sidecup, Slough, Southampton, Southend, Southport, Southwell, Spalding, Steyning, Stroud, Sunderland, Taplow, Taunton, Thame, Torquay, Totland Bay, Trowbridge, Wellington (Salop), Weston-super-Mare, Wexford, Weybridge, Whitechurch (Salop), Winchcombe, Winchester, Windsor, Winslow, Wirksworth, Woodford, Woolhampton, Worcester, Wrexham, Yarmouth, Yeovil, York. The Examination was also held at Georgetown (British Guiana), Buenos Ayres, Gibraltar, Ceylon (Batticaloa and Colombo), and Constantinople.

The total number of candidates examined (not including 75 examined at Foreign and Colonial Centres) was 4,558—3,116 boys and 1,442 girls.

Taking the Christmas and Midsummer Examinations together, the total number of candidates examined during the year ending Midsummer, 1899 (not including those who attended the supplementary examinations in March and September), has been 12,072.

The following table shows the proportion of the candidates at the recent Midsummer Examination who passed in the class for which they were entered:—

	Entered.	Passed.	Percentage.
First Class	453	257	57
Second Class	1,797	1,164	65
Third Class	2,308	1,429	62

This does not take account of those candidates who obtained Certificates of a lower class than that for which they were entered.

The number of candidates entered for the Junior Forms Examination (not including 28 examined at Foreign and Colonial Centres) was 1,209—672 boys and 537 girls. Of these, 907 passed, or 75 per cent.

At the Professional Preliminary Examination for First and Second Class Certificates, which was held on the 7th to 9th of March, in London and at four Provincial Centres, viz., Birmingham, Bristol, Leeds, and Liverpool, 223 candidates presented themselves.

The Examination of Teachers for the College Diplomas took place on the 4th of July and three following days, in London and at the following Local Centres:—Birmingham, Bristol, Lafford, Leeds, and Manchester. It was attended by 161 candidates, of whom 111 were men and 50 women. The subjects of examination included the Theory and Practice of Education, Scripture History, English Language, English History, Geography, Arithmetic, Algebra, Euclid, Trigonometry, Analytical Geometry, Mechanics, Physics, Latin, Greek, French, German, Spanish, Animal Physiology, Geology, Botany, Astronomy, Chemistry, and Drawing. On the results of this Examination, 3 candidates have obtained the Diploma of Licentiate, and 36 that of Associate; while 5 candidates have obtained Certificates of Practical Ability to Teach.

The Preliminary Literary Examinations of the Pharmaceutical Society have been held, as usual, at the times appointed. The number of candidates examined during the past half-year was 761.

The DEAN, in moving the adoption of the Report, mentioned that the general results of the examinations did not differ materially from those of last year. The percentage of passes in the First Class was slightly lower, that of the Second Class rather higher, and that of the Third Class a little lower than the figures given in the Report submitted to the meeting in July last.

The Report was adopted.

A vote of thanks to the Chairman concluded the proceedings.

CORRESPONDENCE.

A PRIVATE VENTURE.

To the Editor of the Educational Times.

DEAR SIR,—Your review of my book "Memories of Half a Century," in your July number, has been forwarded to me. When I was in harness I read the *Educational Times* regularly, though I am not aware that I ever wrote in it, and I respectfully beg permission to make a few remarks on your criticisms. On the last page but one of my book I admit having observed, on my last revision, numerous defects of style and expression, but my failing health prevented me from correcting them; I write now with my left hand, the right being incapacitated by rheumatism. Thus I appealed for mercy for defects, a few of which you have pointed out.

But a point which I consider of greater importance is your remark, "He does not claim to have made it a financial success; on the contrary, he tells us that he sold for £3,500 what had cost him £15,000." Strictly speaking, the school was a financial success, and was so regarded through the county. This success tempted me to add building upon building, and, had I withdrawn six years earlier, all would have been well. The numbers had been doubled, and the terms of payment raised considerably. But a physical affliction marred all my expectations. That was a calamity rather calling for sympathy than the above comment.

Finally, you observe that "Dr. Hiley does not seem to have had much insight or initiative as a private schoolmaster." That is your opinion as an outsider; fortunately, it was not the general opinion of those who knew me well.

As a frequent reviewer myself, I know full well how modifying circumstances may escape the notice of even the most fair-minded reviewer. Hence I have ventured on this rejoinder, which I beg you to accept in the spirit in which it is written.—Very faithfully your servant,

RICHARD W. HILEY.

Wighill Vicarage, near Tadcaster,

July 5, 1899.

EXAMINATIONS AND HOT WEATHER.

To the Editor of the Educational Times.

SIR,—Passing the door of a Cambridge examination centre one baking day in July, it occurred to me to wonder why the powers that order these things should hit upon the very coldest and the very hottest times of the year for examination purposes.

Provided that proper heating arrangements are made, the Christmas examination season need not be objected to. Experience has shown that it is possible to be too cold to think; but, except in extreme cases, I believe that intellectual activity is far keener in cold weather than in hot. The keenness of the atmosphere has a sharpening effect upon the wits. When we have got a little further in psychological observation and child study, perhaps some one will be able to give us exact information on the relation between temperature and brain power.

Meanwhile, I suggest that in the hot July weather originality is at its lowest, ideas come slowly, and thinking is more than usually difficult. Then why have intellectual tests at that particular time? Is this consideration of no moment?

April ought to be a good month, being neither too hot nor too cold,

but a time when the fresh energies of the season are still unspent, and the mind shares in the general spring of natural forces.—Yours faithfully,
A MODERATOR.

PLAIN ENGLISH v. PHONETICS.

To the Editor of the Educational Times.

SIR,—May I appeal to your courtesy to publish a few remarks in reply to criticisms on the book "French as Said"?

Your reviewer is evidently a partisan of the Phonetic Association, and naturally wishes to suppress a rival system, like my own. All I ask for is that he should conduct the war by legitimate means, and not mislead your readers by a mixture of reticence and insinuation. The reviewer cites a number of the Plain-English descriptions of sound taken from "French as Said"; he brands them as "misleading," and asks teachers to believe that the book "is written on entirely wrong lines." Of course, that is what he would like them to believe. Meanwhile, he excuses himself from all comments and explanations, on the ground that they would be "superfluous." I do not altogether share this view; and, as the reviewer withholds his comments, perhaps I may be allowed to offer my own.

How should the French phrase *Uerbe sèche* be pronounced? I have described the sound as *lairb sesh*. I am very much surprised that the reviewer should call this "misleading." I wonder how he pronounces the phrase himself? The common fault is to pronounce *sèche* as "saish," and for this the description *sesh* will be the proper corrective, and will greatly improve the person's pronunciation. If some of my descriptions do not possess a definition-like accuracy, but are correctives rather than "transcriptions," as the reviewer styles them, teachers need not, therefore, lose confidence in the author, who

has written a paragraph in the preface to explain the fact. (Why did not the reviewer mention this?) The description *sesh*, for instance, certainly has a tiny defect; it is a little too abrupt, too rapid. But it guides us to a much better pronunciation; and to call it "misleading" is monstrous. I invite teachers to settle the question for themselves, independently of author and reviewer. Let them ask a French native to read from a slip of paper the inscription *Uerbe sèche*. The inquirer should at the same time have in sight, written on paper, the formula *lairb sesh*, and should notice whether the French native seems to be saying that.

I will take the next example. I have described *la fontaine* as *laff orn ten*. The usual faults are—*la* as "lar"; a false stress on the first syllable of *fontaine*, in accordance with English habit; too narrow a tone, as in the English "font"; the final syllable mispronounced "tain." All these erring habits are removed by practising *laff orn ten*. If *orn* does not accurately describe the French nasal syllable in *fontaine*, it is not half bad, and, at least, it gives the best aid that can be given at the early stage of Exercise III. In Exercise II., a warning footnote on this point may be found. If that was the point held up to reproach, the reviewer ought to have observed that the subject of nasal syllables was fully and carefully dealt with in its proper place (see table of contents).

I would gladly discuss the examples one by one, if space permitted; but I trust this will be sufficient to show that the training afforded by the book is by no means misleading. I strongly hope that some of your readers may find much help in it. But let them freely choose their own methods. If any feel that they would derive more guidance from the phonetic formula, *le : rb se : f*, than from my own simple *lairb sesh*, by all means let them try it. But I think they will rub their eyes.—I am, Sir, yours obediently,
E. ALDRED WILLIAMS.

TEACHERS' DIPLOMA EXAMINATION—PASS LIST, JULY, 1899.

Theory and Practice of Education.

FELLOWSHIP.

Garnett, E.

LICENTIATESHIP.

Anstey, A.
Donald, W. P.
Fillingham, A. L.
Holland, J. L.
Jones, R. J.
Jordan, F. W.
Mondy, E. F. W.
Youens, C. H. I.

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FORECASTS AND COMMENTS.

August 1, 1899.

An autumn course of lectures on "The Practice of Education" will be delivered at the College of Preceptors by Mr. P. A. Barnett, M.A., H.M. Inspector of Training Colleges. These lectures will begin on September 22.

* * *

THE next Professional Preliminary Examination of the College of Preceptors will begin on September 5, in London and at the local centres of Birmingham, Bristol, Leeds, and Liverpool.

* * *

WE are requested to state that an entrance scholarship examination will begin at Bradford Grammar School on August 2. The scholarship examination at St. Paul's School (thirty vacancies) will extend from September 5 to September 11.

* * *

IN connexion with the Oxford summer meeting of the University Extension students, which is now proceeding, there will be a conference on August 4 to consider "University work and methods," at which Sir Joshua Fitch will read a paper on the influence of University Extension on teachers. Dr. Kimmins, the secretary of the London Society and one of the inspectors under the Technical Board of the London County Council, will deal with the subject of "The Study of the Humanities in Technical Institutes."

* * *

IN the same connexion, on August 12, there will be a conference, presided over by Mr. L. L. Price, Fellow of Oriel College, to discuss "The Relation of the Co-operative Movement to Citizens' Education." The speakers will include the Bishop of Hereford.

* * *

AN examination will be held at the University of Durham, beginning on October 11, for a scholarship of £70 a year and an exhibition of £50 a year, tenable by women for two years.

* * *

AN examination for open exhibitions in the Durham College of Science, Newcastle-on-Tyne, will begin on September 28.

* * *

AT Cambridge, as we announced in June, a combined examination for entrance scholarships and exhibitions at Pembroke, Gonville and Caius, King's, Jesus, Christ's, St. John's, and Emmanuel Colleges will begin on November 7. Sixty-two scholarships and exhibitions in all are announced for competition among candidates under nineteen years of age, in mathematics, classics, natural sciences, history, modern languages, and Hebrew; and at the last two colleges named additional small exhibitions and sub-scholarships may be awarded to deserving candidates. Intending competitors should procure a copy of the Cambridge University Reporter of June 30, which gives full particulars and conditions.

* * *

THE principal college groups of scholarship examinations at Oxford will again be held in November and December.

A LECTURE "About History and the Study of History" will be given on October 17 by Prof. Pelham, President of Trinity College, Oxford, at the opening of the next session of the Ladies' Department of King's College, London.

Education
Gossip.

THERE is a brisk demand for—at the very least there is a brisk supply of—education for the working classes in citizenship. Ruskin Hall at Oxford is to have a namesake devoted to similar objects at Manchester, and having an unofficial connexion with Owens College. The intention is to provide an opportunity for young working men to obtain instruction in social economy and political science.

THE degree conferred by Cambridge on Mr. W. F. Trench, the new Professor of History at Galway, in recognition of his "advanced research," is matched by the degree of M.A. conferred by the University of Wales on Miss Beatrice Edgell, lecturer at Bedford College, London. She graduated last year in Wales with first class Honours in Philosophy, and has now submitted a thesis on "Lotze's Logic and its relations to Current Logical Doctrines in England." In consideration of the excellence of the thesis, the examiners have not exacted any further test.

MR. F. W. WALKER, High Master of St. Paul's, has received the honorary degree of Doctor of Letters from Victoria University. Mrs. Henry Sidgwick was similarly honoured on the same occasion. Lord Cadogan, Mr. Chamberlain, and the Marquis of Lansdowne, receive the degree of LL.D. at Dublin. The Chancellor of the Exchequer and Mr. Thiselton Dyer, Director of Kew Gardens, are amongst the latest additions to the roll of honorary students at Christ Church, Oxford.

AN experiment which, as the *Athenæum* says, is worthy of further development is being tried at Bradford. Three highly competent teachers are to be sent from Paris to the higher schools of Bradford, and an equal number of teachers will proceed from Bradford to conduct English classes in Paris. These mutual engagements are to extend over one year.

HOLLOWAY COLLEGE—having happily abandoned its almost pathetic ambition to expand into an independent University for Women—is now to be incorporated in London University. A short measure is being passed through Parliament to effect this object.

SCIENCE is equally happy when inventing engines of destruction and when healing the wounds of war. Thus, Dr. Ramon y Cajal, the distinguished Professor of Histology in the University of Madrid, has gone to the United States in response to an invitation sent by the Clark University, Worcester, Mass., in order to deliver, on the occasion of the tenth anniversary of the foundation of that seat of learning, three lectures on the structure of the brain. Again, we read in a medical paper that M. Doyen, of Paris, received an ovation from the students in Prof. von Esmarch's clinic in Kiel, when he demonstrated the kinematograph of an operation which he showed to the British Medical Association at the annual meeting at Edinburgh last year.

AT Oxford, the *Guardian* says, a considerable amount of building is in prospect for this summer. As "academic" work there are the new Science Library and the new Pathological Laboratory, both at the Museum. The pinnacles on the roof of the choir of St. Mary's are also to be restored, like those lately restored on the roof of the nave; somewhat the same kind of repairs are to be executed on the roof of New College Chapel, and there are several other works of refacing (as at Oriel) and

repair. Hertford College are sooner or later to erect a new quadrangle on the north side of the entrance to New College Lane. But their plan of erecting a bridge over the lane, to connect their two parts, has been rejected by the Town Council.

AT last Cambridge has a Professor of Agriculture. It is the duty of the Professor to teach and illustrate the principles of agriculture, to apply himself to the advancement of the knowledge of this subject, and to undertake the direction of the Department of Agriculture in connexion with the University. The Professorship ceases at the end of ten years from the date of appointment of the first professor, unless before the expiration of that period the University shall have otherwise determined. The Professor will receive a stipend of £800 a year from the Agricultural Education Fund.

IN order that the work of the Ladies' Department of King's College may be adequately developed and may no longer be hampered by lack of funds, strenuous efforts are being made to commemorate its "coming of age" this year by paying off a debt of £2,000 on the College buildings. With this object in view a Committee has been formed, which has decided to appeal in the first place to those who have benefited by the lectures given in Kensington Square, and who have known the work carried on there during the past twenty-one years.

Appointments
and
Vacancies.

THREE important modifications in the professorial staff of Glasgow University have occurred within a brief period of time. Lord Kelvin, who celebrated the jubilee of his professorship three years ago, has given notice of his desire to withdraw from the Chair of Natural Philosophy, which is consequently vacant. The recent retirement of Prof. Murray from the Chair of Greek has led to the appointment in his place of a young Oxford man, Mr. J. S. Phillimore, of Christ Church. Mr. Phillimore was a Queen's Scholar at Westminster, and has had a very brilliant University career. At the same University a vacancy is created in the Chair of History by the appointment of Prof. Lodge to the corresponding Chair in the University of Edinburgh, in succession to Prof. Prothero, resigned. It is cheerful to be able to record all these changes without having to note a single deficiency by death.

DR. W. WACE CARLIER, Lecturer on Experimental Physiology and Histology in the University of Edinburgh, has been appointed Professor of Physiology in Mason University College, Birmingham.

THE first occupant of the new Chair of Agriculture in Cambridge University is Mr. William Somerville, who has been Lecturer on Economics at the Durham College of Science.

AT University College, London, Mr. E. A. Minchin, M.A., Fellow of Merton College, Oxford, has been elected to the Jodrell Professorship of Zoology, in succession to Prof. W. F. R. Weldon. At King's College Mr. A. McMillan succeeds Prof. Rumsey in the Chair of Indian Jurisprudence.

MR. WALTER R. PHILLIPS, formerly Professor of Law in the University of Adelaide, South Australia, has been appointed to the new Chair of Law in the Yorkshire College, Leeds.

THE Council of King's College, London, have appointed the Rev. A. Nairne, M.A. Cambridge, to be Lecturer on Hebrew and Latin in the Theological Faculty.

MR. W. F. TRENCH has been appointed Professor of History, English Literature, and Mental Science in Queen's College, Galway. In 1894 Mr. Trench graduated in the University of

Dublin as Senior Moderator and Gold Medallist in Modern Literature. He then migrated from Dublin to Christ's College, Cambridge, where he obtained the Skeat Prize in 1897, becoming in the same year an advanced student, and in 1898 he was awarded the rare distinction of a B.A. degree without examination in recognition of original research exhibited in an admirable study of "A Mirror for Magistrates."

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By the death of Prof. Banister Fletcher a vacancy is created in the Chair of Architecture and Building Construction at King's College, London.

* * *

At the Central Technical College of the City and Guilds Institute there is a vacancy for an Assistant Professor of Civil and Mechanical Engineering.

* * *

A MODIFICATION is to be made next session in the staff of University College, Bangor. Principal Reichel, who has hitherto also acted as Professor of History, will, in future, act as Professor of Constitutional History only, Mr. J. E. Lloyd, the Secretary and Registrar, becoming Professor of History, and having Mr. Richard Williams as an assistant in the Registrar's office. Mr. J. O. Peet, B.Sc. Edinburgh, has been appointed Assistant Lecturer in Agriculture, and Mr. A. Lauder, F.C.S., Assistant Lecturer and Demonstrator in Chemistry.

* * *

DR. A. C. HOUSTON has been appointed Lecturer in Bacteriology at Bedford College, London.

* * *

THE Midland Clergy College will be opened for the reception of theological students in Edgbaston next October, with the Rev. J. H. B. Masterman as first principal, to whom applications for entrance should be made.

* * *

MR. E. H. HENSLEY, M.A. St. John's College, Cambridge, at present Headmaster of St. Saviour's Grammar School, Southwark, has been appointed Headmaster of the County School, Sutton.

* * *

MR. EDWIN TEMPLE, B.A., assistant-master at Glenalmond, has been appointed Rector of Glasgow Academy.

* * *

THE Dean and Chapter of Durham have appointed Mr. A. E. Hillard, M.A., assistant-master of Clifton College, to be Headmaster of the Cathedral Grammar School, in succession to Mr. Hobhouse, resigned.

* * *

THE REV. J. E. STEVENSON MOORE, M.A. Cambridge, has been appointed by the Dean and Chapter of Llandaff to be Headmaster of the Cathedral School.

* * *

MR. GEORGE CORNER, of Hymer's College, Hull, has been appointed Headmaster of the West Somerset County School, in succession to Mr. J. O. Beuttler, resigned.

* * *

THE REV. A. B. HASLAM has been appointed Headmaster of Sheffield Grammar School; Mr. L. W. Lyde, M.A. Oxford, Headmaster of Bolton Grammar School; and the Rev. Dr. Gibbons, Headmaster of Kidderminster Grammar School.

* * *

THERE are vacancies in the Chair of Humanity at St. Andrews University (applications by September 2); in the Chair of Natural History at the Royal Agricultural College, Cirencester (applications by August 5); and in the Lectureships in Art and Economics at the Huddersfield Technical College. A Headmaster is required for Dauntsey Agricultural School (applications by August 1).

* * *

APPLICATIONS are invited for the post of Warden or Lady Principal of the Royal Victoria College for Women Students in McGill University, Montreal.

Literary Gossip. FEW writers of fiction have been better or longer known to successive generations of schoolboys and schoolgirls than Miss Charlotte Yonge, and the commemoration of her name by the founding of a scholarship at Winchester High School is a very appropriate mode of celebrating her diamond jubilee as an author. On July 19 the Bishop of Winchester presented Miss Yonge with an illuminated address containing the names of the subscribers, and congratulated her upon the unique testimony made to the high principles and teaching instilled by her works. Miss Yonge is able to look back upon sixty years of unflinching literary work, and the Bishop rightly attributed her popularity to the fact that her novels have idealized home life.

* * *

PROF. LODGE, who has just been transferred from the Chair of History at Glasgow to that at the sister University of Edinburgh, is the author of a "History of Modern Europe from 1453 to 1878," and of the volume on "Richelieu" in the series of "Great Foreign Statesmen."

* * *

THE attraction of Cambridge as a place of residence to old Cambridge men—as of Oxford to old Oxford men—seems to be forcibly illustrated by the fact that there were nine hundred applications for the post of Secretary of the Cambridge University Library, at a salary of £200. The selected candidate is Mr. G. Aldis, hitherto Secretary of the Philosophical Institution at Edinburgh.

* * *

THE CLARENDON PRESS has begun its re-issue of the Oxford "New English Dictionary," in monthly numbers, at the price of 3s. 6d. for the part of 88 pages. The first part extends from A to "acrious." In a dictionary not based "on historical principles" we could lightly dispense with "acrious"; but in the Oxford Dictionary we look to find not only the English that is written, but all the English that has ever been written. And, what is more, we find it. Writers on phonetics, by the way, especially if they are English writers, would do well to study the "key to pronunciation," printed in this part, before indulging themselves in the invention of new symbols. The Oxford system is admirable.

* * *

THE third quarterly number of *Child Life* (Philip & Son), an excellent magazine for all who are engaged in the earnest study of the characteristics of childhood, reports in a complete form several of the papers read in the Education Section of the International Congress of Women. Inevitable literary comments on this Congress were made by two of the speakers:—

The words in which Canon Wilberforce referred to that meeting of women was striking. "Once more," he said, "is the Sisera of wrongdoing about to be delivered into the hands of Jael the woman." One of the speakers in the Literature Section, in speaking of great women of the past, quoted: "Until that I, Deborah, arose, a mother in Israel, then was war in the gate." These seem martial references at a time when the Peace Conference is in our minds. But Jael fought, according to her lights, against the tyrant and oppressor; and the peace which Deborah ended was the false peace of faint-heartedness.

* * *

WE are glad to find on our table, amongst the books of the month, a handsome large-octavo volume of "Essays and Nature Studies, with Lectures," by W. J. C. Miller, B.A., London (Elliot Stock). This is an edition limited to two hundred numbered copies, and there is a portrait of the author opposite to the title-page. The book is edited, like a former collection of Mr. Miller's pleasant nature-studies, by Mr. H. Kirke Swann, who supplies a short biography of the author.

* * *

EVEN the youngest of our readers will not need to be told that Mr. Miller edited our special columns of "Mathematics" for something like thirty-six years. Mr. Swann says:

The late Prof. Clifford considered that the mathematical portion of the

Educational Times had "done more to suggest and encourage original research than any other European periodical." Similar testimony has been borne by Sir Robert S. Ball, Professors Tait, Crofton, Townsend, Todhunter, Cayley, [Sylvester], and others. . . . Now there are five hundred vigorous contributors in all parts of the globe. Many are educated Hindoos (professors and others); others are Americans, Australians, Frenchmen, Germans, Russians, Italians, Spaniards; while some write from the South American Republics.

* * *

MESSRS. CONSTABLE have in the press a volume of unpublished studies by Mr. Round, giving the result of much original research in English medieval history. A special feature of this will be the early government of London, with regard to which Mr. Round has made some interesting discoveries. Mr. Round, by the way, contributes one of his characteristic essays to the *English Historical Review* for July, on "Bernard, the King's Scribe"—an elaborate reconstruction from the Pipe Roll of 1130, elucidated from many other contemporary sources.

* * *

A VOLUME of "Essays on Good Citizenship," dealing with social, personal, and economic subjects, will be ready early in the autumn. The standpoint of these will be that of sympathy with new aspirations combined with a recognition of the place that religion should have in the direction of such aspirations. The preface will be written by Canon Gore, and the list of essayists includes Canon Barnett, Canon Scott Holland, Dr. Morrison, Mr. J. A. Hobson, and others.

* * *

ANY one who is interested in Russian literature and folk-lore should pay a visit to the unique collection now being exhibited at the offices of the *Anglo-Russian*, 21 Paternoster Square, and containing original manuscripts, as marked and passed by the Press Censor, various specimens of Russian illustrated books and papers, medals, and artistic coloured post-cards, commemorative of the poet Pushkin, *lubochnia kartini* (coloured illustrations), statues of celebrated authors, &c. The collection comprises also a number of articles characteristic of Russian special industries, such as the famous samovar, and a variety of icons.

DRAWING AS A FORM SUBJECT.

UNTIL recently drawing has never been treated seriously in English schools. It was supposed to have no educational or practical value, and, owing to the prevalent idea that none but an artist could teach it, it was usual to put several classes together, generally in the afternoon, to copy from the flat, each pupil by himself, presided over by a visiting drawing master. An alternative to this has been a course of lessons on the "Ablett" system, which is supposed to require a specially trained teacher. When a subject is not taken by the whole form, in the regular morning course, it is apt to be regarded as unimportant, both by teachers and pupils, and, except to the specially gifted, the time is for the most part wasted. I would suggest that the educational value of drawing would be greatly increased if it were taken by the average form teacher, so long as he is able, in the roughest way, to depict an object in front of him. The intricacies of perspective are not required, for all that is necessary in this branch can be grasped by an intelligent teacher in a few minutes. However much artists may protest against this, the bad results of non-specialist teaching are not so great in drawing as in many other subjects. The inspiration to the pupil comes more directly from the outer world. In languages, science, history, and even literature, much must be explained, and a thorough course must be worked through before a pupil can be left to himself. In art, however, the chief requisites are something to look at and a teacher who is able to create a desire to copy it. There is no need for him to be able to make a faultless copy himself; indeed, when he can, there is too great a temptation to do the work himself, while his pupils hopelessly admire his dexterity; or, worse again, to give them his own studies to copy. Rousseau's method, quaint and impracticable as it seems, is far nearer the ideal than the bulk of our school teaching. To let the child work and work and work, to keep yourself in the background, to draw *with* him if you like, but to draw *badly*, and to let him criticize and even ridicule your poor attempts—such a plan really compares favourably with the lethargic copying from the flat that goes on in most drawing lessons.

Rousseau's idea of putting the worst productions of the pupil in the gaudiest frames, and gradually simplifying the frames as the drawings improved, till at last they were good enough to go without any frame, seems to suggest that an attempt should be made to educate a pupil's

taste and appreciation of art generally—a branch that has been almost entirely neglected in English schools, and a branch, too, that can quite easily be managed by a teacher who is not an artist himself. Every one can have his life made fuller and richer by being taught to appreciate good works of art, and to distinguish a good picture from a bad one. Pupils who will never do much in actual production can thoroughly enter into this side of the subject; and it is particularly desirable that the taste of girls should be cultivated in this way, for it is to them that the decoration of the home usually falls, and even our geniuses will not paint well if there is no appreciative public to paint for. The best way to develop this artistic taste is to put before the class examples of the great masters, some care being exercised in the choice. A picture should be chosen that is undeniably excellent, that can be seen in a public gallery, and whose subject is suitable to the class—such, for instance, as Turner's "Ulysses deriding Polyphemus." The story may first be told, then the pupils invited to judge of the best point in it for an artist to choose for his painting; then a reproduction should be shown and the colours described. Of course a visit to the gallery ought to follow such a lesson. Every visit to a gallery should have a very definite object, or the distractions are so great that the time is wasted. An hour in the National Gallery might, for instance, be arranged in this way: (a) A thorough study of the picture on which a lesson has been given. (b) An inspection of all the pictures by one artist, say Crivelli, as a preparation for a lesson on his work. When they came to the class the pupils could describe these pictures, say which they preferred, and why, and discuss them generally. The teacher need do little more than organize their observations. In all such lessons and visits it is impossible to overstate the importance of inducing the pupils to try to copy some little detail of the great picture. A tiny sketch-book, a sharp pencil, and a good piece of india-rubber—that is all. Only the teacher should abstain from watching or criticizing. The difficulty of the task is quite sufficient education, as in the amusing lesson that Ruskin once gave a pupil who desired to understand Egyptian carving.

With regard to the actual management of the lessons, a little care in the planning of a syllabus will ensure the form teacher an animated and delightful class once or twice a week. The chief point is to get variety. We want our pupils to develop their individuality, in art above all things. They must not be dull, and they must not for a moment entertain the idea that they are stupid; there is sure to be some branch of the work that they can do, if we could but find it. Sometimes a pupil who is poor at drawing will excel in finding subjects for his fellows to draw. A pleasant change may be made by a tale being told by one pupil, and various points in it illustrated by the others.

Again, there must be variety in the instruments employed. One boy may do best with pen and ink, another with his paint brush, and another with rough chalk drawings on the blackboard. Let everything be tried, and the pupils will soon strike out along their individual lines. It is a great mistake to keep a class for a whole term at copying "objects," or at shading, or at any one exercise. It is out of the question to be thorough in the time allotted on the time-table. You might just as well expect a pupil to get on in music with one hour a week. Practice is needed in every art, and ten minutes' practice *con amore* is worth an hour's drudgery. Therefore, in our one lesson a week, we must so inspire our pupils that they will want to practise in the meantime. To encourage this, suggestions must be given for optional work, and each pupil should be provided with a small sketch book, which he can carry about in his pocket, and in which he can do his little studies, dating them carefully, and keeping them as a record of progress. It gives an additional interest to the lesson if each pupil is asked to bring a note, or better still a drawing, of anything beautiful he has noticed in the week, such as a cloud, a tree, a good combination of colours in a dress, or a prize butterfly or silkworm in a boy's collection. Leaving thoroughness then to take care of itself, any amount of variety in the lessons can be indulged in, and I suggest the following syllabus as an instance of what I mean in this respect:—(1) An empty jam-pot, drawn in different positions; (2) a carrot, painted; (3) a design, in form; (4) lesson on a picture; (5) a pair of scissors drawn from memory; (6) an egg, shaded; (7) a spray of leaves, painted; (8) a talk on an artist and his work; (9) a design, in colour; (10) an open door, for simple perspective; (11) a story told and illustrated; (12) a competition in drawing a circle.

This syllabus is more superficial in appearance than in reality. Every lesson may be made a training in observation or in a feeling for beauty, and, if any exercises are done at odd times, there will be a considerable increase of technical power at the end of the term. Colouring of any kind is very delightful to children; chalks are better than nothing, but paint-boxes are very cheap now, and simple water-colour work is much easier to manage in a class than is usually supposed, and may be begun with quite young children. There is nothing occult about "brush-work," as it is often called. A definitely coloured natural object, such as a cherry or a radish, is placed on a piece of white paper between two children, and they copy it with their colours without previously pencilling the outline. They can tell themselves whether it "looks like" a radish or not, and they can try again and again till they succeed.

Design should be an exercise in creative imagination, no matter how crude. A square, a circle, or a triangle might be given, and the children requested to fill it up according to their tastes, with, perhaps, some flower or fruit as a basis. At the close of such a lesson a good specimen of design should be shown and its excellencies pointed out. It is important that each lesson should be a complete whole, with no work dragging on to next time. The hour should be employed briskly, with no time wasted in passing books, sharpening pencils, and so on; everything must be ready beforehand.

One difficulty to the teacher inexperienced in drawing lies in the astonishing difference of ability and rates of progress in pupils of the same age. The chief thing to remember is never to split an art class into divisions. The sympathy of numbers is as important here as in any other subject, and far better work will be done when the whole class thinks and acts the same thing. A rapid worker can simply shift his seat and draw his jam-pot in another position, or he can make a more elaborate design, or more delicate shading, or, best device of all, he can do the same exercise with another instrument.

I hope that enough has been said to induce a form teacher to take up drawing as one of his own subjects. There is hardly any other that will put him so quickly in touch with each member of the class, with his tastes, his hobbies, his home life, and his higher aspirations.

M. V. HUGHES.

OUR SCHOOLS AND COLLEGES.

A CONVERSATION ON A COUNTRY ROAD.

Interlocutors: ASHTON, a Country Squire; and BARWELL, the Vicar of a neighbouring Parish.

A.—Well met; I wanted to see you. You will be glad to hear that my boy has passed into Headford very well. He thinks his place is due, in great measure, to the Latin prose you were good enough to give him last Christmas.

B.—I am glad that Bob has done well, and yet I cannot help wondering whether he will get as much at Headford as he would have got elsewhere.

A.—Surely you, of all men, must admit that there is a tone and a habit of self-reliance acquired at a public school that cannot be got elsewhere. Look at Davis of our year at Cambridge, a double first and one of the very best fellows in existence; yet he has never made his mark, and has been passed by far inferior men, solely, I believe, because they were at a public school, and he was brought up at home.

B.—Yes, Davis is a case in point, and so is Kyrle, third Wrangler in the year below us, and an uncommonly clear-headed man, and yet he is a failure at the Bar. They say that no solicitor can get on with him.

A.—Just so. A public school would have been the making of Kyrle. It would have knocked all the pig-headedness out of him, and taught him to be decently civil even to little Simpson, whose rooms were next to Kyrle's, and who was ploughed every time he went in for an examination.

B.—Yes, undoubtedly, both Davis and Kyrle would have done far more if they had been at a public school; but what are these schools doing for the generality of boys?

A.—For the average boy, to use that new and charming phrase, why, everything. There is not an open examination in the country at which public-school men do not carry off some of the honours.

B.—Some of the honours, I grant you. Every prize list and school advertisement is full of the successes of that particular school, and yet I maintain that the results are very small comparatively. A public school, remember, consists of picked boys. As a rule they have to pass an examination to get in, and, if any boy falls much below what is considered to be the place corresponding to his age, he is superannuated without pity. Of course, under such a system, the public schools must obtain some successes; but really they ought to have more. Look at the Indian Civil, for example. A public school, with its endowments and prestige, and with the pick of both Universities for its masters, gets one candidate in, and speeches are made about him on prize day. Mr. Eagles, while quite an unknown man, started as a private tutor a few years ago, and now his pupils take at least half the appointments every year.

A.—More, I believe, to judge from his advertisements. In fact, I think the India Office altered the examination some years back with the intention of cutting out Mr. Eagles, and letting in the public schools.

B.—They haven't succeeded yet, then; but the same thing takes place with the Army examinations. Very few of those who get into Woolwich and Sandhurst pass directly from the large schools, and when they do a shout of exultation is raised by every one connected with the school, and a half holiday is given to the boys in honour of the event.

A.—I don't think you have allowed sufficiently for the difficulty of dealing with large classes of boys intended for various professions; but undoubtedly there is a good deal in what you say. A boy ought to be able to enter Woolwich or Sandhurst direct from his school, without having to go to a private tutor for a year. On the other hand, however, think of the benefits a boy gets from entering a school where

no one cares whether his father is a nobleman or a big tradesman, a millionaire or a poor country squire. You and I will never forget the good we got at Anmouth.

B.—But future generations will not remember that good, because they will never acquire it. Anmouth is no longer a place to which a poor man can send his son. The scale of payment is quite different from what it was in our time.

A.—My good friend, expenses must increase in everything. I pay my labourers double what my father did. Every one, with the trifling exception of landowners, expects to be paid at a higher rate than formerly.

B.—Quite so; but are all those extra expenses necessary? Anmouth was founded as a school to which comparatively poor men should be able to send their sons. Now all that is changed. Every boy must have his study, and the furnishing of the study is a heavy extra expense. Then the chapel is not gorgeous enough, and there must be a whip round for new embellishments; and all that comes out of the parents' pockets. The style of living at schools is getting too luxurious, compared to what it was in our day.

A.—I don't know, really. We had a good deal of roughing it, and I should be sorry to think my boys would have the same. I can't complain that things are better in some ways; though, of course, we must pay for it.

B.—Oh! yes; improvements were wanted sadly. But is it necessary, or even desirable, that a boy should come home and find fault with the paternal tap, on the ground that he has better beer at school, or that he should draw a sarcastic comparison between the morning meal of the Vicarage and the pork-pie or sausage that he enjoys at school? Why should I pay that my son may live more comfortably than I do myself?

A.—Come, you are getting cross. Half of these complaints are only swagger. We were young once ourselves, and thought as much of Anmouth as any one else. Suppose any one had told you and me thirty years ago that our school style of batting was cramped. I should have been in a rage, and you'd have knocked him down.

B.—Yes, we were young, though I scorn your last insinuation. But we taught ourselves to play then. Now the chief emulation seems to be which school can support the greatest number of professionals, and, of course, they have to be paid for. Even the uniforms are getting to be expensive, just as the prizes at the athletic sports are growing more and more valuable.

A.—I am afraid there is a tendency to increase expenses in many ways. I met old Lawson just now—Captain Lawson, you know—and found him positively foaming with rage. He has a son at Eastbury, and the boy thought he should like a shilling pair of compasses to draw his circles with—a luxury I don't believe he required, mark you—but, anyhow, he got an order for the thing. "Sir," said the old man, boiling over, "they sent me in a bill for a fifty-shilling case of instruments, and I had to pay it, too; and yet they say that Eastbury College was founded for the benefit of the sons of poor officers!"

B.—Too bad! Lawson has to retrench, I know, to send his son there at all.

A.—I don't know, though, why you should grumble. Your boy holds a scholarship at Anmouth.

B.—Yes, he does; but he won't hold it very long.

A.—Why not? I didn't know that your objections had gone so far as to make you think of taking your own son away from school.

B.—Simply because I can no longer afford to send him to a public school, even with a scholarship. As it is he costs me a good deal more than I ever cost my father, and he must leave the end of this half—I beg his pardon; the end of this term.

A.—But I thought your next boy was going to try for a scholarship there? You certainly told me so lately.

B.—He was; but what I heard at Anmouth the last time I was there made me change my mind. I took the boy with me, and Simpson put him through his paces. He said the boy had brains, and would stand a fair chance of a scholarship if I would send him for a year to Griffiths. Griffiths, it seems, lays himself out for this kind of thing, and his boys take nearly half the entrance scholarships at Anmouth. I told Simpson I couldn't do that, and must, therefore, leave the Anmouth scholarships to richer men, who could afford to pay Griffiths's fees.

A.—Then you think the scholarships go to those who ought not to hold them?

B.—I don't know about that; but I do know that, unless a boy has most exceptional talent, he has no chance, as a rule, against those whose parents can afford to pay for a year or two's special training.

A.—But, if you object to throwing open scholarships in this manner at school, what have you to say about the University Commissions and their acts?

B.—Why, that, with the best intentions in the world, the Commissioners have done a good deal of harm. Do you remember that scholarship I held at St. Paul's—the Heyworth, it was called—a close scholarship confined to those born in the district?

A.—Of course I do. You were the last holder of it before it was thrown open, and, as we were all enthusiastic reformers at the scholars' table, we dubbed you the "survival of the unfittest." Luccombe, I

remember, wished to bring forward at the debating society the proposition "that the painless extinction of Barwell would be a measure fraught with benefit to the college."

B.—He did so, and was very eager that I should support him. We were all iconoclastic enough then, and yet I don't know but what my poor old Heyworth did as good service then as it has done since. Without that scholarship I should never have gone to college, but must have tried my chance abroad. Australia or Canada would have gained a not particularly useful colonist, and Jarningham Parva would have lost — .

A.—The very best parson the parish is ever likely to have; but what would you do? Would you never interfere with the pious founder, even if —

B.—Even if he were not particularly pious, you were going to say. Yes; I would generally interfere with the letter of his will, but try, perhaps more than has been done, to carry out the spirit of his intentions. Out of curiosity I have been inquiring into the antecedents of the three present holders of the Heyworth.

A.—And what is the result?

B.—Well, as follows: One is a Farnborough man, son of a county member; another was educated I don't know where exactly, but his father is a baronet of old family; and the third, who was brought up at Lanford, is the son of a successful contractor, not of a very old family. They are all, I doubt not, clever; at any rate, they have learnt far more than I ever did; but their relatives could all have afforded to send them to college perfectly well, which my father could not, and I can but think that when they presented me the trustees were keeping closer to the spirit of old Heyworth's intentions.

A.—And what remedy do you propose?

B.—Nay, you must ask for that from wiser heads than mine. I can only exercise my right of grumbling. But I do feel that my boys are losing something of what I had as a young man.

A.—Well, here our roads divide; so fare you well. T. ROACH.

CONCERNING HOLIDAYS: A PROTEST.

"Nor less I deem that there are Powers
Which of themselves our minds impress;
That we can feed this mind of ours
With a wise passiveness.

Think you 'mid all this mighty sun
Of things for ever speaking
That nothing of itself will come,
But we must still be seeking?"

So sang Wordsworth; and perhaps a majority of his countrymen will reply that "nothing of itself will come"; and that they "must still be seeking." Nevertheless, there is another side to the matter, which they might do well to ponder, for their soul's good. There are things which come to us in the stillness of the dark which no amount of striving would bring. They are of grace, not of works, so to speak; nor do the things we desire always come directly, but sometimes from the quarter whence we should least expect them.

"And not by eastern windows only,
When daylight comes, comes in the light.
In front the sun climbs slow; how slowly!
But westward, look, the land is bright."

Now, I suppose that, if there is one thing more than another that this generation abhors, it is "a wise passiveness." It is nothing if not active. "So many worlds, so much to do," these people cry as they rush past in their feverish energy. Teachers are by no means exempt from this blight of busy-ness, which has fallen upon us all; and the disease appears, perhaps, in its most malignant form in the holiday with a purpose, now so sadly common. If the "novel with a purpose" is inartistic, how much more so is the strenuous, improving, studious holiday? This unholy zeal for self-improvement is surely much to be deprecated—it carries its victims to such extravagant lengths, and no season is safe from it.

In the keen frosty days of the Christmas vacation these unhappy persons attend educational meetings and wrestle with psychological problems, when they should be adjusting their skates. At Eastertide they sit in conference, instead of taking walking tours, and discuss some pale and bloodless abstraction like "child-psychology." It might reasonably be supposed that in August, at least, they would hold their hand, and refrain themselves; but nothing of the kind. This is their energy raised by some unnatural means to a higher power than ever, and they fairly wallow in every form of summer meeting. This is the appointed time for holiday courses. There are language courses in Germany; language courses in France; ditto at Edinburgh. You can have universal culture at Oxford; you may go to Sweden to cut wood, or do it at home, if your enthusiasm is only moderate in degree. You can scarcely visit Switzerland and escape the professional lecturer; and he dogs your steps even as far as Egypt and Palestine. It is really very fatiguing. August, and the fierce sun overhead,

suggests—nay, demands—things other than these—a judicious idleness, a return to Nature, a turning away from books.

Thoreau, the naturalist and philosopher of Walden Woods and prince of idlers, speaks of "days when idleness was the most attractive and productive industry." "Sometimes," he says, in "a summer morning, having taken my accustomed bath, I sat in my sunny doorway from sunrise till noon, rapt in a reverie, among the pines and hickories and sumachs, in undisturbed solitude and stillness, while the birds sang around, or flitted, noiseless, through the house, until, by the sun falling in at my west window, or the noise of some traveller's wagon on the distant highway, I was reminded of the lapse of time. I grew in those seasons like corn in the night, and they were far better than any work of the hands would have been. They were not time abstracted from my life, but so much over and above my usual allowance. I realized what the Orientals mean by contemplation and the forsaking of works."

"The forsaking of works!" I like that phrase. What an excellent motto for an August holiday! At any rate, one's ordinary works should be forsaken, for that is the one essential of a true holiday.

Let the theologian cease to theologize and the banker to think on gold; let the merchant forget his merchandise and the schoolmaster cease to instruct. Is this last quite impossible? "Never dares the man put off the prophet." Then is it bad for everybody—not least for the prophet himself. There are some people who cannot idle. Idlers, like poets, are born, not made. It is a gift. Who has not suffered at one time or another from that feverishly energetic person whose mere presence in a room is enough to banish all tranquillity from the mind of every one present? His restless spirit diffuses itself somehow throughout the entire company, and drives pleasant peace effectually away.

Not, of course, that activity on a holiday is to be entirely taboo. This is merely a plea for the recognition of the place and value of the receptive attitude of mind in days when the active side of human nature is necessarily emphasized so strongly. It is significant that it is Wordsworth who pleads for "a wise passiveness"—the man who rediscovered for us our true relations with Nature. He had the good fortune himself to live very near to Nature; and to do that is to see the active and the passive side of life in their true proportions—a thing infinitely difficult for the majority of persons to-day who live in cities, and have thereby separated themselves by barriers, tangible and intangible, from the earth life. It is part of the price we have to pay for what is known as "civilization" that in the lives of so many people fellowship with Nature is only an episode, not a constant influence. Hence the curious fact that numbers of persons have to depend mainly on the poets and the artists for their knowledge, being unable to get it at first hand through the medium of their own eyes and ears. The general exodus into the country which we see in the summer months is in reality a pathetic attempt to get back for a short time at least into primitive natural relationship to the earth, our mother. It is true that the instinct underlying the migration to sea and hills is not always consciously recognized, and that in many people it is found only in a very degenerate form; or why should the multitude find satisfaction in sojourning with hundreds of their fellows at a sea-side place, where promenade bands and beach niggers are the outstanding attractions? You can scarcely see the sea for the niggers, or hear the sound of the wind and the waves for the strains of "The Washington Post." Is this a return to Nature? Well, hardly that! But who shall venture to prescribe exactly for the needs of others in these matters? To some society, to others solitude, will be the best medicine. To every man his own holidays.

Probably a judicious admixture of both is desirable for most of us, if it can be obtained; but, in the present populous state of Great Britain, this is not within the reach of all. For those to whom it is possible, it were well to spend a part, at least, of the holiday in the attitude of absorption, listening only to the wind among the trees, the roar and rush of the sea, the babbling of brooks, and the hum of bees amidst the heather. Good for us all is it sometimes to cease from our busy striving, and let the influences of Nature have their way with us, as the August corn ripens silently and naturally in the fields under noontide sunshine and the play of midnight lightning.

Something of Walt Whitman's exultant joy in the earth should be in the heart of every one who makes holiday:—

"I inhale great draughts of space.

The east and the west are mine, and the north and the south are mine.

Now I see the secret of the making of the best persons.

It is to grow in the open air, and to eat and to sleep with the earth."

M. S.

INTERNATIONAL CONGRESS OF WOMEN.

NOTES IN THE EDUCATION SECTION.

YOUR criticism two months ago on the enormous number of subjects and speakers at the Congress generally was applicable in a high degree to the Education Section. The papers were undoubtedly too brief. As many admirable authorities on different subjects had been secured,

it was much to be regretted that sufficient time could not be allowed them for the proper development of their themes. If we take the first morning's work, we find four subjects placed on the programme for discussion: psychology of childhood, parental responsibility, education as a preparation for life, and connexion between home and school life. Eight speakers were announced, and five others contributed to the discussion. As the morning only lasted two and a half hours, some idea of the brevity of papers and speeches may be gathered. Yet it would be unfair to deny that many were highly suggestive and useful, although perhaps a little more time would have deepened the mental impression. As it was, one felt that one had been beholding an animatograph. The Chairman's bell was very much in evidence at most of the sessions, and now and then it approached the comic to watch the race between the Chairman's right hand and the speaker's rapid flow of language. Practised speakers whom not even a bell could disconcert announced their dislike of it, and their determination to "get through" at all hazards, in which laudable ambition they often enlisted the sympathy of the audience, who signified their desire to hear them to the end.

On one or two occasions the audiences were very large and very cosmopolitan. One could distinguish a Chinese and a Japanese lady in the audience; Italians, French, Germans, Austrians, Americans, Belgians were, of course, well represented. In the gallery and body of the hall were three or four nuns, in their sombre dress, presumably belonging to a teaching order, who followed the proceedings closely and with evident interest.

On the psychology of childhood, Prof. Earl Barnes and Miss Macmillan were both heard to advantage. The former anticipated criticism by observing that, if a teacher aroused morbid self-consciousness in a child by watching him too closely, such a result was the fault of the method of the teacher, a proof that he was not equal to his task. By means of charts, Prof. Barnes then showed how from groups of children who have been studied we may gather similar results, and prove that the same general tendencies exist. Miss Macmillan may be said to have taken as her text: "And a little child shall lead them," showing that movement is the only mode of self-expression that children possess; that even from the twitching, aimless movements of a small child important inferences can be made; that a child learns less through teachers and books than by his own power to feel. Mrs. Franklin reminded her audience that this is the children's age, that there must be closer co-operation between teachers and parents, and she made a point on the value of quiet for a child's growth. Those who watch him must not be always pulling him up, to study his roots. Mrs. Stetson (U.S.A.) spoke of the enormous importance of the first four years of life, the early environment making the chief difference between one child and another. The speaker made the audience smile by declaring that the average mother was no more fit to train a child during its early life than to give it a college education during adolescence, and suggesting a trained assistant for every ignorant parent or nurse. Why should this training be expected of a mother? The love of the parent for the child was often a positive hindrance to its best education. Later in the day Fr. Borchart offered, as her contribution to the subject, the suggestion that, just as conscription compels men to serve at least a year in the army, so women should give a year to study the kindergarten.

Canon Lyttelton referred to the importance of home training and to the waste of life caused by ignorance of its principles. A knowledge of the facts of life must be imparted to young people, and it was clearly the duty of parents not to avoid the matter as a painful subject, but to regard it as a great and deep privilege. Properly instructed, a sense of reverence for life would be implanted, and the child strengthened and ennobled; otherwise, parents might be very certain that the facts of life would be learned in a distorted, pernicious, poisonous manner.

In the afternoon the praises of Pestalozzi and Froebel were sung by Mdme. du Portugall, Miss Weldon, Mdme. Michaelis, Mrs. Walter Ward, and others. The first lady laid special stress on Froebel as the apostle of woman's emancipation, since he desired for her dignity, as wife and mother, real companionship with her husband.

On the following day Mrs. Stanton Blatch put in a plea for general manual training for girls, instead of confining such training to the needle. Woman, she said, had been too long taught to look through the eye of a needle. The result was a cramped general education, the result of too early specialization, and the depressed position in the labour market, which, in the long run, injured men's position also. "If you are going to be a tailor," said Mrs. Blatch, "avoid the needle in your youth."

Mrs. James Miller advocated physical education. If we want to make the best of ourselves and our children, we revert to physiology, to hygiene and physical development. We want to know how to eat; if certain tissues need development, what foods are necessary to produce them.

Mrs. Bridges Adam, labour member of the London School Board, characterized the English primary system as weak, bad, rotten; it was a class system, and its key-note was competition. Payment by results was hideous and "damnable." If only educated people would come to the front, and say the people shall be educated, then it would

be done. Evidently the speaker did not seem to think that the people themselves should make this demand, but assumed that it should emanate from the oppressive classes. When training of teachers was under consideration the same speaker reverted to the theme of class education, alluding to the uneducated democracy and the deadly class hatred arising in England. Both Miss Agnes Ward and Miss Macmillan offered corrections on this point, the latter stating that the size of the classes prevented individual attention.

When secondary education was discussed, Fr. von Dömming's paper on the state of girls' education in Germany aroused attention. There are plenty of Gymnasien for boys in Germany, even in quite small towns, but it is most difficult to get such schools established for girls. Even when no State aid is claimed—only permission to open such a school—it is usually refused, especially in Prussia.

Miss Beale dealt with the State organization of secondary schools. Officials must have felt guilty when she read out her "reference." "I am asked to treat the subject not merely from a national point of view but from as broad and philosophic a standpoint as possible. And this to be accomplished in fifteen minutes!" Miss Beale declared that in England we have hitherto preferred independence and liberty to State organization of secondary education. Enthusiasm, energy, and generosity die when the State interferes. Yet registration of schools and teachers is desirable, and aid might perhaps be granted in certain cases. The writer mentioned the fact that no working man's child could grow up without a certain amount of education; that in England this is the privilege of the daughters of the professional classes. Mrs. Bryant dealt with the curriculum question in the early part of her address, attaching importance to literature in the development of right sentiment. It had been well said that one-half the misery of the world is caused by failure in sentiment and the other half by failure in accuracy. The speaker then proceeded to explain the projected Central Authority in education, and the Local Authorities, briefly referring to the division of power between them, and to the need of the Local Authority inquiring into the requirements of different districts before moving. In England we do things piecemeal, and this makes a homogeneous scheme difficult, if not impossible. Fru Nielsen advised ladies not to be modest in their demands on Government. In Norway they had made heavy demands, and, though the Storting had perhaps thought the persons who made them disagreeable, in the end girls were placed on an equal footing with boys. Then gallant little Wales intervened, and, with voluble indignation, showed that intermediate education had been discussed, and yet Welsh achievements had not been so much as mentioned. This grave omission was repaired to some extent before the session was adjourned.

On Thursday afternoon Mr. Badley's paper dealt with the educational experiments now being conducted at Bedales, and an American speaker gave a description of the vacation schools begun by voluntary effort in Chicago and other great cities during the long vacation, June to September. Children are brought in from the streets, taught drawing, painting, gymnastics, manual work, and, in general, as the speaker phrased it, made children of God, instead of diligent followers of the adversary. So popular are these vacation schools that attendance is better than in ordinary schools, and the police have to be called in, to prevent the forcing of the doors.

The Education Section completed its labours on July 3, when Mr. Sadler gave a thoughtful paper on examinations, in which he rather assumed that they tend to exhaustion, to undue competition, and maintained that it is bad teaching to fly to stimulants. The purposes of examination were, he said, threefold:—(1) auditing the pupil's work, (2) auditing the teacher's work, and (3) selecting candidates for the public service. The speaker maintained that examinations should follow, and not prescribe, courses of study; and that a body of earnest men and women should study the effects of examination, and check evil results. Miss Robertson, in discussion, declared that English secondary education owes much, and girls' education all, to examination, though she deprecated the twisting and destruction of the school programme for the mere obtaining of results as an abuse of the system. C. S. B.

REVIEWS.

COMMON SENSE.

Common Sense in Education and Teaching: an Introduction to Practice. By P. A. Barnett. (Longmans.)

The basis of Mr. Barnett's book is the course of lectures on "The Practice of Education" which he delivered at the College of Preceptors in the winter session of 1898. He could not have chosen a better or more descriptive title for his printed volume, which is full of unaffected common sense on the practical problems of education. His straightforward talk to teachers will appeal directly to those for whom it is intended; and, though simple in its character, it is the reverse of superficial. It strikes the right note in his first chapter on "Instruction as Discipline." "There can be no rigid rules of procedure in instruction. . . True philosophy brings home to the teacher chiefly the diver-

sities of both pupils and subjects." Let us add, of teachers also—for rigidity of method and procedure, which is in a limited degree useful in counteracting the futilities of commonplace teachers, is fatal to true education when it paralyzes the more inspiring qualities of men and women of genius in their vocation. Again, the wise teacher recognizes that childhood has "its own perfection," and a tyrannical instructor who sets himself obstinately to crush rather than to develop the individuality of a child is often actively noxious in the schoolroom. To protest against rigidity is not to deny that there are true standards and types of teaching with which every teacher—not excluding the University Honour man in the classical public school—ought to be made familiar by a professional training.

Mr. Barnett gives a useful warning against a common misconception of the Socratic method—and even against the danger of what was really the Socratic method, that of "showing his victims that they knew nothing"—"the essential and corrupting fact being that the teacher does all the work, and the pupil speaks, may think, only on invitation and on a line prescribed. He is, in other words, led by the nose."

The pupils begin by putting themselves into a thoroughly false attitude. They enter on a kind of guessing competition, striving to find out what is in the teacher's mind—*what he wants them to say*. This is bad teaching. Once upon a time, for instance, a master was about to give a lesson on marble to some small boys, and began, for some occult reason, by asking his class to tell him the names of various stones. He thus "elicited" hearthstone, bluestone, granite, kerbstone, sandstone—everything but marble. At last he tried another tack. "Do you ever," he asked, "go for walks on Sunday—in the churchyard?" "Yes, sir," said a little boy. "And what do you see there?" "The tombstones." "Well, don't these remind you of another kind of stone? Think, boys, think!" "Please, sir, *brimstone*."

Speaking of the abuse of generalization, and of hasty generalization from insufficient data, to which the familiar Herbartian process is liable in the hands of an unwary teacher, Mr. Barnett observes:

Most good lessons will teach more, and many good lessons will teach less, than is implied [in the strict use of the Herbartian formula]. The incidental teaching in a lesson is often of greater value than the generalization in which it accomplishes itself, and "application" may have to stand over for a fit opportunity. But this criticism is not more fatal to the general formula of teaching than it is to other useful formulas. For instance: "Things that are equal to the same thing are equal to one another" is true only, so to speak, *in vacuo*; for no one thing can be conceivably equal to another thing. Still the formula is very useful—things that tend to be equal to the same thing tend also to be equal to one another; and by believing this we get very valuable results.

A mathematician may demur to Mr. Barnett's selection of an instance from his particular field; for in mathematics the axiom is absolutely indisputable, and there is no room for quibbling about the equality of two straight lines, or angles, or triangles, which are separately equal to a third magnitude of the same kind. But a mathematical formula applied outside the domain of mathematics no doubt requires caution and qualification.

Mr. Barnett has much that is valuable to say on the discipline of character, on literature and linguistic study, on the necessity for maintaining the study of Latin and Greek, on the teaching of science and mathematics, geography, and history. His chapters on the history of education and on "the making of the teacher" are excellent. His ideal of the training requisite for the secondary teacher is high; but there is no domain of life in which the ideals of a conscientious man are more inevitably high.

The badly trained teacher probably uses procedure which has at all events been the subject of some sort of discussion and public criticism, whereas his untrained brother habitually adopts procedure which is the result of his own manufacture, and has probably been amended by no other man's counsel. The science of education is no more an exact science with indisputable premisses ascertained and affirmable, as a religious dogma is affirmed, than is the science of conduct. It is not religion, nor logic, nor psychology, nor ethics, nor sociology; but all these things and some others. The purpose of education, whatever our formal definition may be, is to influence people in such a way that they may have the will and the power to advance when the teacher's stimulus is removed. The study of education will, therefore, necessarily comprise all those sciences which concern themselves with the history of man, his constitution as a living and thinking being, and the purpose of his being.

The reader will find this in every way a very stimulating book, no less when he disagrees with the writer than when he agrees with him. It is the book of a shrewd mind directed to practical issues, and capable of applying the method of common sense in a field of inquiry peculiarly exposed to the tyranny of dogmatism and prejudice.

THE EDUCATION CRISIS.

What is Secondary Education? Essays on the Problems of Organization. Edited by R. P. Scott, M.A., J.L.D. (Rivingtons.)

On reading this collection of essays by some thirty writers, representative of the various fields in secondary education, one is specially struck with the hopefulness pervading them all. There is here no dread of inspection or of innovation in any form. The evils and shortcomings of the existing state of things are so fully admitted, and the Government Bill is so enthusiastically welcomed, that, though recognizing their avowedly propagandist purpose, we hardly expected to find such a complete absence of the conservative spirit. However, the inertia of the public is so great, and the chances of Government apathy in the future so high, that our hope of ultimate success depends upon the enthusiasm of schoolmasters being maintained. It should be clearly understood that the passing of the Board of Education Bill marks only the initial stage in the work to be done. It provides for the partial transfer to the Board of Education of the powers of the Charity Commissioners in regard to education. It gives the Board a wide jurisdiction over all secondary schools, public and private, but only so far as inspection goes, and if the schools desire it; and it provides for the creation of a register of teachers. Thus a vast field is left untouched by the Bill, and it becomes a matter of the highest importance that the extent, nature, and needs of this field should be ascertained with precision.

As an instalment of the views of practical and experienced men with regard to this debatable land, this collection of essays deserves hearty recognition. If there are in some of the papers traces of a lack of thoroughness and insight into difficulties, such deficiencies are atoned for by the force and clearness of some of the others. At the threshold of future progress lies the great question as to what is to be the national policy in education. Is it to be a beneficent autocracy, guarded by the firm hand of the Central Authority; or a liberal democracy, in which local representative agencies are to be paramount? If the latter, how are these agencies to be chosen, and how far shall their jurisdiction extend? These questions are clearly political, to be decided by the nation at large, and are fully recognized as such by Dr. Scott, the editor of these papers. How far he is justified in concluding that they must necessarily lead to party friction and heated political controversy remains to be seen. There can be no question as to the duty of all educationists with regard to the discussion. The religious question alone contains stumbling-blocks sufficient to retard progress for many a year, and it is clearly every one's interest to be content with the *status quo* in that respect until all matters of organization and finance are definitely provided for by further legislation. The Welsh Intermediate Education Act was passed in the vortex of a religious controversy, and the attempted solution has in no way allayed the storm.

Dr. Scott rightly lays stress on the fact that, if the future educational reform is to be truly national, it will involve expense; and that both tax- and rate-payers must be prepared for sacrifices. Of all truly national questions, as Canon Barnett and Mr. Brereton point out, this of secondary education is the most far-reaching in its probable effect upon the class from which local administrators are recruited; and these papers show a consensus of opinion in making the Local Educational Authority truly representative. The introduction upon such bodies of a few experts, by giving a power to the Lord President to nominate a proportion, worked satisfactorily in the case of the Welsh Joint Education Committees. Such a plan might be adopted without in any way affecting the representative character or jeopardizing the local interest which elected bodies develop for the matters with which they deal. Mr. Graham Balfour gives a concise account of existing Education Authorities and their shortcomings. Every one concedes that in future the sole Authorities must be the Central and Local, and any discussion which throws light on their proper mutual relation will serve a good purpose.

After all questions relating to the construction of Authorities are settled there comes the question of their functions, and, doubtless, the most difficult will be the relation of the Local Authority to private schools. It seems established that, if we include "Company" schools, at least two-thirds of the work of secondary education is done by private schools. Some means must, therefore, be discovered for welding private schools into our national system of education, because it would not be desirable, even if possible, for the State to occupy the field now worked by private enterprise. Indeed, in the past, the more efficient private schools have acted as an effective spur to the older foundations. There is nothing conclusive in a name.

What is required is an adequate guarantee of efficiency, and the day will probably never come when small and efficient private schools will not be required. There are three papers in this collection dealing with the place of private schools in relation to secondary education, and we heartily endorse the view expressed in them, that, the means of adequate inspection once provided, the interests of the nation are best safeguarded by leaving private schools alone. The fresh needs of commercial and industrial life and of changing social conditions in modern civilization have not always been foreseen by the older Universities or by our crystallized educational corporations; and, with all deference to Canon Lyttelton's experience, we think there are too many "dingy and dishonourable piles" maintained even by the drones of the Universities. It is true that private schools are often at a disadvantage compared with endowed schools in matters of equipment and staff; but, just as educational grants are now given to voluntary elementary schools and by South Kensington to science and art classes wherever organized, similar assistance ought to, and henceforth will, be given to private secondary schools, upon the condition that the schools claiming it shall conform to the requirements of the Board of Education both as to quality and quantity of equipment and staff.

We looked for more enlightenment when we came to the papers dealing with the position of teachers and their claims to representative authority; but this is a matter which evidently requires further discussion. Canon Lyttelton rightly insists on the necessity of training, and Dr. Scott is convinced that no other method than that proposed by the Government Bill for forming the register is practicable. A register must be formed, and it really matters little how elastic its first boundaries are. It is, to begin with, the chief *raison d'être* of the Consultative Committee, because the other work of this Committee, that of advising the Board on matters relating to inspection, is of very limited scope. After the register is formed, and regulations for admission are settled, the further existence of the Committee, with the limited jurisdiction given by the present Bill, would have little to do. But it is essential that the whole profession of secondary teachers should have a body to represent them for the purposes of stating their views or grievances. For this purpose a Council might well be elected by the profession at large and entrusted with disciplinary powers over the members of the profession, and with the power to express the opinions of schoolmasters in all matters of professional interest. It is a far cry, doubtless, to this goal. In some future Bill "to further amend the provisions as to education in this country," the suggestion may take practical shape. Mr. Vardy, of Birmingham, seems to approve the permanence of the Consultative Committee in its present form, and it is only right that the Government's creation should have a fair trial; but it does not, as it stands, even regarding it as a partially elective body, meet half the necessities of the profession.

THE HISTORY OF MAN.

"Cambridge Geographical Series." Edited by F. H. H. Guillemard, M.D.—*Man Past and Present*. By A. H. Keane, Emeritus Professor of Hindustani, University College, London. (Cambridge University Press.)

It is now some time since a notice appeared in these columns of Mr. Keane's admirable book on "Ethnology," the first of the "Cambridge Geographical Series." The volume before us is in part a sequel, in part an expansion, of the earlier work. As the author says: "In the 'Ethnology' were discussed those more fundamental questions which concern the human family as a whole—its origin and evolution, its specific unity, antiquity and primeval cultural stages, together with the probable cradle and area of dispersion of the four varietal divisions over the globe. Here these divisions are treated more in detail, with the primary view of establishing their independent specialization in their several geographical zones, and at the same time elucidating the difficult questions associated with the origins and interrelations of the chief sub-groups, and thus bridging over the breaks of continuity between 'Man Past and Present.'" Again, more attention is paid in the new volume to what Mr. Keane calls the psychic unity of primitive and later peoples, and to such subjects as mythology, folklore, and superstitions. After two introductory chapters, transitional between the "Ethnology" and the present volume, Mr. Keane takes the main divisions of the human race in detail and shows, where demonstration is possible, the origin and development of the modern inhabitants of the earth. With the assistance of the most recent researches in anthropology and archaeology he has produced a work which is

at once scientific and of general interest—not too common a combination of qualities.

For those who have not the time or do not take the trouble to keep themselves informed on the latest theories of ethnologists, Mr. Keane's book will be all the more pleasant reading in that it may occasionally administer a slight shock of surprise. For instance, the identification of the Basques of Europe and the Berbers of North Africa, so ably advocated by Dr. Collignon and adopted by Mr. Keane, will probably be new to many. Mr. Keane quotes an instructive list of words in which the similarity of the Basque and Berber forms is very marked, especially as the separation of the two peoples has lasted for so many thousand years.

The author is very instructive on the subject of the Pelasgians, formerly so great a problem to Greek historical scholars. The assumption of Herodotus that they were a rude and barbarous race has, indeed, been long recognized as hasty and prejudiced. As to their Hellenic successors, Mr. Keane says:

That the Hellenes were at first, and probably long after their advent in Greece, an illiterate people might almost be inferred from the solitary reference in Homer to writing of any kind, the more so since the writer is a Pelasgian king of Argos. The reference thus shows that the Pelasgians were at that time a cultured people, who corresponded with each other on both sides of the Ægean, apparently in a script now revealed by the researches of Mr. Evans in Crete.

The trend of modern research is to upset the view that European culture was introduced from the East. It is rather true, as Mr. Keane observes, that

it was from the Ægean centre, and not directly from the East, that the arts of the Bronze and later periods were introduced into Europe, so that the Ægean is to be regarded as the connecting link between East and West; between, for instance, the bronzes of Ireland and Scandinavia on the one hand, and those of Egypt and Babylonia on the other. The old views respecting the "Etruscan" or "Semitic" origin of the Western bronze culture are falling into the background, and making way for the several periods of Ægean culture. . . . The assumption that navigation in the eastern Mediterranean had its rise on the unsheltered Syrian seaboard, where we now know that the Phœnicians arrived at a relatively late period, can no longer be maintained. The Ægean islands were the natural home of the earliest efforts of seafaring man, and thus was here stimulated a higher degree of culture, which not only reacted on the whole of the European domain, but also influenced the earlier Egyptian and Asiatic fields themselves.

We cannot here go into fuller detail as to the presentation of new evidence and the deduction of new theories from the old which Mr. Keane, with the aid of all the more recent authorities, so ably presents. But we can with justice say that the excellence of his former volume on "Ethnology" is surpassed in the new one, and that none of those who read the earlier book can afford not to read "Man Past and Present." Mr. Keane's method in marshalling his facts is an admirable example to writers on ethnological subjects, and his style is thoroughly lucid and intelligible.

OLD IDEALS.

Social Phases of Education in the School and the Home. By Samuel T. Dutton. (Macmillan.)

It is pleasant to find a modern educational work that disclaims all attempt at new discoveries, and only endeavours to illuminate the old, to make no new definitions, but to seek for better and broader conceptions of ideals long accepted. Such is the avowed aim of Mr. Dutton in his lectures on the social aspects of education, delivered recently in American Universities, and now put into book form. And his aim is well fulfilled, for an unusual spirit of modesty, tolerance, and breadth of idea pervades every lecture. Added to this there is an enthusiasm, an explicitness in practical detail, and a simplicity of style, that will make the book a valuable addition to our training college libraries. Its tendency to excessive optimism is perhaps only an error in the right direction, and no young teacher could read it without feeling that his work in life was of incalculable importance in the progress of the world.

These lectures may be regarded as expounding and illustrating two main ideas; first, the importance of *vocation* in education; and, secondly, the necessity of *correlating educational forces* in any community. With regard to the first, the difficulty of the relation between technical and general education (apparently as great a problem in America as here) is ably dealt with. The distinction between these two sides of school life is not to be found in the subjects taught, as our English statutory definition very bewilderingly implies; nor does it lie in a difference in aim, as is usually supposed. According to Mr. Dutton, there is no dis-

tion at all. The guiding principle for all teachers in arranging a child's curriculum should be his vocation, his future work for the world; and all culture studies must be subsidiary to this. "It is utility," he says, "that gives all subjects their highest value. There should be nothing in our schools that is not strongly marked with the element of utility." In this age of aimless education and confusion of principles, it is bracing to meet with an idea so strongly put. Far from being a low or sordid aim, it is conceived in the noblest spirit. Our children are to be impressed with the importance of working for the world, and of being trained to that end. Art, literature, music, are not to be neglected, but to be increased, because of their power in making better and nobler workmen, rather than as a means of self-culture. School studies that prepare the way for honest bread-winning are urged for another reason: the best factor in a Christian civilization is a happy home, free from grinding poverty, with an atmosphere of contented work. "The best Christian is not a hungry one," and we cannot do better for general human progress than enable our young people to form for themselves a happy domestic life, getting the utmost comfort and beauty out of small means. This aim has the double advantage of securing the average parent's hearty co-operation and affording a teacher boundless scope for influencing character. Any approach to a better understanding between parent and teacher as to general aim is devoutly to be wished.

This brings us to the second leading idea of these lectures. Mr. Dutton makes an eloquent appeal to the general public to do their utmost in any community towards the utilizing of all the forces at command in the cause of education. The home, the church, the public library, the art gallery, the concert room—these may all be made to contribute their share of work in the teacher's struggle with ignorance, weakness, and hereditary evil. Education societies, with sub-committees in all these directions, seem to have done much more solid work in America than they have been able to achieve in England. It is certain, too, that the Americans have been wiser in the matter of kindergartens than we have. They have provided them for the poorest classes, where it is of the highest importance that the children should be rescued from home influences as early as possible, while in England, until recently, our kindergartens have been the luxury of the well-to-do.

Mr. Dutton devotes a chapter to the influence of Froebel and Herbart on our modern schools. A more thorough acquaintance with the history of education would probably have led him to go further back, at least as far as Pestalozzi, the acknowledged master of both these reformers. We owe perhaps to Herbart the emphasis that is now laid on the importance of character, and the idea that no school subject is secular; but all are equally sacred in so far as they minister to the moral end. But certainly the present book reminds us far more of the martyr of Stanz, who was above all a social reformer, who expressed plainly in his life what Herbart not always plainly expresses in his books, and whose spirit of unselfish devotion, as old and as fresh as Christianity itself, is as convincing and encouraging as ever in the pages before us.

A NEW HANDBOOK OF PHYSICS.

Physics Experimental and Theoretical. Vol. I. By R. H. Jude, D.Sc., and H. Gossin. (Chapman & Hall.)

Dr. Jude tells us that he originally sat down to translate Prof. Gossin's "Cours de Physique," which was written in 1892 to meet the requirements of the French code in Elementary Physics, and has already passed into a third edition. Then it naturally occurred to him and to his publishers that French and English methods of teaching and examination were not identical, and that a translation pure and simple, even of an excellent text, could not be quite as practical and serviceable as an English teacher might have made it for English schools. Additions and re-handling of particular subjects were undertaken; and then Dr. Jude, though as much convinced as ever of the value of Gossin's elementary expositions, resolved to abandon the "elementary" limit, and to include such aspects of physical science as are generally dealt with in the University colleges and the higher classes of scientific and technical schools in Great Britain. Thus the book before us has outgrown the French text, and assumed something of the character of a medley. But Dr. Jude has carefully distinguished between the original and the translated sections of his work, so that neither M. Gossin nor the reader has any ground for complaint.

This first volume is divided into three parts: the first treating of mechanics and hydrostatics, with pneumatics; the second of

heat; and the third of acoustics. The treatise as it stands is a very comprehensive and sufficiently complete treatise on the subjects mentioned, advancing in each case from a series of carefully enunciated definitions of terms and expositions of principles to fairly advanced theorems and problems. Examples and exercises are added in the text, and there is a large number of well chosen illustrations. All things considered, this new course of physics deserve careful attention. It combines many excellent features, amongst which its constantly direct and practical appeal to mathematical demonstration is not the least valuable.

GENERAL NOTICES.

CLASSICS.

The Bacchae of Euripides, the text and a translation into English verse, by A. Kerr (Edward Arnold), is a volume of a kind that seems to be winning some favour in America. The Greek and the translation are printed in parallel columns, and there are no notes of any kind. Prof. Kerr's version is in blank verse throughout, the choruses being in irregular or in equal unrhymed lines. The translation is smooth and facile, and it is, for the most part, literal. But we cannot think it comparable to Mr. Way's rendering. Prof. Kerr has not at his command the rich poetic vocabulary, much less the metrical skill, of Mr. Way; and whenever the diction of the Greek presents a problem to the translator he seems inclined to "give it up." Thus, the couplet that every one knows—

οὐ μὴ προσοίσεις χεῖρα, βακχεύσεις δ' ἰών,
μηδ' ἐξομόρξει μαριαν τὴν σὴν ἐμοί;

is represented by these lines:—

"Lay not thy hand on me; thyself go revel,
Nor make me share thy imbecility."

In the second line the problem of ἐξομόρξει—solved in Mr. Way's "Neither besmirch me with thy folly's stain"—is not attempted. Again,

νῦν γὰρ πέτει τε καὶ φρονῶν οὐδὲν φρονεῖς

is, by Mr. Way, most happily rendered: "Thou'rt now in cloudland: naught thy wisdom is." Prof. Kerr is content with: "For now thy mind's distraught, thy wit is folly," thus merely paraphrasing πέτει. The choric passages are satisfactory so long as smoothness is all that is needful to give the effect of the Greek. But, as soon as Euripides quits the level plain, Prof. Kerr's shortcomings are manifest. One quotation must suffice to exhibit our meaning:—

"But where is the fairest realm of all,
Pieria, home of the Muses,
Majestic slope of Olympus?
Thither conduct me, O Bromios, Bromios,
Leader of Bacchanals, Evian god!
There are the Graces, and there dwells Desire;
And there, too, it is lawful to celebrate Bacchic rites."

The last line—who would suspect it?—is a climax in the Greek. In the English it is an appalling bathos. For the purpose of contrast, we give the conclusion of Mr. Way's rendering of the same:—

"Thitherward lead me, O Clamour-King!
O Revel-god, guide where the Graces abide
And Desire—where danceth, of no man denied,
The Bacchanal ring."

Homer, Odyssey, Book XII., edited by R. A. Minckwitz (Edward Arnold), is designed, says the editor, for pupils "who have mastered the rudiments of the language and wish to read the ancient masters for the enjoyment of their beauty of thought and expression rather than for purposes of grammatical exploitation." The apparatus provided is well adapted to this end, and the book would be found suitable in ladies' schools and colleges, and in the middle classes of public schools. Mr. Minckwitz has produced a good book of its class.

Longmans' Illustrated First Latin Reading-Book and Grammar, by H. R. Heatley, belongs to a series of such books published by Messrs. Longmans. It is well that the Latin is drawn from real sources—much of it is verse—and the system appears to us to be a sound one. Certainly the book, if properly used, will enable the beginner to secure a good vocabulary. Part of the grammar must be learned first, for the exercises assume some knowledge of cases and tenses; but, after a little, the grammar may proceed *pari passu* with the exercises. The book should prove more interesting than most of the Latin readers in use. The illustrations, by Mr. Launcelot Speed, are amusing.

Messrs. Macmillan add to their "Elementary Classics" Mr. Marchant's *Selections from Thucydides, Book VII.* (the Athenian Disaster in Sicily). The editor's method is admirable; in place of references to grammars and other books of reference, he supplies a short list of "Peculiarities of Thucydides," a few brief explanatory notes, a "supplementary list of problems," or short test-papers, and a simple

vocabulary. With such an apparatus the student will not only completely master the selection, but he will also have a very good first notion of Thucydides and his style.

MATHEMATICS.

The latest of the familiar large octavo treatises in the higher mathematics which are published by the Cambridge University Press is *A Treatise on the Kinetic Theory of Gases*, by Mr. S. H. Burbury, M.A., F.R.S. Mr. Burbury applies a new method of analysis to the theory in question, departing from the usual fundamental assumption that the molecules of a gas have a relative motion independent of each other. His own assumption, which seems to be reasonable, of a partial interdependence of molecular motion gives him a modified value of Q for the computation of translation velocities.

A First Book in Statics and Dynamics (Longmans) is a very clear and practical treatment of the subject, with numerous examples, by the Rev. J. L. Robinson, of the Royal Naval College at Greenwich. It is adapted to the London Matriculation standard, and the "representative examples" are conspicuously well chosen and helpful. In the kinetic section the poundal is used throughout as the unit of force.

The Preceptors' Trigonometry (Clive) is edited by Mr. Briggs, Principal of the University Correspondence College, and it may be regarded as a simple and adequate text-book, not unsuitable, as the editor claims, for students preparing for the College of Preceptors' and similar examinations.

From Messrs. Macmillan we have a new and revised edition of Todhunter's *Euclid I.-VI.*, with notes, appendix, and exercises, prepared by Mr. Loney. The text of the propositions is somewhat simplified and shortened, especially in the case of the fifth book. The more important of Todhunter's notes are appended to the propositions to which they refer, and, so far as possible, each proposition begins a new page, and does not turn over. The number of exercises is nearly doubled. Altogether, this is an excellent school Euclid. From the same publishers we have *Euclid III. and IV.*, by Charles Smith, M.A., and Sophie Bryant, D.Sc. As in the case of the two earlier books edited by Mr. Smith and Mrs. Bryant, the tendency to vary from Euclid's text is somewhat marked. If we are not quite clear as to the advantage of the change in every particular, the editors are unquestionably sound and ingenious.

An Elementary Course of Mathematics (Macmillan), by Messrs. Hall and Stevens, appeals more especially to students outside the circumference of a school—to home students, for instance, and such as attend evening classes. It is elementary in scope, reaching discount, stocks and shares in arithmetic, simple equations and problems, with positive integral indices, in algebra, and the first book of Euclid.

From Messrs. Isbister we have *The Essentials of Geometry*, by Webster Wells, of Massachusetts; and from Mr. Edward Arnold, *Plane Geometry*, by G. A. Wentworth (Ginn & Co.).

Examples in Arithmetic for Schools, by the Rev. J. B. Lock, M.A. (Macmillan), may be described in another form as the examples in the "Arithmetic for Schools," extracted from the work of Mr. Lock which was noticed in these columns on its publication. The book will be very serviceable for general practice.

The Arithmetic of Electrical Measurements, by W. R. P. Hobbs, of the Naval Torpedo School, Portsmouth (Murby), appears in a revised and partially rewritten seventh edition.

MODERN LANGUAGES.

Dumas: Episodes from Les Deux Rois. Edited by F. H. Hewitt, M.A. (Longmans.)

This well chosen episode is taken from "Le Vicomte de Bragelonne." There are about eighty small pages of text, so that the book can easily be read in a term; probably it would take even less time, for it is sure to be of great interest to children, who will want to read it as quickly as possible. The text is carefully printed, though here also there are instances of the hyphen with *très* (e.g., twice on page 9); *poète* is another instance of old-fashioned spelling. The notes are mostly good; here and there we come across curious statements. No such word as *episc* ever existed. "Parthian Games," and "Milon got held fast," "Minos had private tuition in law-giving from Zeus" will, we trust, not reappear in the second edition. Some of the renderings (e.g. "he allowed himself to be surprised by his feelings") and the frequent use of grammatical terminology borrowed from the classics ("virtually consecutive," "disjunctive dative," "meditative infinitive") might also yield to something more satisfactory.

Sequel to the Child's French Grammar. By Clara A. Fairgrieve. (Oliver & Boyd.)

Miss Fairgrieve has arranged this book very much on the same lines as her "Child's French Grammar." It is the old method of grammar and exercises, and the usual lists of exceptions. We have not much sympathy with a system which constrains children to occupy themselves with grammar at an age when they are psychologically quite unfit for a methodical study of this branch of language teaching. At the same time we readily acknowledge that Miss Fairgrieve shows herself to be a skilful teacher, and that her book compares very favourably with almost all the other books which follow the gram-

matical method. Attention is given to conversation, and the sentences for translation are not so uniformly wearisome as is usually the case. On page 17 we note a strange slip: "je vous souhaite le toujour," and the sentence "Madame Lebrun porte de faux cheveux," which might well have been omitted. "Il y a trois vieux canapés dans le salon du commis," a few lines on, is quite in the bad old style. The book is very well printed.

Practical French Primer. By V. Spiers, M.A. (Simpkin & Marshall.)

Prof. Spiers is evidently no believer in the reform movement; he objects to the book which is a combination of reader and grammar, as well as to the special vocabulary, to which he prefers the dictionary. And he has produced a book which he wishes to be considered practical, and, if this be interpreted to mean "convenient for purposes of reference, especially with a view to examinations," he has certainly achieved his object. The book is indeed full of tips and neat rules, the result of many years' experience in preparing candidates for examinations. The section on pronunciation contains some misleading statements. The difference in quality between the *a* in *patte* and that in *pas* is not mentioned. The pronunciation of *au* is given as *ô* except in *mauvais*; but in this word the sound is often close and half long. The words *auberge* and *automne* should have been quoted as exceptions. The *a* is not always long in *-able*, nor when it is followed by *r*; and *o* is not always short before *r*—it is long in *port*.

French Vocabulary for Repetition. By V. Spiers, M.A. (Simpkin & Marshall.)

This volume contains "the three thousand most important words, with their most useful derivations, preceded by a short note on pronunciation, and followed by an appendix on the different prepositions required by French verbs." Some teachers believe in this method of acquiring a vocabulary, and, perhaps, it may be justified in the case of pupils whose only aim is to pass an examination in the shortest possible time. That, however, is obviously not to learn a language in the true sense of the word, but comes under the head of cramming. The word lists are well compiled and neatly arranged; but in many cases the mark to show the length of a vowel is in the wrong place. Thus, the *a* is not long in *parler, estomac, article, barbe*, and many others here printed with *â*. The sections on pronunciation and on prepositions are taken from the author's "Primer" noticed above.

Eugène Labiche: La Grammaire. Edited by H. S. Piatt, Ph.D. (Ginn & Co.)

A nicely printed text of this favourite play, with only a few pages of notes, which are satisfactory. We have noticed a few slips—e.g., the old-fashioned hyphen in *très-fort* (page 6) and *très-loin* (page 8), *port* for *porte* (page 51), *été* for *perdu* (note 96). Notes 6 and 98 suggest difficulties where the point is quite clear; and "I'll see you again soon" is not a particularly happy rendering of *à bientôt*, for which our nearest equivalent is obviously "so long!"

Three Plays by Souvestre. Edited by Margaret Ninet. (Dent.)

Miss Ninet has selected the plays "La Vieille Cousine," "La Loterie de Frankfort," and "Le Testament de Madame Patural." They are written in simple French, which will be very useful for the acquisition of the conversational language. The plays lend themselves very well to acting, and should prove particularly popular in girls' schools. The mode of annotation is rather novel: everything is explained in French at the bottom of the page. This does away with the necessity of constant reference to a dictionary, and supplies further materials for conversation. The "Short Plays" form a volume of "Dent's Modern Language Series," and the absence of English notes is consistent with the principles adopted in the First and Second French Books issued in the same series.

German Prose Composition. By A. L. Meissner. (Hachette.)

A useful and well written little volume. The introduction contains some very judicious and suggestive pages, and will be read with advantage by many teachers. Mr. Meissner has had extensive experience, and here shows once more how well he knows the English language and the difficulties of English students of German. A number of "selected graduated passages" for translation are given, to which Mr. Meissner adds some, but not too many, hints, further information being supplied by an English-German vocabulary, which appears to have been compiled with great care.

El Sí de las Niñas: Comedia en tres Actos y en Prosa. By L. F. de Moratin. Edited by J. W. M. Ford, Ph.D. (Edward Arnold.)

This excellent comedy, first printed nearly a hundred years ago, makes a thoroughly good Spanish reading-book. It holds an honourable place in the literature of Spain, and both the spirit of the piece and the simplicity of the text are calculated to attract the student. Dr. Ford's notes are helpful, not merely for translation, but for the study of the language. There is a serviceable introduction on the Spanish drama.

MISCELLANEOUS.

"Literatures of the World."—Edited by Edmund Gosse.—*A History of Bohemian Literature.* By Francis Count Lützow. (Heinemann.) Bohemian literature is practically an unknown quantity and quality in Western Europe. It is partly the fault of the language and partly of political circumstances, which placed the country for some time

under a kind of ban, and led to something like a deliberate stamping out of the writings of the Czechs. Many books known to have been valuable as literary monuments have actually disappeared; what we have to-day are either very early or the product of the nineteenth century. Count Lützow is wise, therefore, in taking nothing for granted in introducing each author to us, and in giving us plenty of quotations. Englishmen know a good deal about Hus, and something of Komensky and Palacky. In this well written volume they will find much to interest them on Bohemian writers in a lighter strain.

John Milton: A Short Study of his Life and Works. By William P. Trent. (Macmillan.)

Mr. Trent thinks that Milton is neglected and misunderstood by the Anglo-Saxons—"is rapidly passing into the class of authors whom we talk about oftener than we read"—and he hopes, by this little book, to do something towards making amends. It had not occurred to us that Milton was misunderstood or neglected by his countrymen. We do not think that his minor poems were ever more frequently read than they are to-day, or that any previous five years have seen so many biographies or editions of his works as the last five. But Mr. Trent's book is a good one, and we do not withhold our welcome.

The Companion Ranger Series. Vols. I.-III. (Edward Arnold.)

In these three well printed, illustrated, and slightly annotated volumes we have selected passages, fifty or sixty pages in length, from "Westward Ho!" "The Pathfinder," "Children of the New Forest," "The Rifle Rangers," "Ivanhoe," "It is Never too Late to Mend," "The Christmas Carol," and others; four authors to the volume. Apart from the incompleteness, these are capital story-books for the young.

The Children's Book of Moral Lessons. By F. G. Gould. (Watts & Co.)

This is the first volume of a projected series. The lessons first appeared in the columns of the *Ethical World*, and are intended for children aged from ten to fourteen. The lessons are liberally illustrated with stories from history and anecdotes.

High Aims at School. By the Rev. R. A. Byrde, M.A., with a Preface by the Rev. H. A. James, D.D. (Elliot Stock.)

The Headmaster of Rugby warrants these short school sermons as reflecting "the earnest conviction of a preacher who knows what boy nature is." They are of "the best type for securing their end—simple, direct, and interesting." They average about seven small pages in length, and we may add to Dr. James's epithets that they are thoroughly readable. Frankly, it seems to us that these sermons are just the kind of thing to take hold of a boy in the middle of his second decade.

A Graduated Course of Drawing for Infants. By Constance H. Fowler. (Macmillan.)

The Rev. T. W. Sharpe writes an introductory note for Miss Fowler's book of slate and paper designs for infants in the kindergarten. Mr. Sharpe has been "much impressed with the variety of design and the originality of combination" produced by infants in his presence. This book gives ample evidence of the same kind, many of the designs being reproduced from the work of young children.

Royal Crown Song Book. Part I. (Nelson & Sons.)

Eight-and-twenty songs, music and words, composed specially for the use of children from seven to ten years of age. The airs are sweet and simple, and the book seems to be very well suited to its purpose. There are a few good preliminary hints on the cultivation of "purity of tone."

Object-Lessons in Geography. By T. F. G. Dexter and A. H. Garlick. (Longmans.)

Geography is a study that lends itself easily to practical demonstration, especially in its physical aspects. Indeed, it may be said absolutely to need such demonstration in many cases. With young children especially, for whom the work is intended, the object-lesson is invaluable. To train the child's observation is of higher value than to overload his brain with facts and figures, too often ill-digested and half-understood. This book, which is well and copiously illustrated, will be of great assistance to the teacher. It contains a series of practical lessons, brightly and clearly set forth. The lessons are in no particular order, and may be chosen at random. Prefixed are some useful hints on the making of geographical models, and the volume has some good diagrams and maps.

Geographical Handbooks, I.-VI. (Edward Arnold.)

This is a very fair geography, issued sectionally in paper covers—England and Wales; Scotland, Ireland, Australasia, and Canada; Europe; Greater Britain (with some of the second section over again); The British Isles (with some of the first and second sections over again); and Asia. Other sections are to follow. Though the substance of this work is well enough, the arrangement is confused. What is the object of the repetitions?

Animal Stories. (Nelson & Sons' "Supplementary Readers.")

This is a handy little reader, teaching the duty of kindness to dumb creatures.

Higher English Reader. (W. & R. Chambers.)

A very useful reading-book of selections from English authors,

most of the nineteenth century, and a few from the eighteenth, with explanations of the meanings of many words, spelling lists, lists of prefixes and suffixes, and a "list of roots." The book is something of a medley.

Word-Building, Transcription and Composition. Two Vols. By Robert S. Wood. (Macmillan.)

One of the aims of this work, it may be assumed, or of the code to which it is adapted, is to make a sort of new "subject" for elementary pupils out of the scattered fragments of English etymology. The thing is accomplished; and we do not know that any one could have done it better than Mr. Wood. The book as it stands is very serviceable.

King Henry the Eighth, edited by D. Nichol Smith, M.A., is the fourteenth volume of Messrs. Blackie's "Warwick Shakespeare."

From Messrs. Macmillan we have the sixth canto of Mr. Michael Macmillan's annotated edition of Scott's "Marmion"; and from Mr. Edward Arnold an edition of Macaulay's "Lays," by M. G. Daniell (Ginn & Co.).

WE HAVE ALSO RECEIVED the following publications and new editions:—

Handbook of British, Continental, and Canadian Universities, with special mention of Courses open to Women, compiled by Isabel Maddison, Ph.D. Bryn Mawr (Macmillan)—an enlarged second edition of the "Handbook of Courses," published in 1896.

A reprint of *In the Lion's Mouth,* by Eleanor C. Price (Macmillan)—an interesting and harmless story of a boy and girl in the French Revolution.

Colour: a Handbook of the Theory of Colour, by George H. Hurst (Scott, Greenwood, & Co.)—a technical treatise which should be useful to colour-printers, painters, and artists.

Curiosities of Light and Sight, by Shelford Bidwell, M.A. (Sonnenschein)—a well written book, dealing with optical effects and defects, especially in regard to colour.

Secondary Education, being a Series of Articles reprinted with Alterations and Additions from the *Chester Courant*, by Bingham Dixon Turner, M.A. (Chester: Phillipson & Golder)—a well considered and common-sense brochure by the Rector of Kelvinside Academy, well worth reading.

From Her Majesty's Stationery Office we have a series of *Special Reports* issued by the Education Department, being sectional reprints from Vols. II. and III. of the "Special Reports on Educational Subjects," recently noticed by us. The numbers before us are "Secondary Education in Prussia," "Modern Language Teaching," "Secondary Schools in Baden," "The Heuristic Method of Teaching," and "The Connexion between the Public Library and the Public Elementary School."

On the Spanish Main, by G. A. Henty (Chambers)—a fourpenny reprint.

The Remington Typewriter Manual, specially arranged for Classes and Schools (Pitman & Sons)—a third edition of a serviceable technical guide.

Domestic Economy, by H. Rowland Wakefield, Parts I. and II. in paper covers (Chambers)—a revised and enlarged edition.

ADJOURNED MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

AN adjourned meeting of the Council was held at the College on July 22. Present: Dr. Wormell, Vice-President, in the Chair; Mr. Barlet, Mr. Baumann, Rev. J. O. Bevan, Mr. Bidlake, Mr. Eve, Mr. Pinches, Mr. Sergeant, and Rev. J. Twentyman.

Diplomas were granted to the following, who had completed their subjects at the Midsummer Examination of Teachers for Diplomas:—

Licentiate-ship:

J. L. Holland. J. B. Irvine. F. W. Jordan.

Associate-ship:

Miss G. A. Aldridge.	J. G. Gilchrist.	R. W. Pearson.
T. O. Alexander.	T. Graham.	R. Ramsdale.
G. T. Aston.	W. C. Hardy.	O. Riley.
Miss C. J. Bailey.	S. Harrison.	H. Rose.
B. T. Barber.	Mrs. F. E. Hubbard.	Miss E. K. Sadler.
F. T. Bowen.	D. J. Hughes-Jones.	A. A. Savage.
W. Bradburn.	A. R. Iverson.	S. A. Smith.
E. E. Capewell.	E. Jago.	Miss E. G. M. Spiller.
J. G. Cowen.	G. Moore.	G. J. Springer.
W. E. Coxall.	R. A. Nixon.	A. E. Vickers.
Miss H. M. Davis.	T. E. Paine.	E. Williams.
A. Eady.	Miss B. E. Passmore.	J. Wilson.

Certificates of Ability to Teach were awarded to the following, who had passed the required practical examination:—J. F. Alder, J. Birch, W. Bradburn, Miss H. M. Davis, F. M. Walker.

The Prize of £10 for Theory and Practice of Education was awarded to Mr. J. L. Holland, and the Prize of £5 for Natural Sciences to Mr. E. F. W. Mondy.

MATHEMATICS.

14128. (G. W. PRESTON, B.A.)—Show that

$$(i.) \frac{\sum (y-z)^2}{\sum (y-z)^2} - 4\pi (y-z)^2 = \{\sum x^2 - \sum yz\}^3;$$

$$(ii.) \frac{\sum \frac{b+c+d}{abcd} (b-a)(c-a)(d-a)(x-a)}{(x-a)(x-b)(x-c)(x-d)} = \frac{a+b+c+d-x}{(x-a)(x-b)(x-c)(x-d)}$$

[See CHRYSTAL'S *Algebra*.]

Solution by LIONEL E. REAY, B.A.; *the PROPOSER*; PROFESSOR SANJANA; and others.

(i.) Put $y-z = a$, $z-x = b$, $x-y = c$, &c.; then $a+b+c = 0$.

Also $\sum a^2 = \sum (y-z)^2 = 2\{\sum x^2 - \sum yz\}$ and $\sum a^2 = -2\sum bc$;

therefore $4(\sum bc)^2 = (\sum a^2)^2 = \sum a^4 + 2\sum b^2c^2$.

But $(\sum bc)^2 = \sum b^2c^2 + 2abc\sum a = \sum b^2c^2$;

$\therefore \sum a^4 = 2\sum b^2c^2$; $\therefore (\sum a^2)^2 = 2\sum a^4$; $\therefore (\sum a^2)^2 = 4(\sum b^2c^2)^2$;

$\therefore \sum a^8 = 2\sum b^4c^4 + 8(\sum a^2)^2 \sum b^2c^2$; $\therefore (\sum a^4)^2 = 2\sum a^8 - 8a^2b^2c^2 \sum a^2$;

$\therefore (\sum a^2)^4 = 4(\sum a^4)^2 = 8\sum a^8 - 32a^2b^2c^2 \sum a^2$;

$\therefore (\sum a^2)^2 = 8(\sum a^8 / \sum a^2) - 32a^2b^2c^2$;

$\therefore \{\sum x^2 - \sum yz\}^3 = \{\sum (y-z)^2 / \sum (y-z)^2\} - 4\pi (y-z)^2$.

[The rest in Volume.]

14099. (H. W. CURJEL, M.A.)—In a given quadrilateral inscribe a quadrilateral similar to a given quadrilateral.

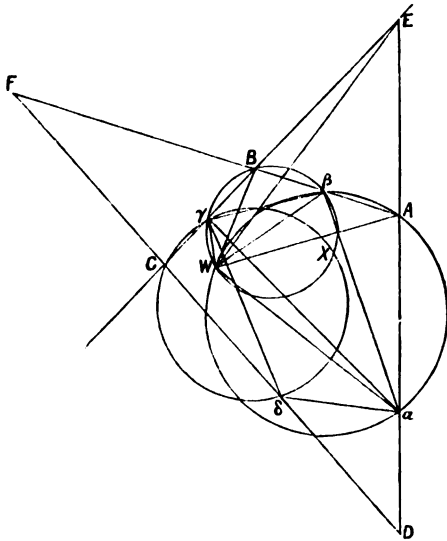
Solution by C. E. HILLYER, M.A.

Let ABCD be the quadrilateral in which a quadrilateral is to be inscribed similar to $abcd$.

Let DA, CB meet in E, and AB, DC in F.

On AB describe a segment of a circle containing an angle equal to $b-E$, and on AE a segment containing an angle equal to $EBA-bac$, and let the two circles meet in W. Similarly, let X be the intersection of circles on FB and on CB, such that $FXB = FCB-bac$ and $CXB = c-F$.

Let the circle XBW meet AB in β and BC in γ , the circle WBA meet AD in α , and the circle X γ C meet CD in δ ; then $\alpha\beta\gamma\delta$ shall be the quadrilateral required.



For $\angle \alpha\beta\gamma = E\gamma\beta + E\alpha\beta + E = BW\beta + AW\beta + E = BWA + E = b$.

Also, since $\angle \gamma W\alpha = \gamma W\beta + \alpha W\beta = EBA + EAB$,

E, γ , W, α are concyclic, and

$$\angle \beta\alpha\gamma = \beta\alpha W - \gamma\alpha W = BAW - BEW = BAD - WAD - E + WEA = EBA - EWA = bac;$$

therefore $\alpha\beta\gamma$ is similar to abc ; and in the same way it can be shown that $\gamma\delta\alpha$ is similar to eda .

14133. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Find a sum of successive odd cubes equal to a square.

Solution by the PROPOSER.

Let $S_n =$ sum of successive cubes [1^3 to n^3]; $S_n = \left(\frac{n(n+1)}{2}\right)^2$;

let $s_{2r} =$ sum of successive even cubes [1^3 to $(2r)^3$];

let $s_{2r-1} =$ sum of successive odd cubes [1^3 to $(2r-1)^3$].

Then $s_{2r} = 2^3(1^3 + 2^3 + \dots + r^3) = 2^3 S_r$,

$$\text{and } s_{2r-1} = S_{2r} - s_{2r} = \left(2r \frac{2r+1}{2}\right)^2 - 2^3 \left(r \frac{r+1}{2}\right)^2 = r^2(2r^2-1) = r^2 \cdot z^2 \text{ (if } s_{2r-1} = \square).$$

Hence every solution of $2r^2 - z^2 = 1$ gives a solution of the problem; the solutions r, z are known to be as shown below; the last term of the series is $(2r-1)$.

$$r = 1, 5, 29, 169, 985, 5741, 33461, \&c.,$$

$$z = 1, 7, 41, 239, 1393, 8119, 47321, \&c.,$$

$$2r-1 = 1, 9, 57, 337, 1969, 11481, 66831, \&c.$$

Thus the lowest solution is $1^3 + 3^3 + 5^3 + 7^3 + 9^3 = (517)^2$.

As to any other solutions not beginning (as above) with 1:

Let $s =$ sum of successive odd cubes $(2p+1)^3 + (2p+3)^3 + \dots + (2r-1)^3$,

$$\text{so that } s = s_{2r-1} - s_{2p-1} = r^2(2r^2-1) - p^2(2p^2-1) = (r^2 - p^2)(2r^2 + 2p^2) + 1.$$

If $s = \square$, each of its factors, being prime to one another, must be squares. Therefore $r-p = t^2$, $r+p = u^2$, where

$$2r^2 + 2p^2 + 1 = t^4 + u^4 + 1 = \square,$$

an impossible result; see EULER'S *Comment. Arithm.*, Petrop., 1849, Vol. II., p. 281. Hence the system of solutions given above is the only one.

[Mr. WHITWORTH solves the Question as follows:—Let N/D , where D is an odd number, be one of the convergents obtained by expressing $\sqrt{2}$ as a continued fraction. Then

$$1^3 + 3^3 + 5^3 + \dots + (2D-1)^3 = N^2 D^2.$$

Thus we have a series of consecutive odd cubes whose sum is a square.

The simplest case is when $N = 5$, $D = 7$, thus:

$$1^3 + 3^3 + 5^3 + 7^3 + 9^3 = 35^2.]$$

14189. (V. DANIEL.)—XY is the line $x \cos \alpha + y \sin \alpha = p$, referred to rectangular axes through O. If a point move along the zigzag line $OPP_1P_2P_3P_4 \dots$ (which is such that OP is perpendicular to XY, PP_1 to YO, and generally, P_nP_{n+1} perpendicular to $P_{n-1}P_n$), it will ultimately arrive at a point S. Similarly, if it move along $OP_1P_2P_3 \dots$, it will ultimately arrive at a point S'. Prove (1) S and S' are the foci of an ellipse inscribed in the triangle YOX, and its major axis is

$$p/\sqrt{1 + \cos^2 \alpha \sin^2 \alpha}.$$

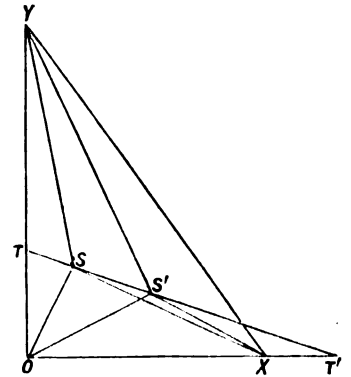
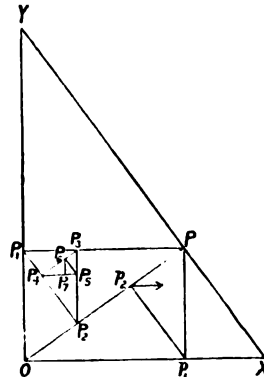
(2) OX, OY subtend right angles at S and S' respectively, and hence that three pairs of triangles are similar, namely, OSX, OS'Y; OSY, XS'Y; OS'X, XSY. (3) If SS' produced intersect the axes in T and T', $OS^2 \cdot OT' = OS'^2 \cdot OT$. (4) When YOX is isosceles, the ellipse has eccentricity = $1/\sqrt{5}$.

Solution by the PROPOSER, and R. TUCKER, M.A.

Continue the line $OPP_2 \dots$ until the triangle $P_5P_6P_7$ is formed, similar and similarly situated to the triangle OXY. The coordinates of P_7 are $x = P_1P_3 - P_5P_7$, $y = OP_1 - P_3P_5$. Since all the triangles in the figure are similar, these are evidently

$$x = p \cos \alpha \sin^2 \alpha - p \cos^3 \alpha \sin^4 \alpha = p \cos \alpha \sin^2 \alpha (1 - \cos^2 \alpha \sin^2 \alpha),$$

$$y = p \sin \alpha - p \sin^3 \alpha \cos^2 \alpha = p \sin \alpha (1 - \cos^2 \alpha \sin^2 \alpha).$$



Regarding $P_5P_6P_7$ as the original triangle, the coordinates (referred to P_7 as origin) of the right angle of the next similar and similarly-situated triangle are the same as x and y with p , written for p ; so that the coordinates of the limiting point at which the triangle vanishes are given by

$$x = \cos \alpha \sin^2 \alpha (1 - \cos^2 \alpha \sin^2 \alpha) \{p + p_1 + p_2 + \dots + p_n\}_{n \rightarrow \infty},$$

$$y = \sin \alpha (1 - \cos^2 \alpha \sin^2 \alpha) \{p + p_1 + p_2 + \dots + p_n\}_{n \rightarrow \infty}.$$

But $p_n/p_{n-1} = p_{n-1}/p_{n-2} = \dots = p_1/p = \cos^4 \alpha \sin^4 \alpha$.

Hence $\{p + p_1 + p_2 + \dots + p_n\}_{n \rightarrow \infty} = p/(1 - \cos^4 \alpha \sin^4 \alpha)$.

Therefore S is the point;

$$x = \frac{p \cos \alpha \sin^2 \alpha}{1 + \cos^2 \alpha \sin^2 \alpha}; \quad y = \frac{p \sin \alpha}{1 + \cos^2 \alpha \sin^2 \alpha}$$

Similarly, S' is the point ;

$$x' = \frac{p \cos \alpha}{1 + \cos^2 \alpha \sin^2 \alpha}; \quad y' = \frac{p \sin \alpha \cos^2 \alpha}{1 + \cos^2 \alpha \sin^2 \alpha}$$

[The rest in Vol.]

14204. (J. MACLEOD, M.A.)—B, E are the remote points in which the line of centres of two unequal circles which intersect meets the circumferences; A one of the points of intersection of the circles; BF = BA; ED = EA; $\angle FAC = \frac{1}{2} \angle BAE$. The radius AO produced meets the circumference in G; AD produced meets the same circumference in H, and AC meets in K. Prove AKGH a parallelogram.

Solution by PROFESSOR T. SAVAGE.

Since $\angle H$ is right, it is sufficient to show $\angle DAC$ right. Produce BA to W.

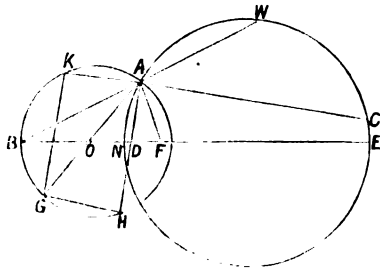
$$\begin{aligned} \angle BAF + \angle EAD &= \angle DFA + \angle FDA, \\ &\text{(Euc. I. 5)} \end{aligned}$$

$$\therefore \angle BAE + 2 \angle DAF = \text{two right angles};$$

$$\therefore \angle DAF = \frac{1}{2} \angle EAW.$$

$$\text{But } \angle FAC = \frac{1}{2} \angle BAE,$$

$$\therefore \angle DAC = \text{right angle.}$$



14095. (R. KNOWLES, B.A.)—

$$ax^2 + bxy + cy^2 + cy = 0, \quad a'x^2 + b'xy + c'y^2 + c'y = 0$$

are the equations to two parabolas, touching at P, referred to a tangent and normal at P as axes; if F, F' are the foci, prove that, if $b : c = b' : c'$, F, F', P are collinear.

Solution by R. TUCKER, M.A.; Prof. A. DROZ-FARNY; and many others.

Let the curve cut the normal in A. Therefore

$$AP = -e/c \dots (i).$$

Since the curve is a parabola,

$$b^2 = 4ac;$$

and tangent at A is given by

$$bx + cy + e = 0,$$

therefore $PR = -e/b \dots (ii).$

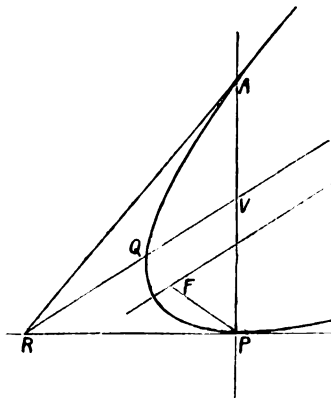
Therefore

$$\begin{aligned} \tan PRV &= PV/PR \\ &= b/2c \\ &= \tan RPF. \end{aligned}$$

Hence, if $b : c = b' : c'$,

then $\angle RPF = RPF'$;

Therefore &c.



14093. (Rev. T. MITCHESON, B.A.)—PQ, a tangent to an ellipse at P, is equal to a diameter parallel to itself: find the locus of Q.

Solution (1) by J. O. WATTS; R. TUCKER, M.A.; and others; (2) by H. A. WEBB; H. W. CURJEL, M.A.; and others.

(1) Let P be $(a \cos \alpha, b \sin \alpha)$.

Let D be $(-a \sin \alpha, b \cos \alpha)$. Let

$$CR = 2CD.$$

Then R is $(-2a \sin \alpha, 2b \cos \alpha)$.

Therefore, if RQ is parallel to PC,

meeting tangent in Q, Q is the moving point.

$$RQ \text{ is } \begin{cases} x + 2a \sin \alpha = a \cos \alpha \\ y - 2b \cos \alpha = b \sin \alpha \end{cases}$$

or $(x/a) \sin \alpha - (y/b) \cos \alpha = -2$

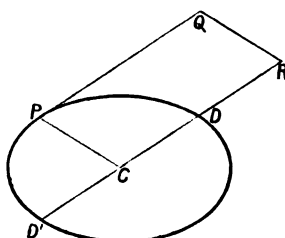
PQ is $(x/a) \cos \alpha + (y/b) \sin \alpha = 1$

Therefore locus is (squaring and adding) $x^2/a^2 + y^2/b^2 = 5$.

(2) PQ is equal and parallel to DD'. We have to find the locus of Q.

Project the ellipse orthogonally into a circle, and we have at once that the locus of the projection of Q is a concentric circle whose radius is $\sqrt{5}$ times the radius of the projection of the circle.

Hence the locus of Q is a concentric and similar ellipse whose area is 5 times the area of the given ellipse.



14160. (G. BIRTWISTLE, B.Sc.)—The tangents to any umbilical geodesic on a quadric all intersect the focal hyperbola.

Solution by Rev. J. CULLEN.

For a geodesic we have, in ordinary notation,

$$a'^2 \cos^2 i + a''^2 \sin^2 i = k^2,$$

where

$$k^2 = a^2 (1 - b^2 c^2 / p^2 D^2).$$

Now pD is constant and equals ac at an umbilic; therefore

$$a'^2 \cos^2 i + a''^2 \sin^2 i = a^2 - b^2.$$

But, by a known theorem, tangents to a geodesic touch the confocal whose primary axis is k, which reduces to the focal hyperbola

$$x^2/(a^2 - b^2) + z^2/(c^2 - b^2) = 1,$$

when $k^2 = a^2 - b^2$; therefore, &c.

13947. (P. W. FLOOD.)—Given one of the segments and the difference of the perpendicular (drawn from one of the equal angles to the opposite side) and other segment of an isosceles triangle, to construct it.

Solution by I. ARNOLD; F. H. PRACHELL, B.A.; and others.

Analysis.—Let ABC be the isosceles triangle, and BD the perpendicular from one of the equal angles; and AD and BE the given segment and the given difference respectively.

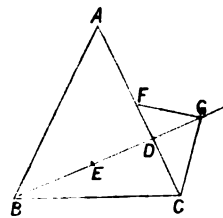
Let DE or DC = x; then

$$(BE + x)^2 + AD^2 = AB^2 = AC^2 = (AD + x)^2.$$

$$\begin{aligned} \text{Then } BE^2 + 2BE \cdot x + x^2 + AD^2 &= AD^2 + 2AD \cdot x + x^2; \\ \text{or } BE^2 + 2BE \cdot x &= 2AD \cdot x; \end{aligned}$$

consequently x or DC = $\frac{1}{2} \frac{BE^2}{AD - BE}$; hence this construction.

Make AD = the given segment and AF = the given difference. Draw a perpendicular through D both ways, and make $DG^2 = \frac{1}{2} AF^2$. Join FG, and from G draw GC perpendicular to FG, cutting AD produced in C. Make DE = DC and EB = AF. Join AB and BC; then is ABC the isosceles triangle required.



13654. (SALUTATION.)—The triangle ABC has the sides AB, AC bisected in D, E respectively. DE is produced to F, such that EF = DE, and FC is joined. Again, the triangle CEF has its sides CE, CF bisected in G, H respectively, GH is produced to I, such that HI = GH, and IF is joined to form a third independent triangle. The process being continued ad infinitum, (1) show that the centroids of the system of triangles are collinear; (2) find the distance apart of the extreme centroids; and (3) find the centre of gravity of the entire system.

Solution by H. W. CURJEL, M.A., and L. E. RRAY, B.A.

Let G_1, G_2, G_3, \dots , be the centroids of the triangles ABC, CEF, FHI, &c. Since G_1, G_2, G_3, \dots , divide the medians through A, C, F, &c., in the ratio 2 : 1 and $\frac{1}{2} - \frac{1}{4} = \frac{1}{4} \times \frac{1}{2}$, therefore G_1, G_2, G_3 are all on the line through G_1 parallel to BC.

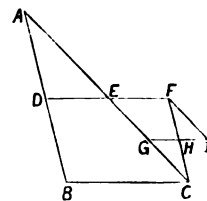
Also AG_1, CG_2, FG_3, \dots , are clearly parallel.

Therefore $BC = 2G_1G_2 = 4G_2G_3 = \dots$;

therefore $G_1G_n = BC$.

Taking moments about G_1 , we see that the distance of the centre of gravity of the system from G_1

$$= BC \cdot \frac{1}{2} \cdot \frac{1}{2} + \frac{3}{4} \left(\frac{1}{2}\right)^2 + \frac{5}{8} \left(\frac{1}{2}\right)^3 + \dots = \frac{1}{2} (BC).$$



5810. (J. L. MCKENZIE, B.A.)—Given two points P_1, P_2 on a fixed circle, and three points A_1, A_2, A_3 in a straight line. A circle is drawn through either of the points P and any two of the points A, cutting the given circle again in H; and a line is drawn joining the remaining points P and A, and cutting the given circle in K. Prove that the six lines HK thus obtained all cut the line ABC in the same point.

Solution by R. F. DAVIS, M.A.; and F. L. WARD, B.A.

Since

$$A_2X \cdot XA_1 = FX \cdot XE,$$

we can deduce without difficulty by *componendo*

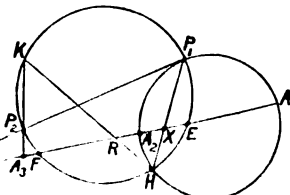
$$EX : FX = EA_1 : EA_2 = FA_1 : FA_2.$$

$$\text{Now } K \{P_2FEH\}$$

$$= P_1 \{P_2FEH\},$$

$$\text{or } \{A_3FER\} = \{OFEX\};$$

$$\text{or } A_3F \cdot ER : A_3E \cdot FR = OF \cdot EX : OE \cdot FX.$$



Substituting for EX : FX, we find

$$RE : FR = -EA_1 \cdot EA_2 \cdot EA_3 : FA_1 \cdot FA_2 \cdot FA_3 \cdot OE \\ = \text{a symmetrical quantity.}$$

QUESTIONS FOR SOLUTION.

14283. (Professor G. B. MATHEWS, M.A.)—Prove that through $2m$ points taken arbitrarily upon a conic a $\frac{1}{2}m(m-1)$ -fold infinity of curves of order m may be drawn: in other words, the $2m$ points on the conic are equivalent, so far as determining a curve of order m is concerned, to an arbitrary set of $2m$ points in the plane of reference. How far may this proposition be generalized? (For instance, if we take 12 points on a cubic, we cannot, in general, draw any quartic through them; but, if one such quartic can be drawn, a threefold infinity of such quartics is possible.)

14284. (Professor NEUBERG.)—Soient O, I, I_a, I_b, I_c les centres des cercles circonscrit, inscrit et exinscrits au triangle ABC ; soient D, E, F les pieds des hauteurs, et A_1, B_1, C_1 les pôles de BC, CA, AB par rapport au cercle O . Les quadrilatères tangentes communes aux cercles $(I, I_a), (I, I_b), (I, I_c)$ forment un triangle $aB\gamma$ homothétique aux triangles $A_1B_1C_1, DEF$. Le centre d'homothétie des triangles $aB\gamma, A_1B_1C_1$ partage la droite OI dans le rapport $R : r$, et est le conjugué isogonal du point de GERGONNE de ABC ; ses coordonnées normales par rapport au triangle $aB\gamma$ sont $1/a, 1/b, 1/c$. Le centre d'homothétie des triangles $aB\gamma, DEF$ a pour coordonnées normales, dans les triangles, $\tan \frac{1}{2}A, \tan \frac{1}{2}B, \tan \frac{1}{2}C$.

14285. (Professor E. J. NANSON.)—Find the conditions that the family $f_1(x_1, x_2, \dots, x_n) = \text{const.}$ may belong to a set of n -ply orthogonal surfaces in space of n dimensions; that is, find the conditions that f_1 may be such that

$$dx_1^2 + dx_2^2 + \dots + dx_n^2 = F_1 df_1^2 + F_2 df_2^2 + \dots + F_n df_n^2.$$

14286. (Professor COCHEZ.)—Etudier $\rho^2 - 2\rho(1 + \sin \omega) + \cos^2 \omega = 0$.

14287. (Professor THOMAS SAVAGE.)—Find the sums of the angles made with the axis of x by the lines joining the origin to the points of intersection of (1) $x + y = 1$ and $x^3 - x^2y - xy^2 + y^3 = 0$; (2) of $x + y = 1$ and $x^3 - x^2y + xy^2 + y^3 = 0$.

14288. (Professor UMES CHANDRA GHOSH.)—(See Quest. 14195.)—If $A'B'C'$ be the projection of the triangle ABC upon a plane making an angle ϕ with the plane ABC , and if α, β, γ be the inclinations of the sides a', b', c' of $\triangle A'B'C'$ to a, b, c of $\triangle ABC$, prove that

- (1) $\cos \beta \cos \gamma \cos A' = \cos A - \sin \beta \sin \gamma$;
- (2) $\cot A' = \sec \phi + \left(\cot A - \frac{\sin^2 \phi}{\cot B + \cot C} \right)$;
- (3) $\sin^2 \beta + \sin^2 \gamma - 2 \sin \beta \sin \gamma \cos A = \sin^2 A \cdot \sin^2 \phi$;
- (4) $\frac{\sin \alpha}{\sin A} = \frac{\sin \beta}{\sin B} = \frac{\sin \gamma}{\sin C} = \sin \phi$;
- (5) $\frac{\sin A'/\sin \alpha}{\cos \alpha} = \frac{\sin B'/\sin \beta}{\cos \beta} = \frac{\sin C'/\sin \gamma}{\cos \gamma} = \frac{\cos \phi}{\cos \alpha \cos \beta \cos \gamma}$.

14289. (Professor SANJANA, M.A.)—A conic is inscribed in the triangle of reference. If its centre be at the point (fgh) , prove that its equation is $\Sigma \{aa(bh + ch - af)\}^2 = 0$. If one focus be at (fgh) , the equation is $\Sigma \{a(gh^{-1} + hg^{-1} + 2 \cos A)\}^2 = 0$. Verify these results by obtaining the usual equations of the incircle, the excircles, the Brocard ellipse, and the LEMOINE ellipse. [The equation of the last is $\Sigma m_1 \sqrt{aa} = 0$, and is inaccurately given in CASEY (p. 459).]

14290. (D. BIDDLE.)—In a plane triangle, the square of the distance from the incentre to any vertex is in inverse proportion to the difference between the square of the inradius and the product of the segments into which the point of contact divides the opposite side.

14291. (R. F. DAVIS, M.A.)—If $ABCD$ be any quadrilateral circumscribed to a circle (centre O), then $AB \cdot AD/OA^2 = CP \cdot CQ/OC^2$.

14292. (J. A. THURD, M.A.)— L, M, N are fixed collinear points on the sides BC, CA, AB , respectively, of a fixed triangle; L', M', N' are their harmonic conjugates with respect to the ends of the sides on which they lie; X, Y, Z are the points where a variable conic touches BC, CA, AB ; P is the pole of LMN with respect to this conic; and S is the point of concurrence of AX, BY, CZ . Show that, if the locus of S is a straight line, the locus of P is a conic through L', M', N' , and that, if the locus of S is a conic circumscribed to ABC , the locus of P is a straight line; and state the reciprocal theorem.

14293. (Rev. T. ROACH, M.A.)—An impressionist landscape gardener determines to lay out a piece of ground as follows:—In the middle is to be a triangle of dark green foliage plants, each side being 14 feet in length. Within this is to be a circular plot touching the sides of the triangle and containing white flowers, and outside three circular plots touching the sides of the triangles on those lines if they were produced, and filled with red, blue, and yellow flowers respectively. The rest of the ground is to be covered with turf, and the whole effect depends upon the larger circles being each nine times the size of the smaller circle.

The man who has to plant the foliage plants finds that he has made the first line a foot too long, and, having only plants for 42 feet, to save himself trouble, shifts the other lines a little, and makes one a foot too short. Show that the ratio of the larger circles to the smaller will be $6\frac{2}{3} : 9$, and $12\frac{1}{2}$, thus spoiling the whole effect.

14294. (B. N. CAMA, M.A.)—Show that (1) the envelope of a line $PP'QQ'$ which intersects two circles (radii a, b) in P, P' and Q, Q' , so that the range $\{PP', QQ'\}$ is harmonic, is a conic; (2) its eccentricity (ϵ) is $\delta/\{2(a^2 + b^2) - \delta^2\}^{\frac{1}{2}}$, δ being the distance between the centres; (3) the circles have a real or imaginary intersection according as $\epsilon < \frac{a+b}{a-b}$; (4) in the former case, the conic is an ellipse or a hyperbola, according as the circles cut at obtuse or acute angles.

14295. (N. M. W.)—Solve the simultaneous equations

$$(x + y)(ax - by) = a(a - b)(a + b)^2 \\ (x - y)(ay - bx) = b(a + b)(a - b)^2$$

14296. (H. MACCOLL, B.A.)—If x, y, z be each taken at random between 0 and 1, show that the chance that the fraction $\frac{z(1-x-y)}{1-y-yz}$ will also be between 0 and 1 is $\frac{5}{3} - \log 2$, which is very nearly $5/9$.

14297. (G. H. HARDY, B.A.)—Prove that, if $f(x, a)$ be a continuous function of x in (a, A) , except at a number of discrete points X (in general functions of a), at which it becomes determinately infinite like $\{\log(x - X)\}^r, \{\log \log(x - X)\}^s, \dots$; and, if also it be in general a continuous function of a between $a - h, a + h$, for values of x in (a, A) ; and, if $a f/da$ in general exist and be continuous, then, under certain further conditions,

$$\frac{d}{da} \int_a^A f(x, a) dx = \int_a^A \frac{df(x, a)}{da} dx,$$

the integral on the left hand being completely determinate, but that on the right given only by its principal value. Thus, e.g.,

$$(1) \frac{d}{da} \int_0^a \log \cos^2 ax dx = -2 \int_0^a \frac{\tan ax}{x} dx = -\pi,$$

$$(2) \int_0^x \log \left(1 - \frac{p}{x^2}\right)^2 \log \left(1 - \frac{q}{x^2}\right)^2 \dots dx = 0,$$

provided no two of p, q, \dots are equal.

14298. (E. W. REES, B.A. Oxon.)—In a triangle ABC K is the symmedian point, and AS_1, BS_2, CS_3 the symmedian lines through A, B , and C respectively; prove that

$$\frac{AK}{AS_1} + \frac{BK}{BS_2} + \frac{CK}{CS_3} = 2.$$

14299. (Rev. T. MITCHESON, B.A.)—Let P_1QR_1 be an equilateral triangle such that P_1 is on one side of a square, Q_1 and R_1 on the adjacent sides, Q_1R_1 parallel to the other side, and O the mid-point of Q_1R_1 ; and let PQR be any other equilateral triangle, whose angular points are the same sides, QR passing through O , and let P_1Q_1 meet PQ in S, P_1R_1 meet PR in T . Then the circle passing through P, P_1, S, T touches QR in O , and circles passing through O, T, R, R_1 and O, S, Q, Q_1 , respectively, are each one quarter of the first circle. (An echo of Quest. 14235.)

14300. (H. A. WEBB.)—One form of the card game of Patience is played as follows:—The cards are dealt face upwards, the dealer calling out "Ace, Two, Three, ..., Knave, Queen, King" as he deals the 1st, 2nd, 3rd, ..., 11th, 12th, 13th cards, respectively. If at any point the name or number called out be identical with the name or number of the card dealt, the dealer wins a point and begins counting again at "Ace, Two, Three, ..." Such an event is called "a hit." If, however, the dealer count up to "King" without making a hit, he loses a point and begins counting again at "Ace, Two, Three, ..." The game continues until all the cards are dealt. Unless a hit be made with the last card, the dealer loses a point. It is easily seen that the dealer cannot lose more than four points, or win more than eighteen points, in one game. Show that, if only the net gain or loss in each game be considered, the dealer wins nearly twice as often as he loses, and wins on an average about one point a game.

14301. (J. J. BARNVILLE, B.A.)—Sum the series

$$\begin{aligned} & 1 + 3^2 + 2 + 4^2 + 3 + 5^2 + \dots \\ & 2 + 4^2 + 5 + 7^2 + 8 + 10^2 + \dots \\ & 2^2 + 3 + 3^2 + 7 + 4^2 + 11 + \dots \\ & 5^2 + 7 + 9^2 + 15 + 13^2 + 23 + \dots \end{aligned}$$

[Errata.—In Quest. 14097 for $7 + \sqrt{5}$ read $7 - \sqrt{5}$. In Quest. 14130, last line, for 3563 read 3363.]

14302. (ROBERT W. D. CHRISTIE.)—Let N consist of $ln + l - 1$ units. Prove that

$$N = \frac{10^{l-1} m^n (m-1) + 10^l (m^n - 1) - (m^{n+1} - 1)}{(10-1)(m-1)} \pmod{(10^l - m)},$$

e.g., let $l = 3, n = 5, m = 997$;

thus $N = 3n + 2$ units = 111 111 111 111 11.

Thus $N = 152 \pmod{997}$.

14303. (R. KNOWLES.)— $ax^2 + bxy + cy^2 + dy = 0$ is the equation to a parabola, referred to a tangent and normals as axes. Prove that the equation to the latus rectum is $2b(a+c)x - 4a(a+c)y = d(a-c)$.

14304. (C. E. HILLYER, M.A.)—A diameter of an ellipse (excentric angle α) meets the tangent at the extremity of the minor axis in O , and OQ touches the curve, show that $\angle COQ$ cannot be obtuse unless $\epsilon > 1/\sqrt{2}$; also determine the values of α for which COQ is (1) a right angle, (2) a maximum.

14305. (H. J. WOODALL, A.R.C.S.)—Factorize $16^a 2^r \pm 1, a = 1$ to 10 .

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5958. (Professor ASAPH HALL, M.A.)—Given $x = a \cos A \pm r_1, y = a \sin A \pm r_2$, where r_1, r_2 are the probable errors of x, y ; find the probable errors of a, A .

5959. (Professor MINCHIN, M.A.)—A heavy body, movable in a vertical plane about a fixed horizontal axis, is sustained in a given position by a rope (whose weight may be neglected); state the cases (depending on the natures of the rope and axis) in which the resultant action at the axis can be found both in magnitude and direction.

5961. (Professor MATZ, M.A.)—Three unequal homogeneous spheres of uniform density are thrown into a hemispherical bowl; determine their position when in equilibrium.

5963. (Professor MOREL.)—On donne une sphère S , un plan P et un point A : par le point A on mène une droite qui rencontre le plan P en un point B , puis, sur AB comme diamètre, on décrit une sphère S' ; le plan radical des sphères S et S' rencontre la droite AB en un point M : (1) Trouver le lieu décrit par le point M quand la droite AB tourne autour du point A ; (2) discuter le lieu précédent en supposant que le point A se déplace dans l'espace, le plan P et la sphère S restant fixes.

5985. (Professor CROFTON, F.R.S.)—A line is divided at random into n parts, two of which are taken at random; find the mean value of their difference.

6001. (J. HAMMOND, M.A.)—Calling a determinant alternate when all its negative terms are changed to positive, *e.g.*, the alternate determinant $\begin{vmatrix} a & b \\ a_1 & b_1 \end{vmatrix}$ is $ab_1 + ba_1$; prove that the coefficient, in the expansion of the product of n linear factors, of $xyz \dots$, all these letters being different and there being n of them, is an alternate determinant of the n th order. In the case $(a_1x + b_1y + c_1z)(a_2x + b_2y + c_2z)(a_3x + b_3y + c_3z)$ it is the alternate determinant $\begin{vmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{vmatrix}$, a result which is easily general-

ized. In the general case

$(a_1x + b_1y + \dots n \text{ terms})(a_2x + b_2y + \dots n \text{ terms}) \dots n \text{ factors}$, the coefficients of $x^n, x^{n-1}y$ are, respectively, the determinant and the alternate determinant

$$\begin{vmatrix} a_1 & . & . & . \\ . & a_2 & . & . \\ . & . & a_3 & . \text{ \&c.} \\ . & . & . & a_4 \\ . & . & . & . \\ . & . & . & . \\ \text{\&c.} & . & . & . \end{vmatrix} \quad \begin{vmatrix} . & . & . & . \\ a_1 & b_1 & . & . \\ a_2 & b_2 & a_2 & . \\ . & b_3 & a_3 & a_3 \\ . & b_4 & a_4 & a_4 \\ . & b_5 & . & a_5 \end{vmatrix} \quad n \text{ rows,}$$

where it is scarcely necessary to add that the blank spaces are filled with zeros. Find the general term of the expansion, which is always an alternate determinant.

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Sparkes, B.J. e.d.sh. Taunton Trade S., Southampton
Holder, S.R. f. TOLLINGTON PARK COLL.
O'Malley, M.J. ms. St. George's Coll., Weybridge
Hutchings, H.W. bk. TOLLINGTON PARK COLL.
Murphy, J. bk. St. Joseph's C., Dumfries
Sachs, S.E. e.g. Whitgift Gram. S., Croydon
Walker, F.M. ch.sh. Private tuition
Blacklock, R.J. d. Stationers' Company's S., Hornsey
Thornhill, E.R. H. Bible Christian Coll., Shebbear
Lockyer, H.F. f.i. Kent Coll., Canterbury
Speakman, E. eu. University S., Southampton
Johnston, H.P. Argyle H., Sunderland
Reddrop, R.T. ch. Kingsholme S., Weston-super-Mare
Alexander, W.R. ch.d.sh. Taunton Trade S., Southampton
Duffus, G.C. f. Stafford Coll., Forest Hill
Wilson, H. sh. Wright's S., Faversham
Edney, F.E. Farham Gram. S.
Gillilan, A.M. TOLLINGTON PARK COLL.
Jackson, F.G.ch. Wellington C., Shropshire
Harris, S.H. sh. Wright's S., Faversham
Yates, S.A. Lady Hawkins' Gr.S., Kingston
Miller, H.C. Bible Christian Coll., Shebbear
Hallifax, J.G. sh. Taunton Trade S., Southampton

First Class.—Pass Division.

- Bolderston, W.N. a. St. Bartholomew's Gram. S., Newbury
Ramshaw, B.W. Taunton Trade S., Southampton
Redfern, S.E. Winchester H., Gt. Yarmouth
Stacey, J.A. St. Helen's C., Southsea
White, F.J. f. St. George's Coll., Weybridge
David, L. f. St. George's Coll., Weybridge
Whiting, A.H. sh. Wright's S., Faversham
Gregory, S.M.A. Bible Christian C., Shebbear
Wilson, A.H. e.bk. Ascham C., Clacton-on-Sea
Fleming, J.A. H.M. Rutherford C., Newcastle-on-Tyne
Wilson, F. m.ch. Wellington C., Shropshire
Whittington, R.P. f.l. Ruthin Gram. S.
Dick, J.R. Stationers' Company's S., Hornsey
Taylor, L.W. Friends' S., Wigton
Davies, G.B. Whitechurch Gram. S.
Jolliffe, G.H. d. Bible Christian C., Shebbear
Lloyd, H.P. sh. Lady Hawkins' Gram. S., Kingston
Pearson, A.T. c. Balham S.
Salisbury, A.G. Kingsholme S., Weston-super-Mare
Logan, S.S. f. St. Helen's Coll., Southsea
Bryden, R.A. fl. King's S., Canterbury
Spearman, B. d. Plymouth Corp. Gram. S.
Hodge, C.W. d. TOLLINGTON PARK COLL.
Jones, J.S. Wirksworth Gram. S.
Whitehouse, E. Wellington Coll., Shropshire
Deering, F.S. sd. Bible Christian Coll., Shebbear
Fielding, S.J. Paragon H., Norwich
Walton, W. f.el.ch. Hutton Gram. S.
Choyce, J. C. Market Bosworth Gram. S.
Stead, L. C. el.d. Hutton Gram. S.
Yates, J.W. Market Bosworth Gram. S.
Cotter, G.R. h.f. Carter H., Deal
Farquharson, A.M. sd. Bethany H., Goudhurst
Fletcher, G.F. St. George's Coll., Weybridge
Scanlon, M.A. St. Mary's Coll., Woolhampton
Carmichael, F.J. Taunton Trade S., Southampton
Birtwhistle, F.P.H. I. Edward VI. Gram. S., Louth, Lines
Robinson, H. bk.ch. University S., St'hiport
Griffiths, H.E. I. Ruthin Gram. S.
Ridgway, W. d. Stationers' Company's S., Hornsey
Weighell, H.e. Dunheved Coll., Launceston
Wilson, A.S. Balham S.
Griffiths, J.A.S. The County S., St. Davids
Morris, G.E. ms. Hornsmonds S.
Lichtdown, R.Z. Gram. S., Eccles
Atkins, I.M. St. Bartholomew's Gram. S., Newbury
Lloyd, W.P. Lady Hawkins' Gram. S., Kingston
Roberts, H.H. Ruthin Gram. S.
Benians, S.P. Bethany H., Goudhurst
Clapp, W. Hoc Gram. S., Plymouth
Cooper, L.R. l. King's S., Canterbury
Spear, T.H. E. Cornwall Coll., Liskeard
Harris, W.M. Clyde H., Hereford
Jordan, W.C. Winchester H., Gt. Yarmouth
Merson, F.M. Coll. S., Southampton
Moran, R.J. Taunton Trade S., Southampton
Wilkinson, E.S. Stationers' Company's S., Hornsey
Whitehead, A.W. TOLLINGTON PARK COLL.
Shillabeer, S.M. f. Plymouth Corp. Gr. S.
Magrath, J. Catholic Coll. Inst., Manchester
De Carle, S.E. TOLLINGTON PARK COLL.
Barnes, P.f. High S., Cale Green Pk., St'kport
Cox, O.F. f.g.e. Alwyne Inst., Gower St. W.C.
Monks, C. Up. Hornsey Rise High S.
Cleare, E.C. R. St. John's Coll. Brixton
Somers-Gardner, F.H. St. Helen's Coll., Southsea
Allison, S.H. f. St. John's Coll., Brixton
Morgan, E.H. TOLLINGTON PARK COLL.
Bullar, H.W. Clyde H., Hereford
Scrooby, A. Dunheved Coll., Launceston
Forty, A.A. f. Dean Close S., Cheltenham
Redfern, H.W. Winchester H., Gt. Yarmouth
Cozens, E.O. d. Kent Coll., Canterbury
Tenuant, N.R. D. f. Sale High S.

Second Class.—1st Division.

- Burnett, A.H. Hartley Coll., Southampton
Hogan, J.P. 38 Tavistock Place, Plymouth
White, F.C. d. Highfield, Wandsworth Com.
Hill, R. University S., Southampton
Hughesdon, F.W. TOLLINGTON PARK COLL.
Scales, J.E. Ruthin Gram. S.
Walker, S.G. Dean Close S., Cheltenham
Walker, F. University S., Southampton
Watts, P.M. Private tuition
Booth, D. d. Market Bosworth Gram. S.
Evans, T. L. The County S., St. Davids
Watson, C.S.O. Newcastle Modern S.
Rawlinson, B. Market Bosworth Gram. S.
Stuart, V.A. Stafford Coll., Forest Hill
James, J. Pencaer Gram. S.
Bishop, P.J. a. Esplanade S., Southsea
Chubb, J.P. St. John's Choir S., St. Leonards
Paterson, J. cl. Rutherford Coll., Newcastle-on-Tyne
Roberts, E. Ruthin Gram. S.
Scott, W.F. St. John's Coll., Brixton
Bretland, G.F. Private tuition
Jenkins, P.G. Stationers' Company's S., Hornsey
Rockett, H.S. Corner H., Godstone
Chipman, C.B. Sandwich Gram. S.
Lindley, A.S. Cavendish Gram. S., Suffolk
Davis, R.N. Lancaster Coll., W. Norwood
Stadlen, W.F. f. Stafford Coll., Forest Hill
Gilbert, L.A. f. Brighton Coll.
Kendall, A.W. Hutton Gram. S.
Thompson, R.E. Ebor S., Bexhill
Barker, W. Hutton Gram. S.
Bourne, P.F. Deal Coll.
Crown, H.N. Market Bosworth Gram. S.
Gane, J.T. Taunton Trade S., Southampton
Allcock, W. St. Bees Gram. S.
Needham, A.O. Market Bosworth Gram. S.
Peppercom, G.A. Private tuition
Higson, W.D. me. Private tuition
Johnson, A.R. Richmond H., Handsworth
Hunt, H. Univ. S., Southampton
Llewellyn, A.J.D.E. Kent C., Canterbury
Waters, A.H.S. Hoc Gram. S., Plymouth
Dodwell, R. Highfield, Wandsworth Com.
Jackson, T. bk. The Western C., Harrogate
Bastard, H.R. Gram. S., Camelford
Thomas, A.J.O. Lancaster C., W. Norwood
Alexander, J.L. St. George's C., Weybridge
Nelson, H.C. St. Mary's C., Woolhampton
Manbey, P.H. Private tuition
Storley, G. Hutton Gram. S.
Asbury, R.H. King Edward's S., B'ham
Needham, R.L. Market Bosworth Gram. S.
Bunnett, A.H. Bethany H., Goudhurst
Lacey, O.B. Ruthin Gram. S.
Lindley, H.W. Cavendish Gram. S., Suffolk
Sowden, S. Dunheved Coll., Launceston
Bourke, A.W. St. George's Coll., Weybridge
Harrison, F.H. bk. Huntingdon H., Teddington
Leresche, P. Ruthin Gram. S.
Lillywhite, H. 7A. Ryde H., Ripley, Woking
Nichols, F.C. Winchester H., Redland, Bristol
Dobson, H.O. Carter H., Deal
Briggs, G.W. Russell End. S., Ledbury
Nelson, E. Hutton Gram. S.
Staley, H. Private tuition

Second Class.—2nd Division.

- Haslam, J. e.l.f.ch. Wirksworth Gram. S.
Kimber, G.F.P. ch. St. Bartholomew's Gram S., Newbury
Pillely, W.C. s.ch.sh. Taunton Trade S., Southampton
Morris, I.N. e.d.g.ch. Bristol Gram. S.
Burr, F.M. z. TOLLINGTON PARK COLL.
Hoiser, A.L. e.d. Private tuition
Whitfield, A. s.ch.d. Taunton Trade S., Southampton
Bodell, W.B. a.ch.d. Wirksworth Gram. S.
Chalmers, H.J. e.g.d. TOLLINGTON PARK COLL.
Briggs, A. g.f. TOLLINGTON PARK COLL.
Mutton, R.E. g.d. TOLLINGTON PARK COLL.
Spurgeon, E.L.E.M. s.e.g.bk. New Coll., Worfthing
Lasham, H.F. sd.ch.d. Royal Gr.S., Guildford
Lacey, A.G. e.d.ch. Private tuition
Tyson, J.A. bk.d. New Brighton High S.
Graham, A.S. e.a.al. Private tuition
Parsons-Smith, B.T. Sandwich Gram. S.
Adam, H. s.h.d. University S., Rochester
Bourgain, A. g.f.d. University S., Reigate
Eyre, C.R.B. ch.d. Private tuition
Gibson, H. s.e. Collett H., Bournemouth
Margoliouth, H.M. e.o.l.gr. 58, Leyland Road, Lee, S.E.
Blackburn, W. bk.ch.d. Liverpool Coll.
Roberts, D.S. s.ch. Bible Christian Coll., Shebbear
Seel, L. g. Melbourne Coll., Anerley
Allward, F.L. s.e.g.bk. TOLLINGTON PK. COLL.
Featherstonhaugh, A.P. Balham S.
Gregory, R. d. Wirksworth Gram. S.
Matthews, A. TOLLINGTON PARK COLL.
Reed, J.T. g.d. Sandford Acad., Newcastle-on-Tyne
Sutton, J.S. s.ch. Bible Christian Coll., Shebbear
Alexander, H.E. al. Private tuition
Day, E.W. e.g. TOLLINGTON PARK COLL.
Howard, P. s.e.h.f.d. Taunton H., Brighton
Spicer, J.C. a. Sandwich Gram. S.
Bequet, G.P. f. St. James' Coll. S., Jersey
Meares, C.H.N. s.a.ch. Bible Christian Coll., Shebbear
Piper, W.S. a.al. Argyle H., Sunderland
Squire, A.E. ch. Yorkshire Society's S., S.E.
Guttridge, A.G. e.a.d. TOLLINGTON PK. COLL.
Ulaker, P. Churcher's Coll., Petersfield
Picklin, A.H. g. Elmhurst S., Kingston-on-Thames
Hammond, J.M. e.g.ch. Private tuition
Reynolds, R.J. Private tuition
Archer, H. Blundell's S., Tiverton
Broadhead, H. g.f. Read's S., Drax, Selby
Steans, L.S. g.ch.d. Lynn Gram. S.
Metcalfe, W.A. ch. Yorkshire Society's S., S.E.
Russell, G.H. S. Sandwich Gram. S.
Clemow, E.T. s.g. Private tuition
Dean, W.T. e. Private tuition
Field, T. C. e.d. King's College S., Wimbledon
Mackay, W.W. al. oc.ch. Private tuition
Mallory, G.K. e.o.l.d. Private tuition
Morris, O. Liverpool Coll.
McSweeney, D. bk. St. Joseph's Coll., Dumfries
Roberts, H.E. ch. Ruthin Gram. S.
Walker, A. f. Wirksworth Gram. S.
Dawkins, F.V. Huntingdon H., Teddington
Roberts, R.L. al. Liverpool Coll.
Curtis, G.H. al. Epsom Coll.
Hill, C.H. Deal Coll.
Aflleck, C.W. d. Yorkshire Society's S., S.E.
Gamble, A.G. g. Ramsden's End. S., Elland
Kilner, J.S. ch.d. Kent College, Canterbury
Taylor, F.J.W. e. TOLLINGTON PARK COLL.
Bulling, F.C. e.f. Ramsden's End. S., Elland
Draper, P. bk.ch. Liverpool Coll.
Dawson, W.G. ch. Wright's S., Faversham
Fraser, A.J. e.al. Ealing Gram. S.
Gyllencrutz, J.R. s.ch. Ruthin Gram. S.
Maxwell, W.L. g.ch. St. Paul's S., W. Kensington
Mason, G.W. e. St. Peter's Coll., Brockley
Read, C. bk.d. Private tuition
Weston, W.J. l.sh. 97 Buckingham Palace Rd., S.W.
Waldo, H.C. ch. Private tuition
Fuller, F.H. e.f. Gram. S., Steyning
Gotelec, H.E. ch. Boys' Coll. S., Aldershot
Hinge, S.W. ch.d. Wright's S., Faversham
Grafton, W.H. T. s.g.ch. Gram. S., Brighton

BOYS, 2ND CLASS, 1ST DIV.—Continued.

Lindenbaum, J.B. e.d./f./g.e.h. Private tuition
Long, R.C.W. g.d. Eye Gram. S.
Mawer, J.W. e.a. Coll. S., Grimsby
Walker, R. W. W. W. Works-worth Gram. S.

Wyatt, C.W. e. Whitechurch Gram. S.

Creeley, D.H. Ealing Gram. S.
Davison, W.J. al. Esplanade H., Southsea
Dibben, F. ch. Taunton Trade S., S'hampton

Shepperd, A. University S., Herne Bay

Sully, J.G. Taunton Trade S., S'hampton
Sunderland, J.T. Pomfret C., Pontefract
Taylor, N. Private tuition
Tullett, E.J. University S., Reigate

Edmunds, H.P. Mercers' S., Holborn

Haynes, A.F. d. Taunton Trade S., S'hampton
James, E.G. St. Catherine's C., Langland Bay
Jones, T. Pender Gram. S.

Second Class.—2nd Division.

Arnold, B. e. Polytechnic Inter. S., W.
Aveling, H.G. Christ's Coll., Blackheath
Bartlett, A. Liverpool Coll.
Chapman, E. Wright's S., Faversham

Aylen, O.G. Private tuition
Bailey, T.W. Eye Gram. S.
Blane, C.H. Hutton Gram. S.
Bowden, W.L. Mt. Radford S., Exeter

BOYS, 2ND CLASS, 2ND Div.—Continued. Stephens, T.R. Plymouth Corp. Gram. S. Thomas, A.R. S. Tanyralt S., Pontardawe Turner, H.E.B. a. Gram. S., Steyning Chapman, R.F. s. Hythe School Dauter, G.A. Comm. Coll., York Davies, St. J.A. l. Kenney, Launceston Dawson, G. King's Coll. S., Wimbledon DeMeza, A. Tollington Park Coll. Farrance, T.H. Bethany H., Goudhurst Hughes, G.H. Long Marston Gram. S. Moody, M. Private tuition Beckett, C.S. Private tuition Bossano, A. sp. Christian Bros. C., Gibraltar Crosbie, A. St. Joseph's Coll., Dumfries Crowther, C.C. g. Tollington Park Coll. Jordan, W.J. bk. Egerton Park C., Bexhill Linnell, A.W. Witton Gram. S., Northwick Lockington, A. bk. St. George's C., Weybridge Pierron, J. St. Joseph's C., Denmark Hill Seaman, W.G. Montrose C., Brixton Hill Williams, W.E. Kingsholme S., Weston-s.-Mare Ashley, C.H. West Hill S., Hastings Bailey, C.L. Cathcart C., Cathcart Hill, S. Bennett, G.W. Winchester H., Gt. Yarmouth Bullar, G.R. Clyde H., Hereford Crane, S. d. Hillmartin C., Camden Road Musgrave, W.W. Huish S., Taunton Parker, D.J. Clyde H., Hereford Rigby, F.H. d. St. Aloysius C., Hornsey Lane Vaughan, R.G. Blundell's S., Tiverton Wizzill, H. e. Harlesden Coll. Woolford, G. e. Private tuition Wright, W. Sandyford Acad., Newcastle-on-Tyne Arnold, G.R. Ryde H., Ripley, Woking Aubrey, F.L. ch. Private tuition Booth, R. Private tuition Emberson, J.H. d. Huish S., Taunton Grammer, F. e. a. Private tuition Hall, C.W. ch. St. Paul's S., W. Kensington Holditch, J.W.L. d. Whitechurch Gram. S. Jenkinson, A.M. Wesley Coll., Sheffield McLean, W. St. Joseph's Coll., Dumfries Middlebrooke, H.E. Private tuition Morris, C.G. Market Bosworth Gram. S. Rawlinson, C.S. Market Bosworth Gram. S. Salway, A.D. St. Bartholomew's Gram. S., Newbury Smith, A.W. f. Tollington Park Coll. Sower, G.H. St. George's Coll., Weybridge Wilcox, C. e. Modern S., E. Grinstead Wivell, D. ch. Hutton Gram. S. Clark, A. Cavendish Gram. S., Suffolk Cradlock, G.J. Bible Christian C., Shebbear Harris, C. l. Epsom Coll. Patchett, W. St. Mary's C., Woolhampton Trissider, W. bk. Penwerris Gram. S., Falmouth Bowkett, L.H. e. al. Private tuition Christie, W.T. Victoria Coll., Buckingham Palace Road Clarke, A. B. e. Clark's C. S. Coll., Chancery Lane Duncan, J.D. C. d. Private tuition Foster, C.W. St. Catharine's S., Broxbourne Frost, T. ch. Maidstone Gram. S. Harding, C. Taunton Trades, Southampton Leatherdale, K.W.G. e. Beverley S., Barnes Lewis, R.P. Kingsholmes, Weston-s.-Mare Lloyd, T.P. Pencader Gram. S. Murphy, D. bk. St. Aloysius Coll., Hornsey Lane Plaister, G.R. e. Private tuition Shaw, E.E. Read's S., Drax, Selby Slinn, G.V. d. Stourwood Coll., Southbourne, Hants Walker, F.W. Private tuition Webb Bowen, H.F. St. Paul's S., W. Kensington Avery, W.H. Huish S., Taunton Bridges, A.H. d. Private tuition Byrne, H.C. d. Brixton Gram. S. Colman, D.A. Independent Coll., Taunton Dougan, T. Manchester Gram. S. Edwards, H.G. g. Modern Coll. S., Rhyll Kumer, F. d. St. Mary's Coll., Woolhampton LeBrun, J.R. St. James' Coll. S., Jersey Letez, H.P. Oakwood H., Jersey Procter, F. Mercers' S., Holborn Bridges, E.B. z. Private tuition Clark, T.A. The Douglas S., Cheltenham Conran, P.C. St. Paul's S., W. Kensington Cook, C. Taunton Trade S., Southampton Crouch, R.H. W. Kingswood, Bath Cutts, T.B. Elm Bank S., Nottingham Faulkner, J. Hutton Gram. S. Goldberg, A. Coopers' Company's S., E. Gunner, P.C. d. Launceston Gram. S. Harner, H.C. St. John's Coll., Brixton Moores, V.W. z. Gram. S., Rounford Morris, H.C. Read's S., Drax, Selby Nesbitt, R.H. Belmont H., Upper Tooting Odell, A.J. Kingswood H., Epsom Patterson, W. Newcastle Modern S. Penhale, P.J. D. Rock Park S., Barnstable Poole, S.K. Private tuition Redjeb, P. University S., Southport Seoble, A. Plymouth Corporation Gram. S. Toole, A.J. ch. Liverpool Coll.

Upton, V.C. Epsom Coll. Vaughan, W.W. Prelim. Med. S., Ludgate Hill Ashworth, C.H. g. Sale High S. Battle, F.A. a. Private tuition Caporn, A.C. Montrose Coll., Brixton Hill Dennis, A.J. Fauconberge, Beccles Doolan, T. St. Mary's Coll., Woolhampton Hoolblack, G.F. Private tuition Jones, E. (1.) Pencader Gram. S. Jones, W.J. Christian Brothers Coll., Bristol LeBoutillier, J.S. f. Oakwood H., Jersey Mace, D.W. Hythe School Medhurst, H. A. Horsmonden S. Phillips, J.J. A. Ruthin Gram. S. Robertson, J.J. St. Joseph's Coll., Dumfries Sadler, M.F. High S., South Norwood Sankey, R. Catholic Inst., Hope St., L'pool Tooth, W.A. St. Paul's S., W. Kensington Williams, H.E.W. Private tuition Barr, W.A. ch. d. St. Paul's S., W. Kensington Balkwill, A.N. Private tuition Beal, A.J. Hardwicke H., Seaford Blythman, A.E. z. Private tuition Browne, A.R. Hillmartin Coll., Camden Rd. Carrick, W. Yorkshire Society's S., S.E. Congdon, T.E. E. Cornwall Coll., Liskeard Davies, F.C. d. Private tuition Elstut, T.A. St. Augustine's, Dewsbury Fairclough, T.H. Oswestry Gram. S. Leresche, G. Ruthin Gram. S. Manby, H. z. Fauconberge, Beccles Russell, H.J. Private tuition Street, H. z. Gram. S., Steyning Strachan, L.F. Montrose Coll., Brixton Hill Wreford, W.H. Polytechnic Inter. S., W. Bishop, L.A. Winchester H., Gt. Yarmouth Boshier, C.W. Byetel High S., Surrey Conyn, G. King's Coll. S., Wimbledon Comm. Edgerley, C.S. Fortescue C., Radstock, Bath Graham, G.H. d. Yorkshire Society's S., S.E. Mears, J.R.P. Ealing Gram. S. Perkins, B.S. Plymouth Corp. Gram. S. Reeve, J.L. d. Private tuition Smith, H.A. Clyde H., Hereford Allworthy, T.W.C. e. g. Tollington Park Coll. Balls, L.C.W. z. Private tuition Bruce, R.L. Stoke Newington Gram. S. Cory, J. Launceston Gram. S. Dyer, B.A. Clyde H., Hereford Edgar, W.A. g. Coll. S., Deal Featherstone, R.B. e. Private tuition Frankland, J.J. Grammar S., Cowes Howden, W.E. Read's S., Drax, Selby Mackey, T. Wharfedale Coll., Boston Spa Piggott, H.S. Rock Hill Acad., Chulmleigh Taylor, E.J. d. Mile End H., Portsmouth Waters, A.B. Horsmonden S. Wetherill, E.H. Monk Bridge S., York Allen, R.J. z. Belvedere, Hayward's Heath Anderson, A. Sandwich S. Burke, T.B. The Douglas S., Cheltenham Cocking, F.J. Ryde H., Ripley, Woking Hyde, V.W.E.S. Grammar S., Steyning Kitto, B.T. Tollington Park Coll. Miles, A.J. Ealing Gram. S. Plumley, C.G. Private tuition Ross, W.D. Holt H., Cheshunt Stopher, B. bk. St. Joseph's Coll., Dumfries Tomlinson, H.L. z. Private tuition Ward, A.C. Private tuition Whittaker, F. Hutton Gram. S. Winkler, F. Ryde H., Ripley, Woking Anderson, A.C. Cattoford Coll. S. Butler, R. Coopers' Company's S., E. Crees, H.W. Bethany H., Goudhurst Holmes, F.A. Bible Christian C., Shebbear Morris, T.E. Clyde H., Hereford Rylance, R. University S., Southport Whitfield, A. St. Aloysius C., Hornsey Lane Williams, W.A. Liverpool Coll. Chick, J.N. Bethany H., Goudhurst Conker, G. Hutton Gram. S. De Carteret, F.L.O. Oakwood H., Jersey Evans, J. Pencader Gram. S. Groves, C.E. Beechen Cliff, Peckham Rye Milburn, E.S. ch. St. Paul's S., West Kensington Shaw, E.H. Newcastle Modern S. Vickers, C.D. Private tuition Cole, A.G. Private tuition Dowdall, A.M. Private tuition Harris, C. e. Polytechnic Inter. S., W. Orrell, R.T. 4 Arlington Villas, Brighton Shuley, T.F. St. George's Coll., Weybridge Treby, J.F. al. Manor H., Clapham Bates, W.A. e. Whitechurch Gram. S. Bryan, C.H.R. Ifracombe Coll. Cook, W. e. Modern S., East Grinstead Conway, J. St. Aloysius C., Hornsey Lane Edwards, E.J. St. James's, Keyham, Devonport Evans, T.J.C. Festing County S. Ford-Tucker, C.B. Gram. S., Longsight Jones, E. (11.) Pencader Gram. S. Langley, L. Winchester H., Gt. Yarmouth Rice, G.W. St. Olave's Gram. S., Southwark Rowe, H.B. St. George's Coll., Weybridge Wallis, P.H. Private tuition Baxter, E.J. V. St. Thomas Abbey, Erdington Denchey, G.H. Prior Park Coll., Bath Duncan, E.B. King's Coll. S., Wimbledon

Duffy, H. St. Joseph's Coll., Dumfries Lloyd, G.H. e. Christ's Coll., Blackheath Mills, F.J. g. Hanley Castle Gram. S. Styring, C. Univ. S., Southport Willson, F.B. Halbrake S., Wandsworth Common Second Class.—3rd Division. Cheatham, C.H. Polytechnic Inter. S., W. Hickman, T.D. Dudley Middle Class S. Jones C. Llandudno Coll. Kenny, W.C. St. George's Coll., Weybridge Nicoll, J. Univ. S., Southport Owen, E.H. Oswestry Gram. S. Penberthy, J.R. Plymouth Corp. Gram. S. Torpey, A. Catholic Inst., Hope St., Liverpool Walker, F. Yorkshire Society's S., S.E. Wilson, R.M. Private tuition Bell, A.L. High S., Camborne Bone, H. g. Private tuition Bruce, J. Stoke Newington Gram. S. Collinson, G.W. Private tuition Dagger, H. Private tuition Griffith, E.S. Penwerris Gram. S., Falmouth Greenstreet, G.L. Winchester H., Westgate-on-Sea Grosvenor, R.B. Private tuition Jackson, F.S. Hutton Gram. S. Musgrave, T.M. Huish S., Taunton Quarrie, R.S. e. Comm. S., Barrow-in-Furness Richardson, J. St. Joseph's Coll., Dumfries Saunders, J.R. Pencader Gram. S. Wood, T.L. Gram. S., Middleton, Lanes. Buscombe, W.E. Plymouth Corp. Gram. S. Clementson, C. a. Horsmonden S. Daphne, J. Yorkshire Society's S., S.E. Davies, R.B. g. Private tuition Friendship, W.G. Thornleigh, Bideford Goodman, F.J. Private tuition Howard, D.C. Hall Gate S., Doncaster Litherland, J.S. Gram. S., Longsight Lorimer, H.W. Queen's Park Coll., W. Macinnis, A. Wharfedale Coll., Boston Spa Metcalfe, R. Argyle H., Sunderland Murray, J.D. Avenue H., Folkestone Pooley, P. Seaford Coll. Walsh, L.E. Gram. S., Eccles Wilson, G.M. e. Modern S., E. Grinstead Aplin, F.G.T. Rock Hill Acad., Chulmleigh Barber, S. Plymouth Corp. Gram. S. Beach, T. Chandos Gram. S., Winchcombe Campbell, C.M. Private tuition Duff, K. Deal Coll. Grime, A.J. University S., Southport Hanna, J.E. Argyle H., Sunderland Hoed, H. Private tuition Jones, A.E. Fauconberge, Beccles Jones, D.B. Pencader Gram. S. Messervy, G. Georgetown Comm. S., Jersey Mortimer, H.B. Gram. S., Longsight Richards, G.E. Belmont H., Up. Tooting Smith, G.L. Private tuition Bell, D. St. Mary's Hall, Cardiff Black, J.G.S. Wesley Coll., Sheffield Cove, C.W. Queen's Park Coll., W. Delany, G. St. Aloysius Coll., Hornsey Lane Eades, E.A. Market Harborough Gram. S. Fleming, C.A. Rutherford C., Newcastle-on-T. Fleming, H.C. Rutherford C., Newcastle-on-T. Green, F.M. St. Catharine's S., Broxbourne Hayens, H. Taunton Trade S., Southampton LeFebvre, G.J. f. St. George's C., Weybridge Masters, J. 254 Oxford St., Manchester McCool, P.A. St. George's Coll., Weybridge McNeil, F. Chandos Gram. S., Winchcombe Parle, F. Private tuition Carroll, B.M. King's Coll. S., Wimbledon Glanville, S.S.T. Private tuition Griffiths, S.H. Private tuition Hughes, J.F. Montrose Coll., Brixton Hill Baker, A.F. Clyde H., Hereford Burnby, M.B. Wesley Coll., Sheffield Campion, H.R. Queen Mary's Gr. S., Walsall Cockroft, H.V.D. University S., Southport Edwards, J.C. Gram. S., Camelford Hay, F.G. University S., Reigate Hepburn, A. Newcastle Modern S. Hills, A.E.C. Gram. S., Cowes Lawson, H.M. Christ's Coll., Blackheath Lovett, C. a. Cath. Inst., Hope St., L'pool Negus, R.A. Belmont H., Cheltenham Oxley, C.G.R. d. Liverpool Coll. Pearson, H.W. Wesley Coll., Sheffield Thompson, K. Commercial Coll., York Barrington-Ward, V.M. Market Bosworth Gram. S. Benton, R.G. West Hill S., Hastings Burrows, L.W.O. Wynport H., Brighton Dalziel, P. Osborne High S., W. Hartlepool Fitch, R.M. Montrose Coll., Brixton Hill Garrett, P.A.J.C. Penillan H., Folkestone Horton, J.J. Private tuition Mitchell, H.G. Plymouth Corporation Gr. S. Sergeant, F.G. Hillmartin C., Camden Rd. Sharp, J.B. The School, Eaton Socon Spotswood, M. Private tuition Blake, C.F. Seaford Coll. Chitson, G. Hutton Gram. S.

Edwards, E.L. Modern Coll. S., Rhyll Griffiths, H. Oswestry Gram. S. Henderson, K.G. Holt H., Cheshunt Hiles, F.B. Lancaster Coll., W. Norwood Nichols, T.W. The School, Eaton Socon Turner, H.A. Southport Coll. Woodward, H.E. Richmond H., Haindsworth Bullock, F.W. Private tuition Buss, C. al. Moldova H., Clapham Comm. Carter, P. University S., Southport Cooke, R.T. Private tuition Hallum, H.G. Taunton Trades, Southampton MacLione, R.G. Hyde Gram. S. Posso, E. sp. Christian Bros. C., Gibraltar Trench, H.A. Bethany H., Goudhurst Anderson, M.L. Exeter S. dePeYreave, L.F. St. George's Coll., Weybridge Done, J.B.H. St. John's Coll., Grimsargh Gray, H. s. Fenwick Coll., E. Dulwich Greensted, F.Y. Sandwich S. Jackson, A.F. Independent Coll., Taunton Webb, E.J. Milton Coll., Bexley Heath Aytown, F.E. Commercial Coll., York Dullus, H. Hardwicke H., Seaford Gunnell, N.A. Montrose Coll., Brixton Hill Jones, A.B. Newcastle Modern S. Knowles, R.G. ch. Liverpool Coll. Lawrence, J.J.R. Ealing Gram. S. McDougall, H. d. Musters Road S., W. Bridgford Beaufoy, C.J. Brunswick H., Windsor Brown, B.B. z. Private tuition Gayton, W.J.G. e. Private tuition Leeper, N.D. St. Helen's Coll., Southsea Penny, R.W. Harlesden Coll. Timbrlake, W.J.C. Private tuition Vitty, H.T. Private tuition Warring, S.J. Froebel H., Devonport Burgoyne, W.O. University S., Southport Feitelson, A. Private tuition Foster, R.G. St. Catharine's S., Broxbourne Greensted, L. Sandwich S. Hughes, R.M. d. Witton Gram. S., Northwick Lawton, R.A. Rochdale High S. Nelson, F.G.T. Quernmore, Chancery Lane, W.C. Ohlwerther, W.J. St. Paul's S., West Kensington Pleavin, A.E. Middleton C., New Brighton Pollock, E.A. Argyle H., Sunderland Washington, R.N. Liverpool Coll. Bartrum, D. Catholic Coll. Inst., M'chester Fitzgerald, J. St. Mary's C., Woolhampton Shipman, F.T. Wesley Coll., Sheffield Wright, E.L. z. Private tuition Wrigley, H. St. John's Coll., Grimsargh Avery, B.F. St. James's, Keyham, Devonport Back, H.B. Egerton Park Coll., Bexhill Brennan, L.H. University S., Southport Lambert-Shea, W.A. e. ch. Private tuition Murray, S.R. Gram. and High S., Bolton Rosoman, A.G. Snettisham S. Siggers, F.H.S. Ealing Gram. S. Snylam, C.C. Hutton Gram. S. Walker, E.B. University S., Southport Gillman, W.H. Devizes Boys' Coll. Pearce, T. Gram. S., Camelford Thompson, A.M. Modern S., Eccles Tucker, C.H.W. f. Liverpool Coll. Chote, C. Private tuition Moore, F. Polytechnic Inter. S., W. Oaks, R.G.P. Kingsholme S., Weston-super-Marc Roberts, J.J. s. Ruthin Gram. S. Winter, A. Private tuition Elphick, C. Private tuition Hinson, H. d. Private tuition Jones, M.F. St. Ethelbert's, Hampstead Malim, H.C. Snettisham S. Oldham, P.L. Vermont Coll., Clapton Taylor, R.W. Private tuition Adams, J.H. Elm Bank S., Nottingham Jones, F. Hartin Gram. S. Brown, J. Southgate Coll., New Southgate Henus, F.G. g. Hanley Castle Gram. S. Inzle, W. Yorkshire Society's S., S.E. Mead, A. 4 Arlington Villas, Brighton Seabrook, H.H. E. Cornwall Coll., Liskeard Balkwill, A.W. Independent Coll., Taunton Bromley, C.E. Paradise H., Stoke Newington Duckett, W. St. Joseph's Coll., Dumfries Evans, W.J. Market Harborough Gram. S. Freke, C.G. St. John's Coll., Brixton Gaynor, W. Beaconfield Coll., Plymouth Haswell, J.F. Llandudno Coll. Jackson, G.B. Hutton Gram. S. Mitcheson, G.G. St. John's Coll., Grimsargh Tindle, R. Singleton H., Newcastle-on-Tyne Vasquez, A.J. Christian Bros. C., Gibraltar Brent, A.J. Dudley Middle Class S. Brown, L.S. Arzyl H., Nightingale Lane, S.W. de Burgh, H.deB. Comm. Coll., York Drew, J.E. Abbey S., Penzance Walter, J. St. Mary's Coll., Woolhampton Bruce, O. Private tuition Dunley, J.F. Hanley Castle Gram. S.

BOYS, 2ND CLASS, 3RD DIV.—Continued.
 Maude, J. H. W. Laurel Bank S., Higher Broughton
 Mayer, E. D. N. Private tuition
 Meares, R. W. N. Bible Christian Coll., Shebbear
 Nicholson, C. H. Fartown Gram. S., Huddersfield

Brittain, A. Wesley Coll., Sheffield
 Townson, W. K. Private tuition
 Axe, J. M. Abp. Holgate's Gram. S., York
 Barker, R. Wesley Coll., Sheffield
 Dudley, W. R. Private tuition
 Hallam, J. W. Kingswood, Bath
 Johnson, W. G. Bethany H., Goudhurst
 Le Brun, C. C. R. St. James's C. S., Jersey
 Price, T. Dudley Middle Class S.
 Tingle, B. Wesley Coll., Sheffield

Duke, O. C. Sherborne S., Dorset
 Farquharson, W. D. Bethany H., Goudhurst
 Grey, C. G. Fauconberge, Beccles
 Kitto, J. D. Plymouth Corporation Gram. S.
 Rollin, W. Private tuition
 Catton, J. F. Private tuition
 Moore, F. C. Lewisham Park S.
 Ramsbottom, H. G. Queen Mary's S., Clitheroe

Third Class.—1st Division.

Taylor, A. ch. Taunton Trade S., South'mpt'n
 Dickson, W. L. e. Private tuition
 Brewer, H. R. ad. Epsom Coll.
 Paskins, W. R. Taunton Trade S., South'mpt'n
 Scott, N. bk. ad. Osborne High S., W. Hartlepool
 Sneath, O. C. e. h. a. g. ad. e. h. k. f. Tollington Park Coll.

White, W. J. T. St. Charles' Coll., N. Kensington
 Rothwell, J. H. Private tuition
 Orgles, W. R. e. g. ad. e. u. d. Private tuition
 Cooke, E. R. T. d. Gram. S., Eccles
 Dehouck, C. f. Catholic C. Inst., Manchester
 Hudkins, J. R. ch. Private tuition
 Squire, H. B. Lancing Coll.
 Muirhead, J. T. Ruthin Gram. S.
 Elliott, J. E. ch. Private tuition
 Butler, O. ch. Taunton Trade S., Southampton
 Walker, E. e. y. a. ad. f. l. Wirksworth Gr. S.
 Davis, M. Cliff House Coll., Hove
 Smith, C. R. Horsmonden S.
 Rogers, C. R. Grove H., Highgate
 Tuckey, H. C. ad. Alvechurch Gram. S.
 Wright, H. N. Malvern Coll., Malvern
 Lewis, F. Taunton Trade S., Southampton
 Quin-Harkin, A. T. ad. St. Aloysius Coll., Hornsey Lane
 Rowe, E. J. Plymouth Corp. Gram. S.

Bretland, R. ad. e. h. People's Coll., Nottingham
 Choyley, W. C. Market Bosworth Gram. S.
 Hole, H. Grosvenor S., Bath
 Lane, B. E. H. Dean Close S., Cheltenham
 Dickinson, W. N. e. h. a. ad. Tollington Pk. C.
 Good, A. F. ad. e. u. Tollington Park Coll.
 Loughborough, A. L. Private tuition
 Parsons, L. St. Bartholomew's Gram. S., Newbury
 Priestley, C. F. ch. St. Joseph's Coll., Dumfries
 Adolphus, E. M. e. a. ad. e. u. f. Brighton Modern S.

Borrow, W. H. J. ad. e. u. Tollington Park Coll.
 Morgan, J. E. d. Private tuition
 Taylor, R. Hutton Gram. S.
 Fairclough, J. ad. e. u. Catholic Coll. Inst., Manchester
 Dodds, F. C. e. ad. e. u. f. Tollington Pk. Coll.
 Marsh, J. F. Taunton Trade S., Southampton
 Southan, C. H. d. Alvechurch Gram. S.
 Taylor, H. V. f. Oakham S.
 Grange, T. H. ch. d. St. Paul's S., West Kensington
 James, H. C. e. ad. e. u. d. Coopers' Company's S., E.
 Bosworth, A. W. Market Bosworth Gram. S.
 Davies, C. St. Phillip's Gram. S., Edgbaston
 Palmer, R. H. ad. e. u. Tollington Park Coll.
 Shepherd, E. e. u. Market Bosworth Gram. S.
 Ahern, F. St. Joseph's Coll., Dumfries
 Bodell, G. W. e. a. f. l. d. Wirksworth Gram. S.
 Gallagher, J. h. a. e. u. Catholic Coll. Inst., Manchester
 Hodgson, E. W. e. a. ad. e. u. f. Tollington Park Coll.
 Howell, H. T. J. e. a. Rother H., Lewisham

Livingstone, H. L. ad. e. u. Tollington Pk. Coll.
 Pearson, H. S. Stafford Coll., Forest Hill
 Wallington, H. e. u. St. Joseph's Coll., Dumfries
 Gallard, W. e. a. ad. e. u. Modern S., E. Grinstead
 Sattler, R. D. ad. e. u. Bedford Gram. S.

Clark, H. G. Taunton H., Brighton
 Hogben, W. e. a. ad. f. l. Wirksworth Gram. S.
 Jameson, H. e. a. ad. f. l. Argyle H., Sunderland
 Robbins, W. F. h. e. u. f. Coopers' Company's S., E.
 Burton, A. H. G. ad. e. u. f. Tollington Pk. Coll.
 Clark, A. d. Snettisham S.
 Criswick, A. M. e. a. ad. e. u. h. k. Tollington Park Coll.
 Spence, J. Osborne High S., W. Hartlepool
 Wilson, J. D. St. Paul's S., W. Kensington

Arch, W. A. e. a. f. d. Coopers' Company's S., E.
 Cornish, F. W. e. u. f. Tollington Park Coll.
 Good, F. L. e. ad. e. u. Tollington Park Coll.
 Gordon, F. a. f. sp. Christian Bros.' Coll., Gibraltar
 Pollard, E. E. g. The Vale Coll., Ramsgate
 Van Thiel, H. F. W. St. Thomas Abbey, Erlington
 Witthaus, F. P. e. ad. f. Tollington Park Coll.
 Brown, J. C. e. a. ad. e. u. Polytechnic Int. S., W.
 Davis, F. W. e. u. f. Coopers' Company's S., E.

Donoghue, W. G. g. Coopers' Company's S., E.
 Warren, A. g. a. People's Coll., Nottingham
 Axe, W. a. f. l. Wirksworth Gram. S.
 Brockhurst, A. E. e. a. d. Kingsholme S., Weston-s.-Mare
 Downer, F. Ryde H., Ripley, Woking
 Kingzett, E. P. Royal Naval S., Eltham
 Naylor, G. H. e. f. l. Gram. S., Steyning
 Storer, F. ad. e. u. Market Bosworth Gr. S.

Bisiker, F. W. e. f. Tollington Park Coll.
 Dabell, D. C. Independent Coll., Taunton
 Hammond, E. A. Hanley Castle Gram. S.
 Jakeman, J. W. V. g. Hanley Castle Gram. S.
 Sleeman, R. P. e. a. e. u. Taunton Trade S., Southampton
 Vaughan, E. J. Maidstone Gram. S.
 Warwick, E. ad. Polytechnic Inter. S., W.
 Johnston, D. Private tuition
 Mundy, H. W. Ryde H., Ripley, Woking
 Redford, G. F. Private tuition
 Robinson, D. T. ad. f. Tollington Park Coll.
 Adams, D. Elmhurst S., K'gston-on-Thames
 Allott, H. R. L. Wesley Coll., Sheffield
 Barr, L. Willington H., Burton-on-Trent
 Barringer, S. Tollington Park Coll.
 Berriman, P. H. a. Taunton Trade S., Southampton
 Boney, T. K. f. Tollington Park Coll.
 Carroll, E. St. Joseph's Coll., Denmark Hill
 Collins, S. D. bk. Dagmar H., Hatfield
 Faulkner, F. G. Yorkshire Society's S., S. E.
 Goodban, L. ch. St. Paul's S., W. Kensington
 Jee, J. P. Market Bosworth Gram. S.
 Lynch, D. H. Sandwich Gram. S.
 Owens, H. d. Polytechnic Inter. S., W.
 Pouter, E. H. F. R. ad. e. h. ch. Kingsholme S., Weston-s.-Mare
 Sansom, E. J. ch. d. People's Coll., Nottingham
 Webb, R. E. e. u. bk. Dagmar H., Hatfield

Coates, H. ad. e. u. d. Private tuition
 Deacon, H. B. f. Gram. S., Steyning
 Delahunty, P. a. e. u. Catholic Coll. Inst., Manchester
 Dixon, L. F. The School, Eaton Socon
 Elliott, W. H. ch. Maidstone Gram. S.
 Harris, A. ad. d. Private tuition
 Macintosh, D. G. e. ad. e. u. Tollington Park C.
 Manning, V. L. e. ad. e. u. Llandudno Coll.
 Mawer, A. E. e. ad. e. u. d. Marlybone Higher Grade Tech. S.
 Umpleby, F. E. a. ch. Ashville C., Harrogate
 Willis, E. B. The School, Eaton Socon
 Bunker, F. ad. d. Private tuition
 Cooper, W. R. ad. ch. People's C., Nottingham
 Evans, B. Ryde H., Ripley, Woking
 Millar, A. S. e. a. Dean Close S., Cheltenham
 Turner, W. T. Independent Coll., Taunton
 Wilson, G. B. e. f. l. Gram. S., Cork

Beesley, F. M. f. l. Wirksworth Gram. S.
 Bennett, C. Private tuition
 Burton, W. Private tuition
 Goodrich, E. E. e. a. ad. e. u. Tollington Park C.
 Munro, J. E. Royal Naval S., Eltham
 Rowell, W. Market Bosworth Gram. S.
 Taylor, W. T. a. ad. f. l. Wirksworth Gram. S.
 Burgess, W. Broomwood C., Wandsworth Common
 Cavilla, A. Christian Bros. C., Gibraltar
 Coney, J. A. d. St. Phillip's Gr. S., Edgbaston
 Dawson, W. The Hollies, Kates Hill, Dudley
 Martin, F. G. ad. e. u. f. Tollington Park Coll.
 Philpott, H. g. a. d. High Pavement Hr. Gr. S., Nottingham
 Prasad, J. e. ad. d. Tollington Park Coll.
 Procter, J. St. Paul's S., W. Kensington
 Smith, E. ad. ch. Huish S., Taunton
 White, C. e. a. ad. f. l. Newcastle Modern S.
 Bullwinkle, F. S. e. u. Coopers' Company's S., E.
 Carnean, R. f. St. Joseph's C., Denmark Hill

Jardin, A. f. St. Joseph's C., Dumfries
 Flynn, C. f. Catholic Inst., Hope St., L'pool
 Haworth, M. B. h. f. Montrose C., Brixton Hill
 Horth, H. E. Clyde H., Hereford

Balchin, A. E. e. a. ad. d. High Pavement Hr. Gr. S., Nottingham
 de Patron, B. High S., South Norwood
 Herbert, S. C. f. g. e. Polytechnic Inter. S., W.
 Hodge, G. D. ad. e. u. f. Tollington Park Coll.
 Littler, H. a. f. Llandudno County S.
 Perry, B. e. Queen's Park Coll., W.
 Workman, L. M. Clyde H., Hereford

Benson, E. R. e. a. ad. e. u. Tanyrallt S., Pontardawe
 Draffen, C. H. St. Paul's S., W. Kensington
 Farmer, J. A. ad. f. High Pavement Hr. Gr. S., Nottingham
 Fisher, C. H. e. ad. e. u. f. St. Aloysius Coll., Hornsey Lane
 Freestone, G. d. People's Coll., Nottingham
 Garrard, C. J. C. e. a. St. Bartholomew's Gram. S., Newbury
 Guthrie, G. a. e. u. d. Taunton Trade S., Southampton
 Haynes, W. J. e. Barnstaple Gram. S.
 Kessler, F. W. f. Tollington Park Coll.
 Le Cornu, H. J. a. ad. e. u. f. Jersey Modern S., St. Helier's

Lefaux, L. Lancaster Coll., W. Norwood
 Marsh, G. W. E. d. Epsom Coll.
 Retalick, A. P. Gram. S., Camelford
 Revill, W. H. St. John's Coll., Grimsburgh
 Small, J. ad. e. u. f. d. Coopers' Company's S., E.
 Benson, R. J. e. a. ad. e. u. Tanyrallt S., Pontardawe
 Blower, S. a. d. People's Coll., Nottingham
 Cattell, A. S. e. Tollington Park Coll.
 Keen, E. B. Epsom Coll.
 Lonsdale, H. e. ad. e. u. Univ. S., Southampton
 Martin, W. H. e. a. Hoe Gram. S., Plymouth
 Morgan, L. H. Hoe Gram. S., Plymouth
 Muirhead, J. A. ad. e. u. f. Jersey Modern S., St. Helier's

Weldon, H. A. C. Ealing Gram. S.
 Ahier, P. h. ad. f. Jersey Modern S., St. Heliers
 Buckley, C. e. ad. l. Univ. S., Southampton
 Cosgrove, W. g. a. Catholic Coll. Inst., Manchester
 French, H. V. e. ad. e. u. Taunton Trade S., Southampton
 Fronde, W. J. Kensey, Launceston
 Gould, P. O. Corner H., Godstone
 Kennard, S. W. a. High S., South Norwood
 Masters, E. F. Sandwich S.
 McNally, S. e. Catholic Inst., Hope St., L'pool
 Methvin, J. Stationers' Co.'s S., Hornsey
 Parsons, W. M. e. ad. l. Rugby H., Brighton
 Arnold, S. G. V. e. u. High S., Withington, Manchester
 Bennett, A. E. e. ad. e. u. Taunton Trade S., Southampton

Brady, P. Beaconfield Coll., Plymouth
 Dunkley, W. e. u. Market Bosworth Gram. S.
 Fenouillet, D. C. Epsom Coll.
 Fox, J. P. e. u. Market Bosworth Gram. S.
 Godfrey, G. T. a. Hardwicke H., Seaford
 Jinkin, C. P. Plymouth Corporation Gram. S.
 Norris, W. Hutton Gram. S.
 Spencer, J. J. e. ad. f. Wirksworth Gram. S.
 Steeple, H. Private tuition
 Stone, W. e. a. l. Wirksworth Gram. S.
 Barnes, J. A. T. Private tuition
 Board, E. J. a. High Pavement Hr. Gr. S., Nottingham
 Brewer, F. L. e. ad. e. u. Tollington Park Coll.
 Butters, J. H. a. e. u. Taunton Trade S., Southampton
 Eveness, J. C. ad. f. Coopers' Company's S., E.
 Frith, P. L. Halbrake S., Wandsworth Com.
 Frost, T. e. u. High Pavement Hr. Gr. S., Nottingham
 Grave, F. J. Gram. S., Romford
 Harvey, G. F. St. Joseph's Coll., Dumfries
 Marsh, W. A. ad. f. Modern S., East Grinstead
 McDougall, A. Musters Rd. S., W. Bridgford
 Mead, P. T. ad. e. u. Taunton Trade S., Southampton

Morrissey, J. e. f. l. Baylis H., Slough
 Phillips, B. E. Quernmore, Chancery Lane
 Pond, E. B. Bible Christian C., Shebbear
 Stafford, H. a. ad. Catholic C. Inst., Manchester
 Colly, H. D. ad. e. u. Tollington Park Coll.
 Davis, F. E. ad. e. u. Univ. S., Southampton
 Dawson, H. D. Wright's S., Faversham
 Garner, G. H. f. Ruthin Gram. S.
 Harris, A. E. Dagmar H., Hatfield
 Hood, F. W. Laughtarne S., Southsea
 Hughes, F. Oswestry Gram. S.
 Kibbler, H. d. Vermont Coll., Clapton
 Lapham, W. a. High Pavement Hr. Gr. S., Nottingham
 Neville, P. A. United Westminster S., S. W.
 Poole, W. e. Harlesden Coll.
 Renton, S. J. a. Tollington Park Coll.
 Roberts, W. D. Ruthin Gram. S.
 Belbin, D. W. f. Tollington Park Coll.
 Bettridge, S. W. f. Independent C., Taunton
 Burnham, H. R. Bethany H., Goudhurst
 Hawken, W. J. S. e. u. Bible Christian Coll., Shebbear

Hickmott, W. a. ad. Univ. S., Rochester
 Hughesdon, A. H. e. f. Tollington Park Coll.
 Jackson, W. S. Egerton Park Coll., Bexhill
 Lake, W. F. f. Polytechnic Inter. S., W.
 Lee, A. ad. Catholic Coll. Inst., Manchester
 Muggleston, E. W. a. d. High Pavement Hr. Gr. S., Nottingham
 Pyckett, R. H. High Pavement Hr. Gr. S., Nottingham
 Reiton, H. S. a. ad. e. u. Deal College

Sage, G. W. Grove H., Highgate
 Seymour, P. F. e. ad. Comm. S., Uxbridge
 Spencer, C. G. ad. e. u. Polytechnic Inter. S., W.
 Travis, W. Univ. S., Southport
 Tweddie, D. d. St. Paul's S., W. Kensington
 Armour, A. H. Ryde H., Ripley, Woking
 Chittick, W. H. e. ad. f. Montrose Coll., Brixton Hill

Cook, C. J. High S., S. Norwood
 Cuddon, E. ad. Private tuition
 Crump, J. A. Private tuition
 Dryden, N. St. Joseph's Coll., Dumfries
 Easum, H. W. Hillmartin C., Camden Road
 Fairlie, E. T. f. Coopers' Company's S., E.
 Game, O. Cavendish Gram. S., Suffolk
 Gayton, H. e. u. Taunton Trade S., Southampton
 Goodwin, E. G. a. ad. f. Coopers' Co.'s S., E.
 Groom, G. d. People's Coll., Nottingham
 Jemmett, V. a. ad. f. Wright's S., Faversham
 Kelland, W. W. a. ad. Huish S., Taunton
 Martyr, J. G. d. ad. Taplow Gram. S.
 Southorn, H. J. Grove H., Highgate
 Tindall, A. d. Wesley Coll., Sheffield
 Trevor, S. S. f. Modern S., E. Grinstead
 Wadlams, S. J. a. d. High Pavement Hr. Gr. S., Nottingham

Conolly, J. C. L. ad. f. Llandudno County S.
 King, N. W. e. Belvedere, Hayward's Heath
 Livingstone, J. e. u. Tollington Park Coll.
 MacDonald, J. T. Taunton Trade S., Southampton
 Palmer, W. L. a. d. Coopers' Company's S., E.
 Russ, F. V. Bible Christian C., Shebbear
 Shorter, F. S. Montrose C., Brixton Hill
 Young, A. ad. Polytechnic Inter. S., W.

Baile, R. M. Sale High S.
 Bird, H. C. Broomwood C., Wandsworth Common
 Clarke, H. F. d. Newcastle Modern S.
 Coulson, L. C. Coopers' Company's S., E.
 Perkins, W. J. Plymouth Corporation Gram. S.
 Devonshire, P. C. Plymouth Corporation Gram. S.
 Eades, A. T. e. ad. l. Market Harborough Gram. S.
 Gloster, C. T. Ryde H., Ripley, Woking
 Hewitt, N. W. e. ad. High S., Withington, Manchester
 Ling, J. Queen's Park Coll., W.
 Morton, G. Catholic Inst., Hope St., L'pool
 Richardson, C. W. Gram. S., Cowes
 Sudds, G. I. Bethany H., Goudhurst

Bardsley, W. a. Univ. S., Southampton
 Belgrami, S. M. A. ch. Private tuition
 Bell, G. A. e. u. Taunton Trade S., Southampton
 Bentley, L. e. u. f. Coopers' Company's S., E.
 Boari, W. P. a. Summerleaze Coll. S.
 Carpenter, C. Rock Hill Acad., Chulmleigh
 Carroll, C. a. Catholic C. Inst., Manchester
 Craigh-Jenings, H. St. George's Coll., Weybridge
 Elkington, N. a. Taunton Trade S., Southampton
 Gee, G. A. e. u. St. John's Coll., Brixton
 Green, G. H. Monk Bridge S., York
 Kendall, E. e. a. d. Read's S., Drax, Selby
 King, L. H. St. Paul's S., W. Kensington
 Lock, C. R. Independent Coll., Taunton
 Moseley, H. O. ad. e. u. Market Bosworth Gram. S.

Muston, S. H. Private tuition
 Nicholl, W. G. Plymouth Corporation Gram. S.
 Parker, A. A. Tollington Park Coll.
 Romeril, A. J. f. Jersey Modern S., St. Helier's
 Scoweroff, B. University S., Southampton
 Tennent, W. S. Enfield H., Surbiton Hill
 Anthony, G. Commercial Coll., York
 Balls, H. e. u. Wright's S., Faversham
 Daws, E. e. Rock Hill Acad., Chulmleigh
 Elphick, E. E. Durham S.
 Gibbs, G. a. Winchester H., Gt. Yarmouth
 Grant, R. H. e. a. ad. l. Newcastle Modern S.
 Hale, C. S. d. St. Bartholomew's Gram. S., Newbury
 Huntington, J. Private tuition
 Ormerod, S. P. e. a. Rochdale High S.
 Palfrey, H. T. n. High Pavement Hr. Gr. S., Nottingham
 Sewell, E. D. 97 Buckingham Pal. Rd., S. W.
 Smith, F. G. Huish S., Taunton
 Squire, T. H. d. Taunton Trade S., Southampton
 Vivian, E. P. a. Taunton Trade S., Southampton
 Plympton Corp. Gram. S.
 Dudson, J. F. Gram. S., Steyning
 Fitzmaurice, N. e. f. Belvedere, Hayward's Heath

BOYS, 3RD CLASS, 1ST DIV.—Continued.
 *Goulborn, V. Ealing Gram. S.
 *Jones, T. C. f. Llandudno County S.
 *Lee, F. T. T. Private tuition
 *Parkyn, S. S. f. Tollington Park Coll.
 *Perriam, A. J. H. eu. Bible Christian Coll., Shebbear
 *Singleton, J. a. Catholic Coll. Inst., Manchester
 *Smith, J. a. Wright's S., Faversham
 *Currie, B. M. Prelim. Med. S., Ludgate Hill
 *Dalton, F. Market Bosworth Gram. S.
 *Dehaene, L. E. f. Catford Coll. S.
 *Fogarty, S. C. a. Taunton Trade S., Southampton
 *Fox, S. R. Wright's S., Faversham
 *Hawker, H. V. King's Coll., Wimbledon
 *King, R. M. a. Coopers' Company's S., E.
 *Lingham, P. E. a. University S., Rochester
 *Martin, C. J. Hardwicke H., Seaford
 *McCombie, A. R. eu. Coopers' Company's S., E.
 *Mitchell, W. a. High Pavement Hr. Gr. S., Nottingham
 *Reid, T. W. f. Modern S., East Grinstead
 *Keayon, J. D. Llandudno Coll.
 *Simkins, L. T. W. Lawn H., Clapham Road
 *Thomas, L. eu. Tanyrallt S., Pontariaw
 *Baldwin, J. Y. Hermitage S., Bath
 *Brooks, J. M. f. Wirksworth Gram. S.
 *Broomfield, R. C. Bethany H., Goudhurst
 *Corish, R. Catholic Inst., Hope St., L'pool
 *Douglas, J. d. High S., Corbridge on Tyne
 *Drysdale, R. S. Plymouth Corp. Gram. S.
 *Jackson, V. a. High Pavement Hr. Gr. S., Nottingham
 *Knochl, H. St. John's Coll., Brixton
 *Morris, A. E. Grove H., Highgate
 *Pearson, A. G. Wesley Coll., Sheffield
 *Power, L. al. f. Wright's S., Faversham
 *Purvis, H. eu. The School, Eaton Socon
 *Riches, S. W. P. eu. Coopers' Company's S., E.
 *Ross, C. G. f. Tollington Park Coll.
 *Ward, A. St. Mary's Coll., Woolhampton
 *Andrews, H. al. Private tuition
 *Birrell, W. F. Private tuition
 *Blackall, L. C. ef. St. Aloysius Coll., Hornsey Lane
 *Bradly, J. F. a. St. George's Coll., Weybridge
 *Brown, F. P. al. University S., Rochester
 *Cox, D. H. f. Mercers' S., Holborn
 *Durrans, T. H. Polytechnic Inter. S., W.
 *Guy, C. R. eu. Deal Coll.
 *Hogan, J. E. St. Aloysius C., Hornsey Lane
 *Jones, H. O. a. Llandudno County S.
 *Kershaw, H. Private tuition
 *Leslie, G. H. Independent Coll., Taunton
 *Limpenny, F. R. eu. St. Mary's Coll., Woolhampton
 *Morris, D. E. Private tuition
 *Norris, W. J. f. Coopers' Company's S., E.
 *Potts, B. L. Epson Coll.
 *Reid, H. W. Private tuition
 *Roberts, W. a. Llandudno County S.
 *Ruddle, C. G. Purbeck Coll., Swanage
 *Scott, W. H. Osborne High S., W. Hartlepool
 *Skelton, T. H. Wesley Coll., Sheffield
 *Stuart, R. K. f. Gram. S., Steyning
 *Taylor, F. P. Bethany H., Goudhurst
 *Warne, O. H. High S., South Norwood
 *Williams, R. T. sf. Ruthin Gram. S.
 *Bétonné, A. f. Bethany H., Goudhurst
 *Clinton, W. T. bk. Dagmar H., Hatfield
 *Crampton, A. D. ch. People's C., Nottingham
 *Edwards, H. f. Jersey Modern S., St. Helier's
 *Elliott, J. R. Rock Hill Acad., Chulmeigh
 *Gauthier, L. J. a. al. f. Catford Coll. S.
 *Griffin, T. L. eu. The School, Eaton Socon
 *Kirby, J. B. a. Eye Gram. S.
 *Kirk, A. High S., Withington, Manchester
 *Leslie, E. H. a. eu. Independent C., Taunton
 *McClellan, J. Warwick H., Southsea
 *Moore, F. H. Froebel H., Devonport
 *Nettleton, J. S. Hall Gate S., Doncaster
 *Reynolds, B. C. Taunton Trade S., Southampton
 *Roebuck, E. B. eu. Hoe Gr. S., Plymouth
 *Smith, E. W. Rock Hill Acad., Chulmeigh
 *Sowerby, H. Tonbridge S.
 *Tarring, H. J. Tollington Park Coll.
 *Turner, H. People's Coll., Nottingham
 *Wilson, V. eu. f. Wright's S., Faversham
 *Baird, A. a. Coopers' Company's S., E.
 *Berry, J. N. a. eu. Fartown Gram. S., Huddersfield
 *James, W. Pencader Gram. S.
 *Kent, T. L. Eye Gram. S.
 *Kingcome, C. Plymouth Corp. Gram. S.
 *Kotz, E. M. a. St. John's Coll., Brixton
 *Lee, A. J. al. Bible Christian C., Shebbear
 *Marshall, C. W. eu. Holt H., Chesnut
 *Masters, H. E. Sandwith S.
 *Odell, H. a. Hasland H., Penarth
 *Roberts, E. H. Ruthin Gram. S.
 *Samson, P. M. a. d. Grammar S., Streatham
 *Slaughter, P. R. Coopers' Company's S., E.
 *Steinberg, A. L. Cathcart C., Cathcart Hill, N.
 *Ward, D. R. al. f. Coopers' Company's S., E.
 *Wills, S. P. f. Private tuition
 *Wise, P. W. High Pavement Hr. Gr. S., Nottingham

*Barnacle, G. A. S. St. John's C., Grimsburgh
 *Bradford, J. a. Christian Bros. C., Gibraltar
 *Clark, A. J. f. Rugby H., Brighton
 *Comerford, A. A. St. George's C., Weybridge
 *Connolly, W. J. St. George's C., Weybridge
 *Cunnin, W. J. d. Queen's Park Coll., W.
 *Gillies, A. M. Tollington Park Coll.
 *Hawley, O. People's Coll., Nottingham
 *Holloway, L. C. Grove H., Highgate
 *Martindale, H. T. High Pavement Hr. Gr. S., Nottingham
 *Orry, J. F. Catholic Coll. Inst., Manchester
 *Farrort, D. F. f. Seaford Coll.
 *Phillips, W. E. Barnstaple Gram. S.
 *Quin, C. J. Private tuition
 *Roberts, W. St. Joseph's Coll., Dumfries
 *Saunders, R. P. d. Froebel H., Devonport
 *Smith, F. f. a. Sandwith Gram. S.
 *Serrondegui, M. f. St. Joseph's Coll., Denmark Hill
 *Steel, A. H. Coopers' Company's S., E.
 *Street, N. T. f. Gram. S., Steyning
 *Tigar, E. eu. d. St. Mary's C., Woolhampton
 *Walby, B. A. bk. Dagmar H., Hatfield
 *Wallond, W. H. a. al. eu. Deal Coll.
 *Witt, R. Coopers' Company's S., E.
 *Andrew, J. B. Osborne High S., W. Hartlepool
 *Bone, A. A. Wreight's S., Faversham
 *Charlton, T. F. 4 Arlington Villas, Brighton
 *Cull, P. W. a. eu. Taunton Trade S., Southampton
 *Davies, D. F. Independent Coll., Taunton
 *Davies, H. ge. Polytechnic Inter. S., W.
 *Gould, G. G. Bradley High S., Newton Abbot
 *Gibbons, L. Jersey Modern S., St. Helier's
 *Gill, H. High Pavement Hr. Gr. S., Nottham
 *Hollingworth, C. d. Private tuition
 *Hull, T. L. Huish S., Taunton
 *Keohor, R. L. St. George's Coll., Weybridge
 *Maynard, A. A. e. Lonsbury Coll., Up. Clapton
 *McMonnies, D. B. Cathcart Coll., Cathcart Hill, N.
 *Picot, H. Jersey Modern S., St. Helier's
 *Pointon, T. R. a. Mutley Gram. S.
 *Price, E. S. c. d. Hasland H., Penarth
 *Rodgers, R. Montrose Coll., Brixton Hill
 *Russell, E. P. e. Private tuition
 *Skelton, N. al. f. Jersey Modern S., St. Helier's
 *Sutton, H. Coopers' Company's S., E.
 *Turner, E. M. Llandudno County S.
 *Underwood, E. J. Independent C., Taunton
 *Ames, P. J. f. Coopers' Company's S., E.
 *Bradbury, C. eu. Univ. S., Southampton
 *Burford, E. E. Coopers' Company's S., E.
 *Capurro, A. d. Christian Bros. C., Gibraltar
 *Cash, F. G. Bethany H., Goudhurst
 *Collins, J. R. Private tuition
 *Crespin, H. Hillmartin Coll., Camden Rd.
 *Drakes, B. Wharfedale Coll., Boston Spa
 *Game, W. High Pavement Hr. Gr. S., Nottingham
 *Green, V. H. Market Bosworth Gram. S.
 *Harris, P. F. Bible Christian C., Shebbear
 *Higgins, F. St. Joseph's Coll., Dumfries
 *Kelly, J. H. a. E. Cornwall Coll., Liskeard
 *Makin, R. N. a. al. eu. Sheffield Middle Class S.
 *McDonald, J. Cath. Inst., Hope St., L'pool
 *McSwiney, R. J. Baylis H., Slough
 *Moss, C. Univ. S., Southampton
 *Nettleton, H. E. a. d. Coopers' Co's S., E.
 *Norman, G. Broomwood Coll., Wandsworth Comm.
 *Price, R. a. Cath. Inst., Hope St., L'pool
 *Reese, W. a. Independent Coll., Taunton
 *Shaw, W. A. Hasland H., Penarth
 *Stride, H. Warwick H., Southsea
 *Watson, B. W. Southwell Gram. S.
 *Barber, C. D. Deal Coll.
 *Barelay, A. Coopers' Company's S., E.
 *Christias, A. C. Stafford Coll., Forest Hill
 *Clutton, T. Hutton Gram. S.
 *Harman, L. E. f. St. John's Choir S., St. Leonards
 *Lewis, S. F. eu. Taunton Trade S., Southampton
 *Lodge, A. E. Taunton Trade S., Southampton
 *Macfarlane, A. Tollington Park Coll.
 *Marsh, J. A. Sheffield Middle Class S.
 *Matson, H. B. f. Modern S., East Grinstead
 *McDonnell, G. Wirral Coll., Rock Ferry
 *Miller, H. B. eu. Bible Christian Coll., Shebbear
 *Norman, P. A. a. f. Gram. S., Steyning
 *Page, L. A. eu. d. Taunton Trade S., Southampton
 *Quarmby, H. Tollington Park Coll.
 *Russo, W. Christian Bros. C., Gibraltar
 *Skinner, S. C. al. University S., Rochester
 *Spink, H. H. M. Hatfield H., St. Leonards
 *Storey, J. E. e. Sale High S.
 *Sumpter, A. A. Paston Gram. S., N. Walsham
 *White, W. a. al. eu. Marylebone Hr. Grad. Tech. S.
 *Wilson, C. J. V. a. Gram. S., Longsight
 *Andrew, H. Osborne High S., W. Hartlepool
 *Butler, T. Prior Park Coll., Bath
 *Farrell, F. a. Catholic Coll. Inst., Manchester
 *Forster, T. A. f. Newcastle Modern S.
 *Gloster, A. A. H. Ryde H., Ripley, Woking
 *Kelly, P. I. St. George's Coll., Weybridge
 *Lazarus, A. M. f. d. Coopers' Company's S., E.
 *Miller, R. Montrose Coll., Brixton Hill
 *Feet, J. T. Univ. S., Southampton

Pritchard, S. B. a. Stratford H., Romford Road, E.
 *Richardson, R. St. Joseph's C., Dumfries
 *Roberts, A. J. Carlton C., Chancery Lane
 *Tucker, G. H. a. Kingsholme S., Weston-s.-M.
 *Watson, J. f. Argyle H., Sunderland
 *Yirrell, W. G. Huntingdon H., Teddington
 *Baker, H. R. eu. Sandwith Gram. S.
 *Bergmann, H. M. e. al. Coopers' Company's S., E.
 *Bishop, A. E. a. Ryde H., Ripley, Woking
 *Brandon, W. R. Private tuition
 *Brown, A. a. High Pavement Hr. Gr. S., Nottingham
 *Bryant, A. J. Eye Gram. S.
 *Cooper, A. Harlesden Coll.
 *Ditchfield, J. Preston Classical & Comm. S.
 *Fahrbach, W. Bethany H., Goudhurst
 *Faull, W. B. Bible Christian C., Shebbear
 *Garze, G. Christian Bros. C., Gibraltar
 *Grant, H. A. High Pavement Hr. Gr. S., Nottingham
 *Griffiths, E. A. e. l. Oswestry Gram. S.
 *Hall, B. a. Walden H., Herne Bay
 *Hitchcock, L. a. High S., S. Norwood
 *Hogg, P. E. Taunton Trade S., Southampton
 *Jones, G. P. Coopers' Company's S., E.
 *Lillycrap, H. G. Huish S., Taunton
 *McIntyre, M. F. a. St. Aloysius Coll., Hornsey Lane
 *Pattinson, I. G. a. Holly Bank S., Cheetham Hill
 *Price, F. L. Wesley Coll., Sheffield
 *Ray, H. f. Coopers' Company's S., E.
 *Smart, T. W. a. Hanley Castle Gram. S.
 *Smeeth, M. P. Bible Christian C., Shebbear
 *Webber, C. H. Bible Christian C., Shebbear
 *Ashby, N. Scarborough Gram. S.
 *Aspden, H. St. Joseph's Coll., Dumfries
 *Baker, E. D. P. Gram. S., Camelford
 *Ball, A. E. Taunton Trade S., Southampton
 *Buisseret, H. J. St. Joseph's Coll. S., Totland Bay
 *Cutts, E. C. Elm Bank S., Nottingham
 *Eberhardt, R. C. a. al. Broomwood Coll., Wandsworth Com.
 *Finney, L. Cath. Inst., Hope Street, L'pool
 *Gabbot, E. P. f. Sale High S.
 *Glasspole, I. Private tuition
 *Hadley, L. C. a. Belmore H., Cheltenham
 *Harper, J. E. High Pavement Hr. Gr. S., Nottingham
 *House, W. H. Taplow Gram. S.
 *Jones, A. F. Belvedere, Hayward's Heath
 *Kivlichen, W. St. Joseph's Coll., Dumfries
 *Nicholson, G. Grove H., Highgate
 *Osborne, S. F. Gram. S., Cowes
 *Reece, J. E. a. Independent Coll., Taunton
 *Reese, B. ze. Ramsgate S.
 *Severn, R. G. Gram. S., Romford
 *Toller, H. Huish S., Taunton
 *Turnbull, R. S. Newcastle Modern S.
 *Wade, V. D. Huntingdon H., Teddington
 *White, J. R. a. Catholic Coll. Inst., Manchester

Third Class.—2nd Division.

Benyon, J. a. Pencader Gram. S.
 *Broomfield, E. F. Taunton Trade S., Southampton
 *Brown, C. G. d. St. Bartholomew's Gram. S., Newbury
 *Buckell, E. F. W. Eastman's R.N. Acad., Winchester
 *Charleton, H. T. Sale High S.
 *Eland, G. E. Old Elvet S., Durham
 *Gillman, C. E. Devizes Boys' Coll.
 *Goodman, H. E. eu. f. Coopers' Company's S., E.
 *Hurst, H. Market Bosworth Gram. S.
 *Keating, C. Cath. Inst., Hope St., L'pool
 *Linaker, F. W. Ruthin Gram. S.
 *McCombie, W. H. Coopers' Company's S., E.
 *Morecroft, E. a. Southampton Modern S.
 *Morris, T. Sandwith S.
 *Sansom, W. E. R. a. Sandwith Gram. S.
 *Shaw, W. a. University S., Southampton
 *Smith, E. D. Newcastle Modern S.
 *Stephens, T. H. Private tuition
 *Stumbles, H. W. Froebel H., Devonport
 *Clayton, H. St. Catharine's S., Broxbourne
 *Eglin, A. N. Private tuition
 *Gibson, J. A. Southampton Modern S.
 *Loetschert, W. St. Joseph's Coll., Dumfries
 *Loughlin, J. Catholic Inst., Hope St., L'pool
 *Low, M. A. Private tuition
 *McMaster, M. St. Mary's Coll., Woolhampton
 *Parker, R. M. J. Private tuition
 *Rowland, S. W. eu. Taunton Trade S., Southampton
 *Smith, C. E. a. Llandudno County S.
 *Spooner, G. M. Carlton Coll., Chancery Lane, W. C.
 *Stancombe, P. R. Staddon H., Plymouth
 *Summer, T. Cambridge H., Coventry
 *Willmer, C. Claugton Coll. S., Birkenhead
 *Wood, A. L. Univ. S., Southampton
 *Young, C. O. St. Aloysius Coll., Hornsey Lane
 *Abbott, E. S. f. High Pavement Hr. Gr. S., Nottingham
 *Baker, W. A. a. The Douglas S., Cheltenham
 *Beech, J. F. Ruthin Gram. S.

Bosau, T. Coopers' Company's S., E.
 *Brocksley, H. M. a. f. Hillmartin Coll., Camden Road
 *Brown, P. J. Coopers' Company's S., E.
 *Burns, W. P. Catholic Coll. Inst., Manchester
 *Davy, H. e. Wright's S., Faversham
 *Grisdale, J. a. Comm. S., Barrow-in-Furness
 *Hughes, W. O. Llandudno County S.
 *Maunders, H. C. Epson Coll.
 *Marsden, F. A. a. Coopers' Company's S., E.
 *Morton, F. L. Fortescue C., Radstock, Bath
 *Parsons, R. H. f. Gram. S., Steyning
 *Ferrin, L. H. Taunton Trade S., Southampton
 *Pike, R. S. Private tuition
 *Proctor, J. N. Monk Bridge S., York
 *Richardson, G. I. High S., Stockton-on-Tees
 *Sargent, R. W. f. Private tuition
 *Simpson, T. J. C. M. Ruthin Gram. S.
 *Smith, F. G. Coopers' Company's S., E.
 *Stedford, J. B. Bible Christian Coll., Shebbear
 *Stoney, M. P. Epson Coll.
 *White, B. Felsted S.
 *Young, D. M. bk. Lewisham Park S.
 *Adams, H. E. Private tuition
 *Arnold, O. Private tuition
 *Bennett, S. Y. a. South Bristol Coll. S.
 *Bruce, J. Bethany H., Goudhurst
 *Davies, W. E. Private tuition
 *Dickey, W. C. Portland Coll., Chiswick
 *Dickinson, R. E. Grove H., Highgate
 *Fleming, W. L. e. Taunton Trade S., Southampton
 *Gorringe, H. G. Ealing Gram. S.
 *Greenfield, A. C. f. l. Argyle H., Nightingale Lane, S. W.
 *Herring, E. a. al. Lancaster C., W. Norwood
 *Kaye, R. f. Coopers' Company's S., E.
 *Kinch, A. G. St. Catherine's Coll., Langland Bay
 *Lovibond, G. P. f. Coopers' Company's S., E.
 *Maundrell, H. H. Kingsholme S., Weston-s.-Mare
 *Oxley, F. C. a. Wesley Coll., Sheffield
 *Shores, C. T. f. Walden H., Herne Bay
 *Smith, J. B. a. Hall Gate S., Doncaster
 *Tressider, H. E. Penwerria Gram. S., Falmouth
 *Weston, H. a. Bible Christian C., Shebbear
 *Willmot, A. J. Tollington Park Coll.
 *Anderson, H. A. eu. Coopers' Company's S., E.
 *Bingley, E. J. Grove H., Highgate
 *Boisseau, H. E. Highbury New Park Coll.
 *Cain, G. A. St. Joseph's Coll., Dumfries
 *Davies, R. Univ. S., Southampton
 *Davison, J. R. Sale High School
 *Ekins, H. B. The School, Eaton Socon
 *Harding, H. Market Bosworth Gram. S.
 *Keevil, A. F. M. Kingsholme S., Weston-s.-Mare
 *Kingcome, H. A. Plymouth Corporation Gram. S.
 *Lee, A. l. Oswestry Gram. S.
 *Lewes, N. Univ. S., Southampton
 *Manbré, G. Moldova H., Clapham Common
 *Norris, S. St. Joseph's Coll., Denmark Hill
 *O'Neill, R. B. e. St. Philip's Gram. S., Edgbaston
 *Reeve, H. T. Private tuition
 *Rye, H. G. Private tuition
 *Scales, W. L. eu. Ruthin Gram. S.
 *Thomas, J. G. P. Oswestry Gram. S.
 *VandenHeuvel, F. G. A. f. ge. Faddington High S.
 *Walker, H. High Pavement Hr. Gr. S., Nottingham
 *Baker, M. G. Philosophical S., Southsea
 *Barton, M. V. a. Hounslow Comm. Coll.
 *Bates, W. High S., South Norwood
 *Blay, S. T. Stoke Newington Gram. S.
 *Boomer, P. a. Jersey Modern S., St. Helier's
 *Chase, W. G. f. Taplow Gram. S.
 *Crookes, F. Wesley Coll., Sheffield
 *Fox, A. R. Crescent S., Sheffield
 *Gimshaw, V. R. Private tuition
 *Grinshaw, L. f. St. Mary's C., Woolhampton
 *Hayter, C. Argyle H., Sunderland
 *Hayward, L. T. Fortescue C., Radstock, Bath
 *Leech, N. a. Jersey Modern S., St. Helier's
 *Marshall, H. I. Hillmartin Coll., Camden Rd.
 *Merewether, R. Clyde H., Hereford
 *Mullins, M. J. a. St. Mary's C., Woolhampton
 *Sawyer, T. A. a. eu. Taunton Trade S., Southampton
 *Shanly, A. B. a. St. Aloysius C., Hornsey Lane
 *Thomas, H. M. Oswestry Gram. S.
 *Townsend, K. B. Fairfield Coll., Exeter
 *Tyler, R. E. Coopers' Company's S., E.
 *Vann, W. G. Old Elvet S., Durham
 *Waldo, E. P. Private tuition
 *Widdowson, N. B. High Pavement Hr. Gr. S., Nottingham
 *Wike, C. Univ. S., Southampton
 *Winters, S. E. Read's S., Drax, Selby
 *Ashton, H. St. Aloysius Coll., Hornsey Lane
 *Bishop, J. Independent Coll., Taunton
 *Chadwick, H. al. Univ. S., Southampton
 *Evans, P. F. Private tuition
 *Forty, C. Chandos Gram. S., Winchcombe

BOYS, 3RD CLASS, 2ND DIV.—Continued.
 Grose, R.C. a. Gram. S., Camelford
 Huett, G.A. Coopers' Company's S., E. Keell, E. Kingsholme S., Weston-s.-Mare
 Mair, W.F. Sale High S.
 Martin, H.G.N. Modern S., East Grinstead
 Martin, M.G. St. John's Coll., Brixton
 *Odum, E.G. Bethany H., Goudhurst
 Parry, E.G. a. Pencader Gram. S.
 Passby, W.H. University S., Rochester
 Porotchkin, T. Montrose Coll., Brixton Hill
 *Rose, J.A. University S., Reigate
 *Sanders, F.P. Southwell Gram. S.
 Sheppard, H. eu. Coopers' Company's S., E. Smith, B. z. Fartown Gram. S., Huddersfield
 Smith, C.C. Southport Modern S.
 Webster, G. Read's S., Drax, Selby
 Woodton, J.F. Huntingdon H., Teddington

Burnham, F.R. Bethany H., Goudhurst
Butler, G.E. Gosberton Hall S., Spalding
Coppinger, C. 20 South St., Greenwich
Evans, F.R. Cranbrook Coll., Ilford
Farmer, B.J. St. Joseph's Acad., Kennington Road
Farrar, G.W. Fartown Gram. S., Huddersfield
Harrison, H.C. Lonsbury Coll., Up. Clapton
Gibson, E.W. f. Gram. S., Cork
Hatzfeld, L.E. Bethany H., Goudhurst
Hemens, L.J. Kingsholme S., West-n.-Mare
Hubbard, R.K. Bethany H., Goudhurst
Hucks, B.C. Taplow Gram. S.
***Hughes, A.J.H.** Sandwich S.
Kirkman, W.C. a. Market Bosworth Gram. S.
McGeoch, P. St. Joseph's Coll., Dumfries
Mead, J.R. eu. Bible Christian C., Shebbear
Recifer, F.W. a. Polytechnic Inter. S., W. Recagno, H. g. Christian Bros. C., Gibraltar
Roberts, H.E. Coopers' Company's S., E. Rudkin, B.A. f. Snettisham S.
Sage, D.J.D. a. Coopers' Company's S., E. Schmidt, W.H. St. John's Coll., Brixton
Severs, G. York Manor S., York
Smith, H.C. High Pavement Hr. Gr. S., Nottingham
Stenning, W.W. f. Gram. S., Steyning
Tapson, E.M. South Bristol Coll. S.
***Vosper, W.** Launceston Gram. S.
Warburton, C.K. Gram. S., Longsight
***Wilson, J.T.** Montrose Coll. Brixton Hill

Appleton, J.T. eu. Univ. S., Southport
Buckall, C.W. a. High Pavement Hr. Gr. S., Nottingham
Clarke, L. eu. Taunton Trade S., Southampton
Costin, H.A. eu. Modern S., East Grinstead
Fisk, S. a.d. Polytechnic Inter. S., W. Herford, G.A. St. Aloysius C., Hornsey Lane
Marks, F. St. Joseph's Coll., Dumfries
Patterson, G. Bethany H., Goudhurst
***Pedrick, G.R.** Plymouth Corp. Gram. S.
Roberts, J.E.V. Ruthin Gram. S.
Roberts, R.O. s. Ruthin Gram. S.
Roche, M. Whitechurch Gram. S.
Stiles, A.W. s. Hillmartin C., Camden Rd.
Walker, T. Old Elvet S., Durham
Whitcher, G.P. Taunton Trade S., Southampton

Amy, S. f. Jersey Modern S., St. Helier's
Batt, W.G. a. Polytechnic Inter. S., W. Beale, J.A. Langford H., Brighton
***Boys, J.C.** Epsom Coll.
Cotter, A.V. W. Waterloo Inst., Seaforth
Dawe, A.W. Bible Christian Coll., Shebbear
Dodds, A.N. f. Newcastle Modern S.
Duncan, W.S. Bible Christian Coll., Shebbear
Dutton, T. Gram. S., Longsight
Gandy, F.J. Taunton Trade S., Southampton
Gracie, I. St. Mary's Coll., Woolhampton
Hunt, B.W. St. Catharine's S., Broxbourne
***King, L.B.** Private tuition
Pibworth, A.W. Huntly H., Southsea
***Price, C.M.** St. John's Coll., Brixton
***Ravenor, V.** St. Bartholomew's Gram. S., Newbury
Slater, H.B. d. Univ. S., Southport
Smith, A.C. The School, Eaton Socon
Tims, F.W. a. Deal Coll.
Wilkins, D. z. Kent Coll., Canterbury

***Bourke, C.** St. Joseph's Coll., Denmark Hill
***Fiddich, T.L.** High S., Camborne
Fortt, W.G. Kingsholme S., Weston-s.-Mare
***Gordon, S.O.** 254 Oxford St., Manchester
Gorely, F.H. V. Kent Coll., Canterbury
Jefferson, T. a. Commercial Coll., York
Kirby, H.J. York Manor S., York
Martyn, W.J. Taplow Gram. S.
***Norris, H.P.** Leytonstone Coll.
Oyston, G. a. Sale High S.
Phenix, A.S. High Pavement Hr. Gr. S., Nottingham
Robinson, H.H. High S., Camborne
***Sale, E.V.** Huish S., Taunton
Yalden, E.C. z. St. Bartholomew's Gram. S., Newbury
Zoude, C.L. f. Catford Coll. S.

Forster, F.W. Highbury New Park Coll.
Godden, A.B. a. Taunton Trade S., Southampton
Gooch, R.E. Cranbrook Coll., Ilford
Harris, C.J. W. Taunton Trade S., Hampton
Hearne, F. Catholic C. Inst., Manchester
Hinks, G.W. a. People's Coll., Nottingham
Hodgkins, A.G. Holt H., Cheshunt
James, B.W. St. Aloysius C., Hornsey Lane
Jones, A.W. a. Huish S., Taunton
Jones, W.I. a. Llandudno County S.
Kennard, F.H. High S., South Norwood
Machin, P.C. Coopers' Company's S., E. Markwell, A. Cliff House Coll., Hove
***Mitchell, J.** St. John's Coll., Grimsargh
***O Kelly, J.W.** St. Joseph's C., Dumfries
***Ostle, H.K.E.** Private tuition
Palmar, W.S. Tollington Park Coll.
Palmer, A.L. f. Gram. S., Steyning
Ratsey, W.G. Bible Christian C., Shebbear
Seton, A.B. Seaford Coll.
Smith, G.E. St. John's Coll., Grimsargh
Syvret, C.J. f. Oakwood House, Jersey

***Arnold, J.H. d.** Grammar S., Streatham
Barber, S. Kingsholme S., Weston-s.-Mare
Charrison, A. Univ. S., Rochester
Clark, E.D. W. Wesley Coll., Sheffield
Culthurst, H.S. Independent C., Taunton
***Curry, R.C.** Froebel H., Devonport
Filmer, B.N. eu. Wreight's S., Faversham
Grey, F.W. Taplow Gram. S.
Harrison, S.F. Horsmonden S.
Healey, R.J. Market Harborough Gram. S.
Heldmann, H.R. Langford H., Brighton
Hill, F.C.R. Montrose Coll., Brixton Hill
Langle, G.F. St. Aloysius C., Hornsey Lane
Parker, C.N. a. Taplow Gram. S.
***Raincock, H.D.** St. Catharine's S., Broxb'ne
Rainsbottom, J. University S., Southport
Ridgen, S.P. f. Prospect H., Dover
Starck, J.W. f. Gorey Comm. S., Jersey

Atkins, W.H. Eye Gram. S.
Barnes, O.F. a. Horsmonden S.
Busby, J.R. Belmore H., Cheltenham
***Cadinan, W.H.** Prospect H., Dover
Drake, J.L.N. Elm Bank S., Nottingham
Drakes, P. Wharfedale Coll., Boston Spa
Haumond, F. Fartown Gram. S., Huddersfield
Oldaker, C. Chandos Gram. S., Winchcombe
Oxford, C.W. St. James's, Keyham, Dev' up't
Scriven, F.P. Hasland H., Penarth
Spindler, E.R. Taplow Gram. S.
Thorne, F.J. Independent Coll., Taunton
***Thorpe, A.I.** Sale High S.
Turner, C. Taplow Gram. S.
Whitehead, R. Hutton Gram. S.

Barr, J.S. eu. Taunton Trade S., Southampton
Barr, R.A. Taplow Gram. S.
Bayley, R.O. a. Rye Gram. S.
Bentham, A. g. Comm. S., Barrow-in-Furness
***Bisdce, H.E.** St. Catharine's S., Broxbourne
Bowen, D. Pencader Gram. S.
Brown, W. Gram. S., Cork
Clarkson, A.B. d. St. Thomas's Abbey, Erdington
***Foreman, W.H.** Mercers' S., Holborn
***Fraser, A.** Independent Coll., Taunton
Harrison, W.N. Horsmonden S.
Helmre, R.W. Fairfield Coll., Exeter
Henley, C.E. St. Joseph's Coll., Dumfries
Kent, D.S.R. z. Montrose Coll., Brixton Hill
Medcalf, G. a. Gosberton Hall S., Spalding
***Morris, D.** Wirral Coll., Rock Ferry
Moseley, J.H. Market Bosworth Gram. S.
***Neal, P.T.** Prelim. Med. S., Ludgate Hill
Newman, J. Hatfield H., St. Leonard's
Popham, F.S. Gram. S., Cork
Shackel, R.H. St. Bartholomew's Gram. S., Newbury
Solly, E.W. Sandwich S.
Stonehouse, J. a. Old Elvet S., Durham

***Antoine, C.** Brixton Gram. S.
***Coles, H.C.** Independent Coll., Taunton
Coulthard, E. a. Rochdale High S.
Dalman, H.G. Holt H., Cheshunt
Fletcher, L.C. Taplow Gram. S.
Griffith, O.R. Gram. and Coll. S., Carnarvon
Jackson, E.J. a. Hall Gate S., Doncaster
Knight, F.G. Warwick H., Southsea
Leonard, S.H. Ryde H., Ripley, Woking
Miskin, A. Kent Coll., Canterbury
Murray, L. St. Mary's Coll., Woolhampton
Nankivell, R.H. Bryn Hanlog, The Mumbles
Reid, O.G. z. Coopers' Company's S., E. Robinson, F. Newcastle Modern S.
Steel, W.H. Kingsholme S., Weston-s.-Mare
Symons, C.E. High S., Camborne
Syvret, P. f. Oakwood H., Jersey
***Wilson, R.W.** Montrose Coll. Brixton Hill
Wren, L.C. Coopers' Company's S., E. Wyard, S. Hasland H., Penarth

Beall, C. Hall Gate S., Doncaster
Carter, L.J. Coopers' Company's S., E. Clarke, W.B. Gram. S., Romford
Davies, V. f. St. Aloysius C., Hornsey Lane
***Denning, R.H.** Independent Coll., Taunton
Fenwick, N.H. Taplow Gram. S.
Fitzpatrick, A.P. Ruthin Gram. S.
***Gamage, V.B.** Bethany H., Goudhurst
Garze, A. Christian Bros. C., Gibraltar

Green, C.W.C. Eye Gram. S.
Hicks, F.J. Mutley Gram. S.
Houghton, Stanley a. Deal Coll.
Jordan, C. Wreight's S., Faversham
Kenward, F.R. E. f. The Douglas S., Cheltenham
Lee, E.P. Coopers' Company's S., E. Peck, W.H. Eye Gram. S.
Pout, F.H. al. Wreight's S., Faversham
Rawlinson, A.L. New Brighton High S.
Renshaw, J.A. Hutton Gram. S.
Shiple, C.E. a. St. John's Coll., Brixton
***Snalley, R.** Hutton Gram. S.
Spawforth, G.C. f. Henley H., Kilburn
Stain, F.O. Market Bosworth Gram. S.
Waite, G.F.H. Holybanks, Cheltenham Hill
White, W.E. Marylebone Hr.-Grade Tech. S.

Ann, F. Grammar S., Streatham
Barbury, T. Launceston Gram. S.
Cowd, I. eu. Beaconfield Coll., Plymouth
***Dowglass, A.P.** University S., Reigate
Dunphy, C.S. Llandudno Coll.
Evered, P.W. Huish S., Taunton
Farey, C.A. St. Bernard's S., Southend
***Forrester, E.** Bethany H., Goudhurst
Griffiths, A. Queen's Park Coll., W.
***Harper, K.P.** Snettisham S.
Hayward, A. Taunton Trade S., Southampton
Haywood, H. a. Hall Gate S., Doncaster
James, J. Pencader Gram. S.
***Kendall, H.D.** Private tuition
Kilroe, W.G.B. Ebor S., Bexhill
Matthews, T. a. Rochdale High S.
McCabe, J. St. Joseph's Coll., Dumfries
Mucklestone, H.P. Tollington Park Coll.
***Murton, W.** Sandwich S.
Procter, H. Linden H., St. John's S., E. Shurvell, B.T. Taunton Trade S., Southampton
***Stevens, G.P.** Private tuition
Styvester, A. Sheffield Middle Class S.
Thomas, H.E. Taunton Trade S., Southampton

Addyman, S. Wharfedale Coll., Boston Spa
Bartram, A.W. West Hill S., Hastings
***Comerford, F.M.** St. George's C., Weybridge
Horwood, D.S. f. Coopers' Company's S., E. La Paunier, A. f. Hoe Gram. S., Plymouth
Le Ruez, E.J. f. Oakwood H., Jersey
***Norman, A.J.** Huish S., Taunton
Pritchard, A.A. St. Aloysius C., Hornsey Lane
Rugby, F. Kent Coll., Canterbury
***Shears, A.R.** Private tuition
***Thomas, H.A.** Ashford H., Birkenhead
Wood, F.C. Clyde H., Hereford

Allee, J.W.T. a. St. Bartholomew's Gram. S., Newbury
Angus, L.M. Independent Coll., Taunton
***Baker, A.** Cliff House Coll., Hove
Bray, H.C. eu. Hanley Castle Gram. S.
Bull, H.M. Oswestry Gram. S.
Cork, C.F. Ryde Gram. S.
Davies, A.W. Huntingdon H., Teddington
Dipple, T.H. Coopers' Company's S., E. Ewing, J.C.T. Rock Hill Acad., Chulmleigh
***Fuller, E.B.** Huish S., Taunton
Hill, G.F. Wharfedale Coll., Boston Spa
***Jephcott, F.G.** Private tuition
Jones, G.H. Gram. & Coll. S., Carnarvon
Milner, F. z. Monk Bridge S., York
Quigly, J.A. St. Aloysius C., Hornsey Lane
Quinn, W.G.G. Taplow Gram. S.
***Reid, E.J.** Private tuition
Riddell, C.A. Ryde Gram. S.
Spain, H.C. Grammar S., Streatham
White, G.S. Coopers' Company's S., E. Woods, R.C. Ealing Gram. S.

Third Class.—3rd Division.

***Atkinson, E.S.** Private tuition
Camburn, H.P. Kent Coll., Canterbury
Cheshire, G.C. St. Catharine's S., Broxbourne
Dale, C. Milton Coll., Bexley Heath
Eyre, R. a. Sheffield Middle Class S.
***Fox, G.N.** Epsom Coll.
Hayes, R.P. Montpelier S., Paignton
Lewish, W.L. Coopers' Company's S., E. Mayer, R.M. Private tuition
Rae, G.D. Froebel H., Devonport
Roberts, H.P. Chandos Gr. S., Winchcombe
Stocks, F.R. d. Rye Gram. S.
Travis, H. Read's S., Drax, Selby

Bingley, L.H. z.h. Horsmonden S.
Blake, A.W. Stafford Coll., Forest Hill
Bratley, H. Wesley Coll., Sheffield
Davies, F. Seaford Coll.
Green, R.U. Henley H., Kilburn
***Gudgeon, R.** St. Joseph's Coll. S., Totland Bay
Harman, O.A. Gram. S., Streatham
Hickman, F. Market Harborough Gram. S.
How, A.F. Coopers' Company's S., E.
***Ransford, L.G.** Private tuition
Sutton, A. a. People's Coll., Nottingham
Swan, C.H. Tollington Park Coll.
***Thomson, H.W.** Ashford H., Birkenhead
Teague, W. Southport Modern S.
Wilding, H. Hutton Gram. S.
Witty, B. Hutton Gram. S.

Abrahams, B.E. Modern S., Walthamstow
***Baker, H.** Halbrake S., Wandsworth Com.
Buckeridge, F.C. Elmhurst S., Kingston-on-Thames

Carly, H.D. Coopers' Company's S., E. Clarke, F. a. Hanley Castle Gram. S.
***Deacon, S.F.** Plym'th Corporation Gram. S.
Freeman, M. Beaconsfield Coll., Plymouth
***Gold, N.T.** Albemarle Coll., Fenge
Jones, W.A. Gram. and Coll. S., Carnarvon
Long, B. Private tuition
Meyrick, A.G. Coopers' Company's S., E. Pallot, H. Gorey Comm. S., Jersey
Pearce, T.M. Taunton Trade S., Southampton
***Shannon, T.C.** Private tuition
Solly, J.A. Sandwich S.
Taylor, J. Hanley Castle Gram. S.
Townend, J. Read's S., Drax, Selby
Vey, G. a. Queen's Park Coll., W.
Vincent, E. Taunton Trade S., Southampton

Alexander, H.J. St. Aloysius Coll., Hornsey Lane
Atkins, G.D. a. New Coll., Worthing
Brookman, L.F. Bible Christian C., Shebbear
Burnett, G.H. Gram. S., Streatham
Collier, H.C. Hatfield H., St. Leonard's
Hicks, W. Dunheved Coll., Launceston
Lubelski, M. Ramsgate S.
Mally, C.T. Lewisham Park S.
***Monro, J.A.** Paddington High S.
North, B. Tollington Park Coll.
Roper, W. St. Joseph's Coll., Dumfries
Saunders, B.L. The Celars, Ealing
Simmons, E.C. Sandwich Gram. S.
Turner, W.K. Independent Coll., Taunton

Boswell, W.H. Gram. S., Streatham
Byrne, L.J. St. John's Coll., Brixton
***Carr, R.** Univ. S., Southport
Chambers, D. St. Peter's S., Marlborough
Houghton, S. a. Deal College
McLachlan, J. St. Joseph's Coll., Dumfries
Moore, F.J. St. Aloysius Coll., Hornsey Lane
Pope, H.S.H. Sandwich S.
Smith, B.C. Kingsholme S., Weston-s.-Mare
Strange, L.F. Oswestry Gram. S.
Telfer, E. Newcastle Modern S.
Tice, A.H. a. Ryde H., Ripley, Woking
Warrington, A.V. Kenyon Hall Coll., nr. Manchester

Westby, F. The College, Hendon

Alexander, C.E. al. Univ. S., Rochester
Bash, G.A. Kingsholme S., Weston-s.-Mare
Bowen, J.S. z. Pencader Gram. S.
Chandler, R.G.S. Coll. S., Deal
Coxworthy, F.M. Ebor S., Bexhill
Coulthurst, R.L. Southgate Coll., New Southgate
Darnton, H.W. Houslow Comm. Coll.
Dennis, E.J. Gram. S., Camelford
Edwards, E.R. a. Birkbeck S., Kingsland
***Freeman, A.E.** St. Bartholomew's Gram. S., Newbury
Footitt, J.B. Hall Gate S., Doncaster
Madegan, M. Catholic Inst., Hope St., L'pool
McNauara, G.M. St. Aloysius Coll., Hornsey Lane
Osborne, J.L. d. Hoe Gram. S., Plymouth
Preston, A.G.A. Oswestry Gram. S.
Richards, S.T. Read's S., Drax, Selby
Rugby, H. Kent Coll., Canterbury
Ward, H.C. Univ. S., Southport
Wilmer, J.P. Alma H., Paignton
Wroth, J.B. Kingsholme S., Weston-s.-Mare

***Blythe, M.J.** Cambridge H., Coventry
Coombes, H.W. Taunton Trade S., Southampton
Davison, E.R. Taplow Gram. S.
Davies, H.P.S. Pencader Gram. S.
Denley, H.O. Hanley Castle Gram. S.
Dexter, W.C. a. People's Coll., Nottingham
Ellis, C.H. Montpelier S., Paignton
Evans, H. Pencader Gram. S.
Evans, P.E. The Douglas S., Cheltenham
Lowe, G.E. Fartown Gram. S., Huddersfield
Markham, G. Gosberton Hall S., Spalding
Rowe, C.A.P. High S., Camborne
Stebbins, H.V. Deal Coll.

Berry, A.F. Coll. S., Deal
Farrell, T. St. Aloysius Coll., Hornsey Lane
***Jones, R.** Gram. and Coll. S., Carnarvon
Jones, H.R. Mutley Gram. S.
Johnson, F.B. Southgate C., New Southgate
Khem Private tuition
Newson, J.C. St. Philip's Gr. S., Edgbaston
***Sinclair, J.O.** New Coll., Worthing

Blacker, R. Read's S., Drax, Selby
Brady, F. Beaconfield Coll., Plymouth
Cavley, E.St. Q. Hatfield H., St. Leonard's
Dale, F.M. Milton Coll., Bexley Heath
Evans, F. Cranbrook Coll., Ilford
Gladiash, L. Sandwich Gram. S.
Hardy, B. Dunheved Coll., Launceston
***Harries, H.H.** Byfleet High S., Surrey
Harris, S.E. Wreight's S., Faversham
Helm, W.F. Taunton Trade S., Southampton
Holge, H. F. 38 Tavistock Place, Plymouth
Hogarth, W.C. People's Coll., Nottingham
Hunt, J.B. Elmhurst S., Kingston-on-Thames
Hyde, J.P. d. Southport Modern S.
***Smithers, H.J.** Bethany H., Goudhurst
Smith, S.A. Market Bosworth Gram. S.
Wilkinson, J. People's Coll., Nottingham
Wroth, C.E. Kingsholme S., Weston-s.-Mare

Cave, A.M. Gram. S., Cork
Coggins, W.T. f. Coopers' Company's S., E.

BOYS, 3RD CLASS, 3RD DIV.—Continued.
 Davies, A.L. New Brighton High S.
 Dymond, J.A.G. Hoe Gram. S., Plymouth
 Earwaker, W.W. E. Cornwall C., Liskeard
 Green, A.U. Henley H., Kilburn
 Jackson, G. Hutton Gram. S.
 Law, C.G. Southport Modern S.
 Maddocks, R.S. Whitechurch Gram. S.
 Peak, H. Hutton Gram. S.
 *Pickup, R.W. Private tuition
 Rowland, A.C. Taunton Trade S., Southampton
 Avonde, E. Cliff House Coll., Hove
 Bannister, F.G. Carter H., Deal
 Beddoes, J.M. St. Philip's Gram. S., Edgbaston
 Collier, G.H. Froebel H., Devonport
 Kellett, J.H. Alvechurch Gram. S.
 Launder, W.G. St. Catherine's Coll., Langland Bay
 Meade, W.C.A. St. Bartholomew's Gram. S., Newbury
 Thomas, F.W.G. The Douglas S., Cheltenham
 Bell, J. Catholic Inst., Hope St., Liverpool
 Dainton, W.H. Brunswick H., Windsor

*Drummond, R. Plymouth Corp. Gram. S.
 Harrison, W.H. Gosberton Hall S., Spalding
 Hall, H.F. Faddington High S.
 Thorne, A.E. Independent Coll., Taunton
 *Cackett, L.N. Maidstone Gram. S.
 *Downer, S.G. Southgate C., New Southgate
 *Farnfield, L. Brixton Gram. S.
 Holdsworth, F.J. Gosberton Hall S., Spalding
 Kendall, J.W. Market Harboro' Gram. S.
 *Leyland, J. St. Mary's C., Woolhampton
 Powers, E.W. Hounslow Comm. Coll.
 Bond, A.A. Holt H., Cheshunt
 Carpenter, S.U.T. Henley H., Kilburn
 Collings, H.H. Kingsholme S., Weston-super-Mare
 Dorkins, O. Llandudno County S.
 Pike, C.G. a. Eye Gram. S.
 *Roberts, B.W. Byfleet High S., Surrey
 Thompson, J. Newcastle Modern S.
 Usher, H. Hutton Gram. S.
 Walgate, W.P. St. Christopher's, Quex Rd., N.W.
 Cox, G.B. St. Philip's Gram. S., Edgbaston

Hipwell, C. Ascham Coll., Westcliffe-on-Sea, Essex
 Lambert, E.H. Horsmonden S.
 Magnus, C.S. Highbury New Park Coll.
 Moss, P.L. Faddington High S.
 Richards, E. a. Dunheved C., Launceston
 Shepherd, A. Mutley Gram. S.
 Simmonds, A.A. Taplow Gram. S.
 Swyny, C. f. St. Joseph's Coll., Denmark Hill
 *Waddington, S.C. Albermarle Coll., Penge
 Atkins, J. Waterloo Inst., Seaforth
 Balls, V.S. West Hill S., Hastings
 *Byrne, F. Private tuition
 Cusworth, C. St. Philip's Gr. S., Edgbaston
 File, F. Horsmonden S.
 *Ford, W.H. High S., Sutton, Surrey
 Hague, C. a. Llandudno County S.
 Huley, R. Market Harborough Gram. S.
 Johnston, A. The College, Hendon
 Mann, A.R. Commercial Coll., York
 Marshall, W.H. Barnstaple Gram. S.
 Perkins, P.D. Gosberton Hall S., Spalding
 Taylor, R.H. Victoria Coll., Buckingham Palace Rd.
 Travis, F. Univ. S., Southport

Tressider, S. Penwerris Gram. S., Falmouth
 Vardy, R.B. Private tuition
 Woodhiall, A. Read's S., Drax, Selby
 *Banks, E.C. Private tuition
 *Barley, G.W. Coopers' Company's S., E.
 *Bedding, T.K. Ealing Gram. S.
 Colpitts, C.T. Old Elvet S., Durham
 Fletcher, C.W. Taunton Trade S., Hampton
 Hunt, J.M. New Brighton High S.
 Turner, E. Ingatstone H., Essex
 Woodward, G. Hanley Castle Gram. S.
 Balls, R.A. West Hill S., Hastings
 Flynn, G. St. Mary's Coll., Woolhampton
 *Lefcaux, W. Lancaster Coll., W. Norwood
 Stone, P.A. Ingatstone H., Essex
 Wood, W. Lewisham Park S.
 *Crawford, H. St. Joseph's C., Denmark Hill
 Duckworth, W. University S., Southport
 Gold, H. A. Albermarle Coll., Penge
 Mann, G.W. Coopers' Company's S., E.
 Rees, A.G. Taplow Gram. S.
 *Tebbutt, C. Taplow Gram. S.
 Denham, H.Y. Hutton Gram. S.
 Plant, C.M. Sale High S.

GENERAL CLASS LIST—GIRLS.

(For list of abbreviations, see page 344.)

First Class.—Honours Division.

Symonds, L.K. e.a.m.bk.f.d. Collegiate S., Brentford
 Jones, K.A. e.f.h.p. Ladies' Coll., Wellington, Salop
 New, E.L. s.f.p.h.d. Stroud Green High S., Oakfield Rd., N.
 Harris, D.E. f.d. Stroud Green High S., Oakfield Rd., N.
 Staveley, I.L. s.e.d. Stroud Green High S., Oakfield Rd., N.
 Annear, A.P. a.l.f. Private tuition
 Dobbs, G.M. e.f. Ladies' Coll., Wellington, Salop
 Walmsey, A.M. f. Private tuition
 Eaton, V. Stroud Green High S., Oakfield Rd., N.
 Gorkiewicz, W. f. English S., Pera, Constantinople
 Rogers, E.M. e.s.d. Brompton Higher Grade S., S.W.
 Whittmore, E.A. e. Stroud Green High S., Oakfield Rd., N.

First Class.—Pass Division.

Judd, H.M. f.nh. Upper St. Leonards Ladies' Coll.
 Panas, K. f.z. English S., Pera, Constantinople
 Wharton, F.A. Private tuition
 Teague, R.E. e.m.u. Bromyard High S., Worcester
 Stark, E. d. English S., Pera, Constantinople
 Horman, M.F.J. e.f. 4 Clarence Terrace, Jersey
 Lewis, A. f.ph. The Hollies, Handsworth
 Dawson, C. Private tuition
 Hubbard, J. The Coll., Goudhurst
 Norris, V. The Coll., Goudhurst
 Frowde, B.E. Private tuition
 Smith, E.M. e.f. Durham H., Crouch Hill
 Hyde, K.E. e.s. Upper St. Leonards Ladies' Coll.
 Miller, G.A. f. Meldreth H., Chipping Norton
 Atkins, D.W. Private tuition
 Hodson, L.E. f. Upper St. Leonards Ladies' Coll.
 Plint, L.M. f.nu. St. Mary's S., Whitechurch
 Thomas, M.M. The County S., St. David's
 Coulthard, A. s.e. Westbro' S., Newcastle-on-T.
 Busby, F.M.C. bk. Kensington H., York
 Noyce, V.F.M. Upper St. Leonards Ladies' Coll.
 Adrien, K. f. Convent S., Clifton
 Hogan, M. nu. St. Mary's Conv., Newtownbary
 Witheridge, O.P. The Coll., Goudhurst
 Whittington, E. f.ge. Rutbin Gram. S.
 Idiens, E.M. Harborne Ladies' Coll.
 Longley, N. Wincham Ladies' Coll.
 Plunkett, E.M. ph. Wincham Ladies' Coll.
 Needham, M.A. Private tuition
 Coulter, K.J. f. Clarendon Coll., Clifton
 James, A.M. f. Harborne Ladies' Coll.
 Clayton, H. d. Private tuition
 Taylor, A. f. Elm H., Ealing.
 Houston, M.G. Gordonville Ladies' S., Coleraine
 Williams, E. The Hollies, Handsworth

Fagan, R. St. Mary's Conv., Newtownbary
 Smyth, B. Private tuition
 Buttherworth, C. Bishopston Girls' High S., Bristol
 Robertson, M.S. f. Private tuition
 Butler, F.M. f. Durham H., Crouch Hill
 Parry, E.M. Boughrood H., Brecon
 Upton, M.C. Private tuition
 Allan, E. Moss H., Manchester
 Budden, L.M. Bromyard High S., Worcester
 Heath, W.B. Portsea Coll. S.
 Brown, E.J.A. d. 48 Trinity Sq., Borough, S.E.
 Amis, D. Bromyard High S., Worcester
 Draper, F.G. f.do. Private tuition
 Perry, L. St. Thomas's Coll., Launceston

Second Class.—1st Division.

Werner, J.L.S. s.f.ge.d. Manor Mount S., Forest Hill
 Gibson, E.B. e.f.ge. Private tuition
 Richardson, I.M. s.f.ge.d. Manor Mount S., Forest Hill
 Kewley, T.L. s.e.f.mu. Private tuition
 Copus, M. s.e.g.f. Hyde H., Tollington Park
 Carr, G.W. s.e.h.d. Pond H., Clapton
 Williams, M.A. D. The County S., St. David's
 Isnirides, A. a.f.z. English S., Pera, Constantinople
 Kewley, M.S. s.e.f.mu. Private tuition
 Ingram, G.M. s.g. Stroud Green High S., Oakfield Rd., N.
 Smith, B. s.e.d. Pond H., Clapton
 Wright, A.M. Wincham Ladies' Coll.
 Horton, M.C. bk. Old Gram. S., Thame
 Petersen, E.L. e.f. Stroud Green High S., Oakfield Rd., N.
 Pilgrim, N. e. Stroud Green High S., Oakfield Rd., N.
 Coupey, J. e.f. Convent S., Eden Grove, N.
 McLeod, L. g.bk.d. Lynton H., Portsmouth
 Norfolk, A. ge.d. Riversdale, Boston Spa
 Hogben, A.M. s. St. Cloud, Southsea
 Moore, K. Queen's Park Coll., W.
 Ruddle, A.A. ch. Bible Christian C., Shebbear
 Winbush, W.M. d. Brondesbury High S.
 Dennis, W.B. d. 12 Seaford Road, Hove
 Bales, E.K. d.mu. Holt H., Fakenham
 Rosenfeld, I.R. h.f. Stroud Green High S., Oakfield Rd., N.
 Howe, H.V. d. Stroud Green High S., Oakfield Rd., N.
 Hamilton, L.M. Pond H., Clapton
 Marshall, H.N. s.d. Skinners' Co. S.S., N.
 Masters, D.H. s.e.f. 35 Dulwich Road, Herne Hill
 Sawyer, R.H. e.d. Pond H., Clapton
 Hicks, I. e.d. Monk Bridge S., York
 Wickham, I.M. s.f.d. Elson H., Leytonstone
 MacDowall, A.C. e. Stroud Green High S., Oakfield Rd., N.
 McKenzie, C. e.f. Fern Bank, Wandsworth Common
 Dalladay, L.A. s.e.g.f. Elson H., Leytonstone
 Grierson, L. s.e. Hyde H., Tollington Park
 Thomson, M. g. Stroud Green High S., Oakfield Rd., N.
 Quirk, J. f. Convent S., Clifton
 Walker, M.L. Central Foundation S., E.C.
 Clayton, M. e.f. Mayfield, Broxbourne
 Cooper, A. Mountside High S., Hastings

Ellis, H.G. d. Private tuition
 Jenner, E.V.H. e.g.d. 11 Colonnade Gardens, Eastbourne
 Blake, L.A. e. University S., Rochester
 Dixon, B.E. 20 York Villas, Brighton
 Hartigan, M. St. Mary's Conv., Bruff
 Healey, E.H. s.h.f. Royal Naval S., Twickenham
 Hocken, F.M. e. Stroud Green High S., Oakfield Road, N.
 Gill, E. s.e. Elson H., Leytonstone
 McRobert, A.M. Brynderwyn Ladies' S., Coleraine
 Parnell, F.A. e.g. High S., Ladhams Cross
 Buckland, E.G. Up. St. Leonards Ladies' C.
 Homersham, F.M. s.g. College H., Hungerford
 Wood, L. s.d. Fartown Gr. S., Huddersfield
 Bouron des Clayes, S.f.d. Convent S., Clifton
 Carr, E.M. s. Pond H., Clapton
 Jeteris, F.E. The Hollies, Handsworth
 Lloyd, M. e.m.u. Bank H., Llandilo
 Must, E.M. Ousegate S., Selby
 Anderson, M. d. Brynderwyn Ladies' S., Coleraine
 Fegan, E.f. St. Mary's Conv., Newtownbary
 Greaves, M.E. Stroud Green High S., Oakfield Road, N.
 Carter, W.M. f. Clarendon Coll., Clifton
 Hone, D. e. University S., Rochester
 Winbush, D. Brondesbury High S.
 Nash, H.M. e.f. Royal Naval S., Twickenham
 Fagan, G. f. St. Mary's Conv., Newtownbary
 Turner, E.M. s.e.f. Hope Lodge S., Bexley Heath
 Alderson, V.A. s. Up. St. Leonards Ladies' Coll.
 Byers, M.M. d.f. Victoria Coll., Belfast
 Fletcher, M.U. ph. St. Mary's S., Bungay
 Froest, M.M. e. St. Margaret's High S., Lee, S.E.
 Moore, E. Victoria Coll., Belfast
 Ranger, R.P. Park S., Yeovil
 Ryalls, R.S.E. Up. St. Leonards Ladies' Coll.
 Clarke, P. e. North Hackney High S.
 Fay, M. St. Mary's Conv., Bruff
 Brame, D.P. f. Harborne Ladies' Coll.
 Crane, F.L. e. Pembroke H., Lee, S.E.
 Mette, I. e.f. Willesden High S.
 Smalles, M. Riversdale, Boston Spa
 Traviss, H.G.M. e.d. Eversley H., Willesden Green
 Harlen, M.R. Up. St. Leonards Ladies' Coll.
 Newbegin, A.L. f. Private tuition
 Ockenden, M. e. Queen's Park Coll., W.
 Carr, M. St. Mary's Conv., Newtownbary
 Lindsey, S.M. Stroud Green High S., Oakfield Rd., N.
 Payton, R.E. The Hollies, Handsworth
 Thompson, F.M. e. Kensington H., York
 Thomson, E.G. s.e.f. Durham H., Crouch Hill
 Gollan, K. The Coll., Goudhurst
 *Harrison, M.A. Kensington H., York
 *Sheldrick, M. d. Prestwick High S.
 Alexandre, E.P. f. St. James' Coll. S., Jersey
 Barker, L. e. Sunny Lee, St. Anne's-on-Sea
 Burgess, M.A. a. Surrey H., Anerley
 Church, E.M. Collège H., Hungerford
 Gaskins, F.M. s. Cheltenham Public Day S.
 Harris, E. Pond H., Clapton

Lings, D. ge.d. Coll. High S., W. Didsbury
 Murley, H. Stroud Green High S., Oakfield Rd., N.
 Aveling, D.M. Pond H., Clapton
 Cherry, N.E. Skinners' Company's S., N.
 Harrison, L.M. d. Fartown Gram. S., Huddersfield
 O'Keefe, M.M. f. Private tuition
 Fildes, B. d. Wincham Ladies' Coll.
 Goate, S.M. St. Mary's S., Bungay
 Holtby, M. Kensington H., York
 Nielsen, D. e. Fernbank, Wandsworth Comm.
 Reynolds, B.M. s.e. Coleridge Coll. S., Finsbury Park
 Palmer, L.L. Rye Coll. S.
 Sears, E.G. The Coll., Goudhurst
 Spivey, E.J. e. Crescent Coll., York
 Teague, L.M. Bromyard High S., Worcester
 Clements, N.G. Rye Coll.
 Hunt, M.L. e. Onslow Hall S., Kensington
 Murphy, M. Boughrood H., Brecon
 Akers, W. s. e. The Vicarag. S., Clapham Comm.
 Bennett, E. f. Wincham Ladies' Coll.
 O'Callaghan, K. U.B. Germania C., Canonby
 Pole, L. f. Private tuition

Second Class.—2nd Division.

Copeland, G.S. d. Prestwick High S.
 Deacon, J. C. Rye Coll. S.
 Howe, P. d. Riversdale, Boston Spa
 King, M.E. e. Up. St. Leonards Ladies' Coll.
 Schwarz, E.J. ge. Germania Coll., Canonby
 Thomson, C.J. St. Hilda's High S.
 Wilson, M.K. f. Private tuition
 Jantzen, E.F. Stroud Green High S., Oakfield Rd., N.
 Thomas, M.E. D. Ashby Coll., Brockley
 Wightwick, M.E. West H., Forest Hill
 Cockrell, B. e. Coll. S., Bowes Park
 Cowden, E. Victoria Coll., Belfast
 Measures, H. North Hackney High S.
 Cowan, M. e.nl. St. Joseph's Coll. S., Totland Bay
 Mack, D. g. Riversdale, Boston Spa
 Mangelsdorff, F.E. g. Fellenberg S., Maidstone
 Puddephatt, M.S. The Coll., Goudhurst
 Stutfield, R. d. Mayfield, Broxbourne
 Wendt, F.E. E. f.ge. Manor Mount S., Forest Hill
 Collier, M. ge. Eastville S., Sheffield
 King, E.A. Up. St. Leonards Ladies' Coll.
 Adkin, M.E. s. Pembroke H., Lee, S.E.
 Djuk, M. g.e. Church of Scotland Mission
 Pedlow, A. School, Pera, Constantinople
 Pedlow, A. Victoria Coll., Belfast
 Rees, M.E. f. Private tuition
 Sinzinenex, K. d. Riversdale, Boston Spa
 Stewart, A.M. Gordonville Ladies' S., Coleraine
 Trollope, I.W. d. St. Augustine's S., Norwich
 Whinship, E.M. St. Hilda's High S., Southampton
 Goddard, E.C. s. Up. St. Leonards Ladies' Coll.
 Lilley, M.M. e. Convent S., Southampton
 Price, R.J. Hampton H., Redland, Bristol
 Andrews, A.M. f. Holt H., Fakenham
 Browne, H.M. Bromyard High S., Worcester
 Warton, F.E. Convent S., Southampton

GIRLS, 2ND CLASS, 2ND DIV.—Continued.
 Bram, E.J. Skippers' Company's S., N.
 Greenwood, E.W. Skippers' Company's S., N.
 Hay, J. Y Garn, Bromley, Kent
 Hewitt, E.M. Skippers' Company's S., N.
 Huggins, G.D. Bryant S., Wainfleet
 Lewis, R. eal. The County S., Pontypridd
Eedes, M. The Coll., Goudhurst
 Klaje, A.H. Skippers' Company's S., N.
 Mears, H.M. s. Old Gram. S., Thame
 Talbot, M.L. Skippers' Company's S., N.
 Coombs, D. s. West Green C. S., Tottenham
 Lovett, A.R.H. e. St. Mary's S., Brighton
 Syme, K.M. Victoria Coll., Belfast
 Davies, S.M. Bank H., Llandilo
 Froude, W. Modern Coll., Stoke Bishop
 Jarrett, K. Rye Coll. S.
 Jefferys, B.M. Newcastle H., Lewes
 Mercer, P. North Hackney High S.
 Parke, A.M.U. Avon H., Southsea
 Rowland, H.G. Avon H., Southsea
 Turner, A.M. Datchelor S., Camberwell
 Atkins, E.S. Private tuition
 Atkinson, I.F. Westfield H., Longford, Glos.
 Penfold, A. e. Heathleigh S., Horsmonden
 Towell, J.C. Victoria Coll., Belfast
 Woodhams, M. Leith H., Acton
 Davies, A. e. Coll. H., Queen's Rd., Peckham
 Hadley, A.D. at. The Woodruffs, Moseley
 Malone, M.M. Victoria Coll., Belfast
 Steel, E.M. The Hall, Montpellier, Cheltenham
 Strachan, M.C. Fellenberg S., Maidstone
 Ade, F.L. e. Lawn C., Shepherd's Bush Green
 Devereux, J. St. Mary's Conv., Newnham
 Tothob, E. bk. Queen's Park Coll., W.
 Hayworth, V. Skippers' Company's S., N.
 Roe, A. Wincham Ladies' Coll.
 Bullock, L.E. s. Private tuition
 Dille, R.E.G. St. Margaret's High S., Lee
 McManus, G.A. s. Victoria Coll., Belfast
 Mullally, A. St. Mary's Conv., Newtownbarry
 Palmer, E. Cork High S.
 Ryan, N. St. Mary's Conv., Bruff
 Barry, B. St. Mary's Conv., Bruff
 Bruns, E.K. s. Finsbury Park High S.
 Booth, A.R. Coll. S., Ashford, Middlesex
 Brazier, W.E. Queen Mary's S., Walsall
 Duncan, F.M. s.
 Doreck C., Kensington Gardens Square
 Rogers, D. St. George's Coll., Barnsley
 Hoyle, M. Riversdale, Boston, Spa
 Jones, B.E. f. Holt Acad., Wrexham
 Martin, A.D.J. Ellenborough H., Clifton
 Netherwood, A.H.
 Fartown Gram. S., Huddersfield
 Crane, C. s. St. Cuthbert's C., Forest Hill
 McDonnell, M.K. St. Mary's Conv., Bruff
 Warren, A.M. The Coll., Goudhurst
 Widery, M. e. High S., Okover, Burnham
 Batty, J.A.S. Verulam, Potters Bar
 Duncan, O.M.
 Doreck Coll., Kensington Gardens Sq.
 Knowles, L. Breakspear Coll., Brockley
 Lloyd, V.E. Mountsides High S., Hastings
 Thomas, G. Bank H., Llandilo
 Williams, K.E.M. s. e.
 Ballina H., Brixton Hill
 Goldard, I.M. Southoe H., Richmond
 Robinson, M.A. d. Eldon C., Thornton Heath
 Treckett, I.M. Skippers' Company's S., N.
 Leith, M. Skippers' Company's S., N.
 West, M.E. Up. St. Leonard's Ladies' Coll.
 Williams, E.M. Girton, London Rd., Croydon
 Gittins, G.
 Metropolitan S., Southampton Row, W.C.
 Hosking, S.M. Private tuition
 Richardson, W. d. Private tuition
 Coxon, E.W. 13 Park Terrace, S. Shields
 Jones, C. Skippers' Company's S., N.
 O'Rourke, N.
 St. Mary's Conv., Newtownbarry
 Wilkinson, A.B. Saxenholme, Birkdale
 Butler, F.S. Fortescue C., Radstock, Bath
 Charlesworth, F. Sheffield Middle Class S.
 Trevelhan, G. Kilmar H., Liskeard
 Walton, G. s. Fenwick Coll., E. Dulwich
 Gibbs, L.E. Bryn Hauglog, The Mumbles
 Hutchinson, M. Riversdale, Boston Spa
 Parsons, E. Holloway Coll., N.
 Reynolds, E. e. Cork High S.
 Browning, F.A. 9 Kingsgate St., Winchester
 Sherman, J.L. f. Holt H., Fakenham
 Smith, L.I. Sicut S., Wincoscombe
 Watts, E.M. Skippers' Company's S., N.
 Arkell, E.S. e. g.
 The Hall, Montpellier, Cheltenham
 Brown, F.M. Bromyard High S., Worcester
 Pavitt, V.B. Queen's Park Coll., W.
 Warren, N.B. Montreux H., Brondesbury
 Wilkins, D. s. g.
 The Hall, Montpellier, Cheltenham

Second Class.—3rd Division.
 Brown, E.M. Holborn Estate S., W.C.
 Cavanagh, H. Lea Holm, Waterloo, Lpool
 Conning, G. Cork High S.
 Fraser, F.E. St. Mary's S., Bungay

Goody, M. Onslow Hall S., Kensington
 Loughnan, N. Private tuition
 Norgard, F.M. 26 Ulundi Rd., Blackheath
 Wilkinson, E.V. e. London Coll. Gram. S., Holloway Rd.
 Castelli, E. f. English S., Pera, Constantinople
 Goodall, E.E. Manor H., Havant
 Grier, J.L. Ladies' Coll. S., Kilkenny
 Norrington, O.F. Millburn H., Forest Hill
 Osborne, E. Private tuition
 Turner, E. The Hall, Montpellier, Cheltenham
 Sard, H.G. St. Cuthbert's Coll., Forest Hill
 Hallam, F. 40 Haughton Rd., Handsworth
 Waterhouse, J.W. The Bungalow, Acton, W.
 House, G. Holloway College, N.
 Stokes, D. Durham H., Crouch Hill
 Turquand, E.M. Surrey H., Anerley
 Harding, G.M.H. Park S., Yeovil
 Murray, B. Private tuition
 Scott, E.D. West H., Forest Hill
 Lynch, J. St. Mary's Conv., Bruff
 Reed, E.D. Private tuition
 Sorby, M.E. Betley Ladies' Coll.
 Surtees, F.C. Sheffield Middle Class S.
 Blevins, E.A. Holborn Estate S., W.C.
 King, V.M. Skippers' Company's S., N.
 Morison, K. Private tuition
 Large, C.S. Y Garn, Bromley, Kent
 O'Connell, H. St. Mary's Conv., Bruff
 Poplewell, E. s. Parkfield C., High Barnet
 Silk, K.M. s.
 The Hall, Montpellier, Cheltenham
 White, E.A. Convent S., Southampton
 Armfield, M.N. Private tuition
 McGill, E.M.C. High S., Poplar Avenue, Edgbaston
 Clarke, F.E.R. Private tuition
 Dodd, J. Deanran, Langley-on-Tyne
 Wendt, G. Holloway College, N.
 Smyth, M.E. Brookvale Coll. S., Belfast
 Baillie-Hamilton, N.C. St. Winifred's, Clifton
 Edwards, E. North Park Coll., Croydon
 O'Brien, A. St. Mary's Conv., Bruff
 Stark, H. g. Private tuition
 Loveys, J.M. Denmark Coll., Wimbledon
 Garton, M.A. Southoe H., Richmond
 Hooks, M.E. Chislon House, Ramsey
 Leach, F.E. Private tuition
 Cossey, M.W. St. Mary's S., Bungay
 Platt, E.M. Lewisham Coll., Lewisham
 Heal, P.H. Verulam, Potters Bar
 Tate, E.M.D. Up. St. Leonard's Ladies' Coll.
 Butler, G. Durham H., Crouch Hill
 Lees, M. Collegiate High S., W. Didsbury
 Taylor, I.M.C. 20 York Villas, Brighton
 Walsh, K. St. Mary's Conv., Bruff
 Barker, G.M. Fulham Park Coll.
 Redfern, L. Ballure H., Gt. Crosby
 Ainsley, J.E. Westoe High S., S. Shields
 Langdale, D.M. Durham H., Crouch Hill
 Streater, B.A. Onslow Hall S., Kensington
 Collard, E.E. e. 26 Ulundi Rd., Blackheath
 Dicks, M.I. Cheltenham Public Day S.
 Rosalind, M.
 Humboldt Villa S., Whalley Range
 Hamilton, M.W. Elson H., Leytonstone
 Jackson, K.S. 34 King Street, Gt. Yarmouth
 Lodge, E. Fartown Gram. S., Huddersfield
 Sly, N.F. e. The Vicarage S., Clapham Comm.
 White, E.M. Skippers' Company's S., N.
 McGrath, F. Private tuition
 White, P. St. Joseph's Coll. S., Totland Bay
 Frakes, M.M. St. Mary's S., Bungay
 Heins, K.E. Boughrood H., Brecon
 Richmond, K. Beechcroft Coll., Richmond
 Snell, M.E. Craven Park Coll., Harlesden
 Wilding, E.M. Ashby Coll., Brockley
 Webb, H.B. Llandudno College
 Cunningham, F.E. Craven Park Coll., Harlesden
 Lamborn, E.E.S. High S., Battle
 Duane, A. St. Mary's Convent, Bruff
 Lingard, A. The Hollies, Handsworth

Third Class.—1st Division.
 Manbey, C.A.M. Private tuition
 Finnan, M.O'F. g. Eton Park S., N.W.
 Clifford, K.E. do. Private tuition
 Preen, C. s. North Hackney High S.
 Bartlett, K.C. f. Private tuition
 Hucker, E. English S., Pera, Constantinople
 Burnet, M. s. e. h. a. d. ph. People's Coll., Nottingham
 Jeffries, E.C. Skippers' Company's S., N.
 Scott, K.M. s. e. g. Private tuition
 Osborne, C.M. Bromyard High S., Worcester
 Steyart, M. s. e. g. a. d. f. St. Ethelburgas, Deal
 Jupp, K.A. Boxgrove H., Petworth
 Smith, M.J. Skippers' Company's S., N.
 McGill, E. English S., Pera, Constantinople
 Easton, A.M. g. e. Lawn Coll., Shepherd's Bush Green
 Freeman, E.K. s. e. a. d. f. g. e. St. George's S., Oakfield Rd., N.
 Holste, G. e. College H., Peckham
 Loring, L.C. g. d. Felix High S., Lavender Hill
 Tiple, D.C. mu. Bromyard High S., Worcester
 Robson, L. Private tuition

Wilks, M.A. s. e. f. g. e. St. George's High S., Oakfield Rd., N.
 Brewster, M.C. d. Parkfield C., High Barnet
 Johnson, E.M. Victoria Coll., Belfast
 Norris, B.M. s. g. a. d. e. u. f. St. George's High S., Oakfield Rd., N.
 Sackville, E. d. Eastgate, Stafford
 White, F.H. Kensington H., York
 Barton, G.E. d. Skippers' Company's S., N.
 Beynon, E.A. The County S., St. David's
 Holland, F.E. e. Mayfield, Broxbourne
 Pharo, E.W. Brunswick H., Kingston Hill
 Merritt, I.M. Girton, London Rd., Croydon
 Oliver, M.E. e. f. Sussex H., Willesden Lane
 West, D. f. Up. St. Leonard's Ladies' Coll.
 Chapman, V. e. Fern Bank, Wandsworth Common
 Gaston, E. North Hackney High S.
 Pace, D.V. f. Court H., Atch Leach
 Panter, E.E. Queen's Park Coll., W.
 Morgan, G. e. Durham H., Crouch Hill
 Murphy, A. Ladies' Coll. S., Bangor
 Smith, A.E. f. Holborn Estate S., W.C.
 Stebbings, G.E. s. a. d. e. u. f. Glencoll, Deal
 Welch, L.L. g. a. e. u. f. St. George's High S., Oakfield Rd., N.
 Stockwell, J.D. Ashby Coll., Brockley
 Willis, J.S. a. d. f. Lyddon Villa S., Leeds
 Lyon, E.L. s. Cheltenham Public Day S.
 Macalain, S. a. e. Elson H., Leytonstone
 Newman, D.H. s. a. f. Holmefrost S., Bromley, Kent
 Mustard, M.C. St. Mary's S., Brighton
 Dold, F.H. C.C. Beechcroft C., Richmond
 Gillo, E.I. Convent S., Southampton
 Hardy, M. g. a. f. High Pavement Hr. Gr. S., Nottingham
 Harris, L.M. s. e. a. d. f. Regent St. Hr. Gr. S., Plymouth
 Neville, N.E. Castlebar High S., Ealing
 Phillips, A.A. Ashby Coll., Brockley
 Pike, E.M. St. Mary's S., Bungay
 Brickwell, H.W. Park S., Yeovil
 Burnet, L. s. h. ph. People's C., Nottingham
 Dunsford, F.A. s. e. a. f. New Brighton High S.
 Karapiperi, M. English S., Pera, Constantinople
 Mason, R. Riversdale, Boston Spa
 Saxton, M.E. e. People's Coll., Nottingham
 Clayton, M.E. s. e. Senior Practising S., Stockwell Coll.
 Cooper, M. e. a. f. High Pavement Hr. Gr. S., Nottingham
 Witechurh, C. s. e. u. f. St. George's High S., Oakfield Rd., N.
 Loxley, L.G. Oxford H., Leatherhead
 Liken, R.D. a. d. f. Brynderyn Ladies' S., Coleraine
 Maddison, E.A. d. Private tuition
 Oakes, K.A. s. e. u. f. St. George's High S., Oakfield Rd., N.
 Brayshaw, A.M. bk. f. Sussex H., Willesden Lane
 Nevett, E.M. Skippers' Company's S., N.
 Speakman, D.P. s. h. f. Betley Ladies' Coll.
 White, A. e. Hyde H., Tollington Park
 Christides, M. e. English S., Pera, Constantinople
 Hart, L.E. a. e. u. f. People's Coll., Nottingham
 Melhuish, M. s. f. g. e. St. George's High S., Oakfield Rd., N.
 Nicholas, E.M. High S., Waltham Cross
 Zingel, N.B. f. g. e. St. George's High S., Oakfield Rd., N.
 Hanson, A.L. Bryant S., Wainfleet
 Reader, E.H. Heathleigh S., Horsmonden
 Jewers, E.L. Castlebar High S., Ealing
 Singleton, M. e. f. Warwick H., Poulton-le-Fylde
 Wilson, M.I. s. e. u. f. St. George's High S., Oakfield Rd., N.
 Chapman, D.M. Private tuition
 Coxon, E.M. Private tuition
 Moon, G.M. Fortescue C., Radstock, Bath
 Silvester, E.C. e. d. Skippers' Company's S., N.
 Stanley, D. The Vicarage S., Clapham Com.
 Alford, E.V. a. d. Montreux H., Brondesbury
 Atkins, M.E. e. h. f. g. e. St. Winifred's, Clifton
 Harlow, L.B. e. a. d. Ivy H., Crouch Hill
 Livesey, M.F. Stand Lodge, High S., Radcliffe
 Reed, W.L. Coll. S., Vale, Broadstairs
 Sharpe, K. The Close, Dyke Rd., Brighton
 Simmons, E.M. f. Bush Hill Pk. S., Enfield
 Todd, E. d. f. a. f. Model S., Coleraine
 Trim, A.A. Denmark Coll., Wimbledon
 Vaughan-Williams, G. e. h. f. Moseley Ladies' Coll.
 Wicks, M.F. a. f. The Ferns, Hassocks
 Wood, M.G. Ivy H., Crouch Hill
 Davil, S. J. St. Ethelburgas, Deal
 Buisseret, M.J.H. e. f. St. Joseph's Coll. S., Totland Bay
 Gaulton, E.C. f. d. Holmefrost S., Bromley, Kent
 Graham, E.M. Granville H., Southampton
 Laurence, M.N. e. f. Endsleigh Coll., Endsleigh Gardens
 McCandless, A.C. f. e. Gordonville Ladies' S., Coleraine

Adelé, F.M. e. a. f. d. Convent S., S'hampton
 Cattle, F.L. e. a. f. St. George's High S., Oakfield Rd., N.
 Gurr, G.M. s. e. f. Elson H., Leytonstone
 St. Clair Wann, E.J. h. f. Victoria C., Belfast
 Titheridge, B.I. e. Lynton H., Portsmouth
 Castleman, F.A. Old Gram. S., Thame
 Hickling, M.A. a. High Pavement Hr. Gr. S., Nottingham
 Stackhouse, B.A. Harborne Ladies' Coll.
 Stocks, E. d. High Pavement Hr. Gr. S., Nottingham
 Butler, M.E. Cheltenham Public Day S.
 Jordan, A.B. The Coll., Goudhurst
 Large, M.L. d. Coll. High S., W. Didsbury
 Levi, G.E. f. g. e. Skippers' Company's S., N.
 Marchetti, J. e. h. f. Private tuition
 Fawcett, M. Mc.G. Belle Vue, Herne Bay
 Ginty, A. e. a. St. Ethelburgas, Deal
 Woodlatt, M.R. s. e. f. Private tuition
 Boeck, F.M. Germania Coll., Canobury
 Brooks, F.L. d. Prestwich High School
 Mayers, F.C. e. f. St. George's High S., Oakfield Rd., N.
 Butterworth, B.W. Bishopston Girls' High S., Bristol
 Cochran, K.F. Cavendish H., Liverpool
 Crossfield, E.M.H. a. Hill Croft, Stamford Hill
 Fitz-Gerald, N. f. Holt Acad., Wrexham
 Grandjean, B. s. a. f. Skippers' Company's S., N.
 Horn, C. e. f. Stamford Hill High S.
 O'Shaughnessy, J. a. f. St. Mary's Convent, Bruff
 Parkinson, E.N. d. People's C., Nottingham
 Plunkett, N.M. d. Wincham Ladies' Coll.
 Allen, M. a. f. Stand Lodge High S., Radcliffe
 Cooper, F. Glengyle Cheltenham
 Cox, C.M. f. St. George's High S., Oakfield Rd., N.
 Farratt, F.R. e. St. George's High S., Oakfield Rd., N.
 Haworth, M.E. Private tuition
 Haynes, E.M. College H., Hungford
 Macaulay, E. f. Victoria Coll., Belfast
 McCormack, B. e. a. e. u. f. St. Mary's Convent, Bruff
 Plumley, A.M. Elson H., Leytonstone
 Robinson, E. High Pavement Hr. Gr. S., Nottingham
 Sharpe, H.L. 32 Blenheim Gardens, Willesden Green
 Thompson, M. Granville Coll., Hull
 Butler, M.G. Royal Naval S., Twickenham
 Conell, M.A. f. d. St. Mary's Conv., Newtownbarry
 Cooke, E.J. Bromyard High S., Worcester
 Cook, W.J. f. Private tuition
 Hart, D.F. s. Private tuition
 Hutchinson, A.F. St. Catherine's, New Cross
 Monk, R.A. a. d. e. u. f. People's C., Nottingham
 Walsh, B. e. u. f. St. Mary's Conv., Bruff
 Amon, J.A. Rye Coll. S.
 Hartigan, J. e. u. St. Mary's Conv., Bruff
 Jennings, M. Skippers' Company's S., N.
 Leahy, M. e. u. f. St. Mary's Conv., Bruff
 Parkes, O. Musters Road S., W. Bridford
 Ridout, C.E. Durham H., Crouch Hill
 Webb, N. d. Arrow H., Kington
 Welch, D.E. f. St. George's High S., Oakfield Rd., N.
 Cox, E.E. e. Skippers' Company's S., N.
 Dooly, M.A. St. Mary's Conv., Bruff
 Doubleday, E.M. a. d. Skippers' Company's S., N.
 Stephenson, A. s. e. h. a. f. The Avenue, Berwick-on-Tweed
 Till, K.A. e. f. Oakhill High S., Beckenham
 Widdowson, W. d. People's C., Nottingham
 Cheyne, I. Salem H., Sunderland
 Kerr, E.B. f. St. Winifred's S., Torquay
 Ke Stevenson, D.M. The Vicarage S., Clapham Common
 Major, M. d. The Hollies, Handsworth
 Potts, A.E. e. a. Skippers' Company's S., N.
 Rhind, C.E. New Brighton High S.
 West, C.E. Ivy H., Crouch Hill
 Boulton, E.J. Moseley Ladies' Coll.
 Boulton, M.A. f. Moseley Ladies' Coll.
 Byrne, A. St. Mary's Conv., Bruff
 Hay, E. e. Y Garn, Bromley, Kent
 Jewers, H.M. e. Castlebar High S., Ealing
 Marshall, G. a. High Pavement Hr. Gr. S., Nottingham
 McBride, E. Ladies' Coll. S., Bangor
 Pitts, M.A. d. Elson H., Leytonstone
 Bellamy, R.K. Parkfield Coll., High Barnet
 Bondfield, M.H. f. Helena High S., Burgess Hill
 Cooper, G.L. f. Betley Ladies' Coll.
 Evans, C.W. Girls' County S., Llanely
 Gindon, E.A. Anton H., Hammersmith
 Grimes, Z. e. Ladies' S., Cosham, Hants
 Hobson, H. a. f. St. Mary's Convent S., York
 Mayes, W.M. Hyde H., Tollington Park
 Thorn, M.E. s. e. f. Willesden High S.
 Corben, E.F. e. Senior Practising S., Stockwell Coll.

GIRLS, 3RD CLASS, 1ST DIV.—Continued.
 Gaskins, G.L. s. Cheltenham Public Day S. Goodman, L.
 High Pavement Hr. Gr. S., Nottingham
 Hayworth, D. e. Skippers' Company's S., N. Hill, L. A.
 Grove H., Southend
 *Knight, A. St. Mary's S., Bungay
 *Lang, G. L. Gartlet, Watford
 *Pope, C. E.
 Ravenscourt H., Ravenscourt Park, W. St. Maur Sheil, S. f. Convent S., Clifton Tabernacle, I. M. Hill Croft, Stamford Hill Thomson, F. M. s. e.
 Skippers' Company's S., N.
 Todd, E. Onslow Hall S., S. Kensington
 Ward, A. M. f. St. Mary's S., Bungay
Barnard, E. L.
 Brownswood Coll., Brownswood Rd., N. Bateman, M.
 Catholic Up. Grade S., Denbigh Rd., W. Best, D. N. e. Boughrood H., Brecon
 Bradbury, A. a. Lulworth Lodge, Birkdale
 *Burdett, S. M. The Bungalow, Acton
 Conway, H. e. f. St. Mary's Convent, Bruff
 Gollan, M. I. a. The Coll., Goudhurst
 Jones, H. M. C. Coll. S., Oswestry
 Nicholson, D. G. e. d. Skippers' Company's S., N.
 Rogers, D. d. Ashby Coll., Brockley
 Shiner, C. A. f. Denmark Coll., Wimbledon
 Thomas, Myfanwy Bank H., Llandilo
 Titford, A. M. e. Hyde H., Tollington Park Wood, D.
 Linwood S., Altrincham
Bates, N. A. f.
 High Pavement Hr. Gr. S., Nottingham
 Boyle, S. Wincham Ladies' Coll.
 Bugas, C. M. Heathleigh S., Horsmonden
 Denby, M.
 Catholic Up. Grade S., Denbigh Rd., W. Derrick, E. K. Private tuition
 Elton, J. K. Old Gram. S., Thame
 Gibbs, M. St. Aubyn's, Bath
 Jackson, O. M. s. e. f.
 Stroud Green High S., Oakfield Rd., N.
 *Manoukian, N. Coll. High S., W. Didsbury
 Roberts, E. B. f. Private tuition
 *Sleigh, M. E. Up. St. Leonards Ladies' Coll.
 Smith, G. M. Bush Hill Park S., Enfield
 *Thorp, L. G. Parkfield Coll., High Barnet
Clarke, C. M. e. A. The Maze, Bournemouth
 Cook, E. College H., Peckham
 Harrison, A. People's Coll., Nottingham
 Kay, E. e. Collegiate High S., W. Didsbury
 Knipper, N. People's Coll., Nottingham
 Roberts, M. F. e. f.
 Leylands, Stockwell Rd., S. W.
 Sard, A. E. f. St. Cuthbert's C., Forest Hill
 Warren, T. A. Y Garn, Bromley, Kent
Alsop, M. d. Mundella Hr. Gr. S., Nottingham
 Baker, G.
 High Pavement Hr. Gr. S., Nottingham
 Billiter, N. H. e. Fulham Park Coll.
 Cunliffe, E. M. e. f. Convent S., Southampton
 Etherington, W. G. B.
 Beechcroft Coll., Richmond
 Harvey, E. M. a. Heathleigh S., Horsmonden
 Johns, A. Queen's Park Coll., W.
 Kurtz, E. M. f. Betty Ladies' Coll.
 Morris, A. E. Sussex H., Willesden Lane
 Morris, F. H. e. Holt H., Fakenham
 Reader, L. M. a. Heathleigh S., Horsmonden
 Ricks, A. f.
 High Pavement Hr. Gr. S., Nottingham
 Shelly, K. f. St. Mary's Convent, Newtownbarry
 Wainwright, L. Holloway Coll., N.
 Woollett, E. M. V. f. Private tuition
 Worrall, C. M. f.
 Moss House S., Whitefield, Manchester
Gibson, E. M. A. New Brighton High S.
 Jackson, D. Lyndon Villa S., Leeds
 Kavanagh, M. f.
 St. Mary's Convent, Newtownbarry
 King, M. Ladies' S., Cosham, Hants
 Lloyd, G. Mountside High S., Hastings
 Minter, H. M. a. f. Up. St. Leonards Ladies' C.
 *Need, E. K. Ashby Coll., Brockley
 *Rowell, A. L.
 Girton, London Rd., Croydon
 Strawson, M. M. H. e.
 Bromyard High S., Worcester
 Spouse, C. Elgin Coll., Burlington Rd., W.
 Storer, E. L. f.
 59 Summerfield Crescent, Edgbaston
 Staddon, W. M. a. f. St. Winifred's, Torquay
 Walters, W. New Brighton High S.
 Wynne, G. E. Skippers' Company's S., N.
 Batty, E. A. s. a. f. Verulam, Potters Bar
 Constable, G. Heathleigh S., Horsmonden
 Cornwall, E. A. f. Beechcroft C., Richmond
 Dawson, M. Wincham Ladies' Coll.
 Dunsford, C. M. New Brighton High S.
 Fisher, E. K. Upland S., Newbury
 Fitz-Gerald, R. E. A. f. Private tuition
 Fromow, L. F. Beechcroft Coll., Richmond
 Hayden, H. M. West H., Forest Hill
 Hearle, L. e. f. Cheltenham Public Day S.
 Hodgson, E. Stand Lodge High S., Badeliff
 Lewis, M. W. e. f. Queen's Coll., Twickenham
 Macdonald, V. B. Queen's Park Coll., W.
 Murphy, K. N. Skippers' Company's S., N.
 Schuerebaans, B. O. Woodside H., Sutton

Smith, A. h. Warwick H., Poulton-le-Fylde
 *Trench, L. L. The Coll., Goudhurst
Third Class.—2nd Division.
 *Chittenden, S. L. Grange Park Hall, Leyton
 Connal, M. J. a. Brookvale Coll. S., Belfast
 Dyer, B. G. The Bonhams, St. Leonards
 Gilhullan, A. Hyde H., Tollington Park
 Goodall, M. W. d.
 Toward Terrace S., Sunderland
 Horwood, B. F. Durham H., Dover
 *Jellie, E. S. Ellenborough H., Clifton
 Moore, E. N. Clarendon H., Wimborne
 Rech, J. J. h. f. 4 Clarence Terrace, Jersey
 Sherratt, H. L. a. Lulworth Lodge, Birkdale
 Underdown, G. a. Monk Bridge S., York
 Codd, A. f. St. Mary's Convent, Newtownbarry
 Cooke, C. A. f. High S., Battle
 Hellier, S. C. St. Hilda's Coll. S., Bristol
 Heynemann, E. J. g. e.
 Alwyne Coll., Canonbury
 *Magrath, N. St. Mary's Convent, Bruff
 Mowat, M. f. Belmont H., Southampton
 Packer, M. B. a. Queen's Park Coll., W.
 Quinn, M. J.
 St. Mary's Convent, Newtownbarry
 Roberts, F. Craven Pk. Coll., Harlesden
 Smith, F. E. M. Skippers' Company's S., N.
 Yimng, G. College H., Peckham
 Young, O. M. The Coll., Goudhurst
 Barks, B. E. Old Gram. S., Thame
 Barr, K. A. Skippers' Company's S., N.
 Bunce, M. E. S. Durham H., Crouch Hill
 Crickmay, F. E. s. e. a. Bath Rd. S., Houslow
 Edgumbe, W. J. F. Kilmear H., Liskeard
 Hackett-Jones, F. B. O. f. Private tuition
 Holmes, R. M. a. Prestwich High S.
 *McDonnell, A. St. Mary's Convent, Bruff
 Myhill, G. E. People's Coll., Nottingham
 Price, V. a. High S., Herne Bay
 Secker, O. M. Coleridge Coll. S., Finsbury Pk
 Simson, S. E. Lexden H., Brixton.
 *Weeks, E. e. Private tuition
 Burgess, G. M. e. Hyde H., Tollington Park
 Creighton, M. e. f. Priory H., York
 Golding, M. f.
 St. Mary's Convent, Newtownbarry
 *Kemp, E. M. Carlisle Coll., Crouch Hill
 *King, A. E. Carlisle Coll., Crouch Hill
 Lawrence, A. C.
 Carisbrooke Coll., Walton, I. Pool
 Moore, M. E. S. Lulworth Lodge, Birkdale
 Phippard, B. M. Granville H., Shampton
 Salmon, J. C. f. Brookvale Coll. S., Belfast
 *Shilton, D. O. 38 Canonbury Square, N.
 West, F. R. Castlebar High S., Ealing
 Westron, M. d. High St. S., Burnham, Bucks.
 Abbott, V. f. Modern Coll., Stoke Bishop
 Coutanche, A. a. f. 4 Clarence Ter., Jersey
 Croucher, E. M. Queen's Park Coll., W.
 Merritt, A. M. Girton, London Rd., Croydon
 Miller, W. F. Elson H., Leytonstone
 Segar, A. E. Brondebury High S.
 Tabour, J. E. St. Cuthbert's Coll., Forest Hill
 Chilcott, M. F. Clarendon H., Wimborne
 Evershed, J. M. North Park Coll., Croydon
 *Haynes, M. L. Private tuition
 Johnson, A. E.
 Mundella Hr. Grade S., Nottingham
 Judd, M. e. Beechcroft Coll., Richmond
 *McCarragher, M. N.
 123 Millbrook Road, Southampton
 Morgan, E. B. The Coll., Goudhurst
 Pearce, M. V. f. Girton Coll., Yeovil
 Sterling, F. f. Wincham Ladies' Coll.
 Valpy, H. D. f. 4 Clarence Terrace, Jersey
 Whitfield, E. f.
 Up. St. Leonards Ladies' Coll.
 Brett, E. B. e. College H., Hungerford
 Hargreaves, E. a.
 Fern Bank, Harpurhey, Manchester
 Lewis, L. Wincham Ladies' Coll.
 Nourian, A. A. e.
 English S., Pera, Constantinople
 Page, E. A. f. Private tuition
 Peacy, L. C. a. f. Cheltenham Public Day S.
 *Stainton, G. Private tuition
 Sumner, M. E. Kilmear H., Liskeard
 Thomas, Minnie Bank H., Llandilo
 Touzel, F. J. f.
 Lynwood H., Grouville, Jersey
 Whiteley, K. F. St. Hilda's Coll. S., Bristol
 Carrington, D. Sheffield Middle Class S.
 Clements, M. A. Rye Coll. S.
 Cumberlege, N. Mayfield, Broxbourne
 Dale, M. Parkfield Coll., High Barnet
 Gogarty, L. St. Ethelburga's, Deal
 Hast, N. K. West H., Forest Hill
 Hawkins, M. R. Monk Bridge S., York
 *Jameson, G. Private tuition
 Savage, E. R. South Bristol Girls' High S.
 Sowden, M. G. Kilmear H., Liskeard
 Thompson, D. S. a. Parkfield C., High Barnet
 Wilbee, M. f. High S., Herne Bay
 Williams, H. D. Bromyard High S., Worcester
 Wilson, F. D. Woodhouse Hall, Leeds
 Colquhoun, J. G. Betty Ladies' Coll.
 Hamilton, M. E. a. f. Elson H., Leytonstone

Hullett, C. M. f. Egerton Terrace S., Timperley
 Kennedy, B. e. St. Mary's Convent, Bruff
 Mathew, G. M. f. Royal Naval S., Twickenham
 Pedder, F. K. Holt H., Fakenham
 Puckert, E. M. The College, Goudhurst
 Scott, M. Denmark Coll., Wimbeldon
 *Wharton, E. Beechcroft Coll., Richmond
 Adams, W. A. f. West H., Forest Hill
 Allen, E. K. a. Harley H., Hereford
 Balcomb, A. Royal Naval S., Twickenham
 Hattam, A. E. Beechcroft Coll., Richmond
 Hawkins, L. M. Durham H., Crouch Hill
 Jeffrey, M. E. f. Victoria Coll., Belfast
 Leaman, G. I. f. St. Mary's Convent S., York
 Leman, L. R.
 Coryton H., Mutley, Plymouth
 Pemberton, E. h. f. Fair View S., Neston, Chester
 Watson, G. Toward Terrace S., Sunderland
 Whittaker, A. E. f.
 Moss House S., Whitefield, Manchester
 Bailey, E. Albert Terrace S., Rusholme
 Hay, B. f. Swann Lane S., Cheadle
 Mathews, B. M.
 Felix High S., Lavender Hill
 Mitchell, E. Skippers' Company's S., N.
 Moore, E. M. e. f. 20 York Villas, Brighton
 Royle, E. G. Albert Terrace S., Rusholme
 Scholar, C. B.
 Rosemont, Bishopston, Bristol
 Smith, E. e. Keilham Coll., Stroud Green
 Wrigley, M. E. Highfield Coll., Blackpool
 Balaun, E. Peckham Technical S.
 Churchillhouse, D. L. 8 Hainault Terrace, Ilford
 Cook, L. J. Hyde H., Tollington Park
 Deeks, A. M. Rye Coll. S.
 Fergus, A. F. M. g. e. Private tuition
 Harold, D. N. Wine Street H., Frome
 Hilliard, J.
 Ladies' Coll. S., Rosetta Park, Belfast
 Knowles, G. V. a. Finsbury Park High S.
 *Loxton, A. G. Oxford H., Leatherhead
 Maddox, K. Elmslie, Maidenhead
 Nasbe, E. Salem H., Sunderland
 *Reddaway, C. A. Private tuition
 Vardon, G. M. f. 4 Clarence Terrace, Jersey
 Vicars, F. Warwick H., Poulton-le-Fylde
 Booth, O. E.
 Coll. S., Brunswick Place, Southampton
 Boston, J. P. e. The Avenue, Berwick-on-T.
 Dornay, A. C.
 32 Bleuheim Gardens, Willesden Green
 Duff, N. M. Kingsley H., Plymouth
 *Jackson, F. Sheffield Middle Class S.
 Keven, E. T. e. Jessamine H., Havant
 Owen, F. M. Coll. S., Oswestry
 Partan, A. E. Betty Ladies' Coll.
 Powell, M. Boughrood H., Brecon
 Reid, N. 10 Wallace Terrace, Ryton-on-Tyne
 Spryngate, E. A. f. Royal Bay H., Goresy, Jersey
 *Wakeham, C. Westfield H., Longford, Glos.
 Abbott, G. E. H. Deerhaddon C., Brixton Hill
 Dimond, E. A. Parkfield Coll., High Barnet
 Fromow, M. S. Oxford Coll., Gunnersbury
 Hogan, D. f.
 St. Mary's Convent, Newtownbarry
 Hough, O. A. 43 School Road, Sale
 Jones, M. W. Rye Coll. S.
 Lambert, L. Convent, Holt Hill, Birkenhead
 Lyttelton-Chubb, A.
 1 Manor Terrace, Tynemouth
 Orpelt, D. I. Westoe High S., S. Shields
 Parslow, M. Stamford Hill High S.
 Savage, L. F. Onslow Hall S., S. Kensington
 Turquand, M. Surrey H., Anerley
 Davey, W. M. Kilmear H., Liskeard
 Ellison, W. Stagsdene, Bournemouth
 Funnell, K. E. Clarendon H., Wimborne
 Hare, G. I. Littlestone C., Littlestone-on-Sea
 Hill, M. Cork High S.
 Pock, E. M. f. St. James' Coll. S., Jersey
 Selge, G. M. Denmark Coll., Wimbeldon
 Shaw, M. E. Elson H., Leytonstone
 Stagg, R. E. Evelyn H., Upper Holloway
 Stewart, B. Cheltenham Public Day S.
 Wood, M. High S., Herne Bay
 *Bailey, P. E. Collegiate High S., W. Didsbury
 Billings, A. V.
 Stroud Green High S., Oakfield Rd., N.
 Bnshy, C. A. Rye Coll. S.
 Clements, E. C. d. Rye Coll. S.
 Emtage, L. H. Private tuition
 Hogan, E. St. Mary's Convent, Newtownbarry
 Littlehales, K. M. The Hollies, Handsworth
 Mallan, R. f. Lawn C., Shepherd's Bush Green
 Starling, M. A. Skippers' Company's S., N.
 Stephens, M. Bank H., Llandilo
 Wells, M. B. Brickwood Lodge, Tunbridge
 Yarnold, A. Bromyard High S., Worcester
 Browne, H. a. f. Loretto Convent, Wexford
 Carlé, J. E. The Maze, Bournemouth
 Clarke, E. Ladies' S., Cosham, Hants
 Jeffreys, A. A. The Coll., Oswestry
 Lee, E. A. The Coll., Goudhurst
 Lily, E. L. Llanberis, Ealing
 *Reddaway, E. Private tuition
 Smith, W. Skippers' Company's S., N.
 Veavers, U. Prestwich High S.
 Webb, A. L. Harborne Ladies' Coll.
 Williams, D. The Hollies, Handsworth

Allshorn, F. Private tuition
 Archbold, M. Brookvale Coll. S., Belfast
 Brouwer, J. M. C. E. f. Tudor H., Brixton
 Harwin, M. E. Hyde H., Tollington Park
 King, E. s. Craven Park Coll., Harlesden
 *Lee, E. High S., Walton-on-Thames
 Loughlan, U. Private tuition
 Veitch, B. P. e.
The Avenue, Berwick-on-Tweed
 Band, W. L. f. Oxford Coll., Gunnersbury
 Blennan, E. M. Skippers' Company's S., N.
 Brooks, F. E. Prestwich High School
 Gallop, M. E. Cheltenham Public Day S.
 Newton, G. Bishopston Girls' High S., Bristol
 Pearson, F. L. e. The College, Oswestry
 Robus, M. A. Parkfield Coll., High Barnet
 Smith, M. S. Oxford Coll., Gunnersbury
 Smith, W. M. High S., Wembley
 Vine, L. B. Girton Coll., Yeovil
 *Warrington, A. W.
 Skippers' Company's S., N.
 Weaver, H. a. Cheltenham Public Day S.
 Young, E. S. Hurst Leigh, Southampton
Admans, W. f. High S., Herne Bay
 Birch, M. f. Convent S., Clifton
 Bloodworth, N. Convent S., Eden Grove, N.
 Brettell, R. E. L. e. f.
 Royal Naval S., Twickenham
 Cheveley, M. C. Clifton Lodge S., Lee, Kent
 Dutton, M. I. Wincham Ladies' Coll.
 Faulkner, K. P. 49 Nicoll Rd., Willesden
 Goldstone, M. L. Convent S., Southampton
 Groom, D. M. d. Durham H., Crouch Hill
 Hope, V. St. Hilda's Coll., Hexham-on-T.
 Hutton, C. E. T. South Bristol Girls' High S.
 Osogob, B. Upland S., Newbury
 Reynolds, E. a. The Maze, Bournemouth
 Rowland, B. D. Hill Croft, Stamford Hill
 Worley, B. Coll. S., Havant
Third Class.—3rd Division.
 Bavin, E. Cheltenham Public Day S.
 Carter, E. M. St. Hilda's, Gosforth-on-T.
 De la Perrelle, E. A. f. Vauxhall S., Jersey
 Middleton, A. Highfield Coll., Blackpool
 Murray, J. Highfield Coll., Blackpool
 Ogden, F. Mayfield, Broxbourne
 Smith, E. C. High S., Wyde Green, Bham
 White, H. W. Durham H., Dover
 Campbell, A. M. Brookvale Coll. S., Belfast
 Craig, M. E. Victoria Coll., Belfast
 Evans, M. G. e. Beech H., Poole
 Evans, G. F. Lexden H., Brixton
 Harwood, E. J. Oxford Coll., Gunnersbury
 Lawson, M. Abergele, Clifton
 Lenglois, E. R. f.
 Glenrose S., St. Lawrence, Jersey
 *Penlton, E. Mountside High S., Hastings
 Townley, E. M. Ellesdon H., Bexley Heath
 Adams, L. S. Ellesmere Coll. S., Norwood
 Beale, E. M. The College, Oswestry
 Bell, B. City of Durham S. for Girls
 Booth, J. M. Coll. S., Ashford, Middlesex
 Coomer, I. Stamford Hill High S.
 Davis, B. L. Boughrood H., Brecon
 Flockton, M. C. f. Convent S., Clifton
 Gowan, M. Wine Street H., Frome
 Howe, E. a. The Hollies, Handsworth
 Layton, E. M. Parkfield Coll., High Barnet
 Marlow, F. T. Finsbury Park High S.
 Smith, I. Priory H., York
 Turner, A. Bishopston Girls' High S., Bristol
 Ward, C. The Laurels, Nottingham
 Webb, G. a. f. Loretto Convent, Wexford
 Wharry, S. Convent S., Croydon
 Boland, J. a. f. Loretto Convent, Wexford
 Knight, R. High S., Withington
 Kynaston, E. M. f. Up. St. Leonards Ladies' Coll.
Latham, A. E.
 Collegiate High S., W. Didsbury
 Morris, N. A. e. The College, Oswestry
 Morton, G. D. a. Boughrood H., Brecon
 Potts, E. J. Brookside, Darlington
 Rice, A. E. Abercromby S., Liverpool
 Rivington, J. M. Private tuition
 Walker, W. M. High S., Wembley
 (Cantell, E. M. Royal Bay H., Goresy, Jersey
 Chamberlain, I. M.
 Seaton H., Mutley, Plymouth
 Hall, M. 10 Wallace Ter., Ryton-on-Tyne
 Hilson, A. Fernside, Grantam
 Holland, A. A. f. Private tuition
 Montgomery, E. A. Private tuition
 Todd, R. f. Priory H., York
 *Whitford, M. E. f. Loretto Convent, Wexford
 Byley, A. B. Saxenholme, Birkdale
 Bowes, A. Coll. S., Buckhurst Hill
 Harrington, B. K.
 Cumberland H., Stoke Newington
 Heward, H. Convent, Holt Hill, Birkenhead
 McCarthy, A. D. Prestwich High S.
 Parry, F. Milton H., Atherstone
 Roe, M. S. Wincham Ladies' Coll.
 Sands, E. A. Holt H., Fakenham
 Watts, L. F. Harborne Ladies' Coll.
 Adlam, W. M. Wine Street H., Frome
 Bertie, F.
 Brownswood Coll., Brownswood Rd., N.
 Mayo, M. A. Ashby Coll., Brockley

<p>GIRLS, 3RD CLASS, 3RD DIV.—Continued. Bush, G.E. Old Gram. S., Thame Couldery, D.W. Rye Coll. S. Davis, W.R.M. Abergeldie, Clifton Edwards, E.F. Fenwick Coll., E. Dulwich Kelway, E.V. St. Catherine's, New Cross Lippitt, T.M. Wine Street H., Frome Redmond, M. f. Loreto Conv., Wexford Thomas, H. Bank H., Llandilo Theliving, A.L. Seaton H., Mutley, Plymth Watkins, E. Ryde H., Ripley, Woking White, B.E. St. Joseph's C.S., Toland Bay Wright, N. Convent S., Clifton</p>	<p>Bentley, E.W. Middle Class S., St. Mary Church Harnett, M.M. Rutland H. S., Hackney Kenny, D.M.T. Convent S., Southampton Pierce, B.L. Private tuition Thatcher, H. Farnworth, Widnes Thomas, E.M.B. Wells, M. Bromyard High S., Worcester Coll. S., Buckhurst Hill Amor, I. Bishopston Girls' High S., Bristol Ford, E.M. Guilford High S., W.C. Heins, E.D. Boughrood H., Brecon Rowland, D. Girton, London Rd., Croydon Winstone, N. Cheltenham Public Day S. Harding, R. Private tuition Jackson, E.G. 34 King St., Gt. Yarmouth Lloyd, L.J. Pencader Gram. S. Park, M.M.P. Eton Park S., N.W. Reed, A.M. Rosemont, Bishopston, Bristol</p>	<p>Smith, A.K.S. Grove House, Southend Twist, M. Private tuition Adams, B. St. John's Coll., Brixton Briggs, J.C. Woodhouse Hall, Leeds Davidson, E.H. St. Hilda's C., Hexham-on-T. Dixon, C. The College, Goudhurst Eaton, M. Collegiate High S., W. Didsbury Hunter, A. MacG. Stour H., Sandwich Jewitt, M.E. St. Mary's Convent S., York Moran, K. f. Loreto Conv., Wexford Sheldon, P.M. Ellesdon H., Bexley Heath Squire, D.B. Parkfield Coll., High Barnet</p>	<p>Micklam, E.G. The Southend S., Winchester Norman, A. Ditton Holm, Lackfield, Kent Sivell, L.I. High S., Wembley Dobie, E.H. Willesden High S. Doyle, C. Loreto Conv., Wexford Wickings-Smith, H. Private tuition Blinston, E. Lulworth Lodge, Birkdale Bowler, I.A.W. Fernside, Grantham Jones, G.K. Boughtood H., Brecon Lloyd, G.M. Raleigh S., Stoke Newington McDowall, G. Peckham Technical S. Harrison, M. St. Hilda's C., Hexham-on-T. Lewis, M. Pencader Gram. S. Woodall, E. The Hollies, Handsworth Petitfour, A.A. Private tuition Furness, A.C. Onslow Hall S., Kensington O'Flaherty, M. f. Loreto Conv., Wexford Wilkins, E.M. Cheltenham Public Day S.</p>
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NAMES OF CANDIDATES IN THE ABOVE LISTS WHO HAVE PASSED THE ORAL EXAMINATIONS IN FRENCH AND GERMAN.

f = French. g = German.

BOYS.

<p>Adamson, H.J.W. f.g. Tollington Park Coll. Adamson, R.B. f.g. Tollington Park Coll. Afleck, W. f.g. St. Bees Gram. S. Barker, W. f. Hutton Gram. S. Barter, S. f. Plymouth Corporation Gram. S. Bequet, G.P. f. St. James' Coll. S., Jersey Blacklock, R.J. f.g. Stationers' Company's S., Hornsey Booth, D. f. Market Bosworth Gram. S. Bourgain, A. f. University S., Reigate Brockman, H.S. f. Plymouth Corp. Gr. S. Buscombe, W.E. f. Plymouth Corp. Gr. S. Carneau, R. f. St. Joseph's C., Denmark Hill Cheke, T.W. f.g. Stationers' Company's S., Hornsey Choyce, J.C. f. Market Bosworth Gram. S. Cluer, H.G. f.g. Stationers' Company's S., Hornsey Conway, J. f. St. Aloysius C., Hornsey Lane Cox, O.F. f.g. Alwyne Inst., 115 Gower St., W.C. Cunningham, A.J.W. f. Hutton Gram. S.</p>	<p>David, L. f. St. George's Coll., Weybridge Davis, R.N. f. Lancaster Coll., W. Norwood Dick, J.R. f.g. Stationers' Company's S., Hornsey Dorey, G. f.g. Jersey Modern S., St. Helier's Duché, L. f. St. Joseph's Coll., Denmark Hill Fouracre, S.F. f.g. Tollington Park Coll. Gillillan, A.M. f.g. Tollington Park Coll. Goldlaid, A.W. f. Market Bosworth Gram. S. Goldstein, I. f. Skerry's C.S. Coll., Chancery Lane Goodrich, H.A.W. f.g. Tollington Park Coll. Harrison, A.E. f.g. Stationers' Company's S., Hornsey Holder, S.R. f.g. Tollington Park Coll. Hughesdon, F.W. f. Tollington Park Coll. Hurst, A.W. f. Market Bosworth Gram. S. Hutchings, H.W. f. Tollington Park Coll. Jenkins, P.G. f. Stationers' Company's S., Hornsey Kendall, A.W. f. Hutton Gram. S.</p>	<p>Kenyon, H.L. f. Gram. S., Eccles Knight, R.J. f. Market Bosworth Gram. S. Kordik, A. f.g. St. Aloysius C., Hornsey Lane Le Brun, C.C.R. f. St. James' Coll. S., Jersey Le Brun, J.R. f. St. James' Coll. S., Jersey Lightbown, R.S. f. Gram. S., Eccles Lord, C.R. f. Gram. S., Eccles Luker, P. f. Churcher's Coll., Petersfield Martin, A.J. f.g. Tollington Park Coll. Morgan, E.H. f. Tollington Park Coll. Nicolle, C.B. f. St. James' Coll. S., Jersey O'Kearny, R.A. f. St. Aloysius Coll., Hornsey Lane Pierron, J. f. St. Joseph's Coll., Denmark Hill Quinn-Harkin, A.T. g. St. Aloysius Coll., Hornsey Lane Range, H. f. St. Joseph's Coll., Denmark Hill Rawlinson, B. f. Market Bosworth Gram. S. Ridgway, W. f.g. Stationers' Company's S., Hornsey Rothera, L. f. Market Bosworth Gram. S.</p>	<p>Rothera, W.S. f. Market Bosworth Gram. S. Sachs, S.E. g. Whitgift Gram. S., Croydon Shillabeer, S.M. f. Plymouth Corp. Gram. S. Smith, R.E. f.g. Stationers' Company's S., Hornsey Spearman, B. f. Plymouth Corp. Gram. S. Stonly, G. f. Hutton Gram. S. Thomas, A.J.O. f. Lancaster Coll., W. Norwood Tokeley, F.W. f. Tollington Park Coll. Walsley, C.H. f. Gram. S., Eccles Walton, W. f. Hutton Gram. S. Watson, C.S.O. f. Newcastle Modern S. White, F.J. f. St. George's Coll., Weybridge White, W.J. T. g. St. Charles's Coll., N. Kensington Whitehead, A.W. f. Tollington Park Coll. Wilkinson, E.S. f.g. Stationers' Company's S., Hornsey Yates, J.W. f. Market Bosworth Gram. S.</p>
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GIRLS.

<p>Adrien, K. f. Convent S., Clifton Alexandre, E.P. f. St. James' Coll. S., Jersey Bartlett, K.C. f. Private tuition Bouron des Clayes, S. f. Convent S., Clifton</p>	<p>Coulthard, A. f. Westbro' S., Newcastle-on-T. Coupey, J. f. Convent S., Eden Grove, N. Dawson, C. f. Private tuition Finigan, M.O.C. g. Eton Park S., N.W.</p>	<p>Frowde, B.E. f. Private tuition Horman, M.F.J. f. 4 Clarence Terrace, Jersey Newbezin, A.L. f. Private tuition O'Keefe, M.M. f. Private tuition</p>	<p>Quirk, J. f. Convent S., Clifton Robson, I. f. Private tuition Symonds, L.K. f. Coll. S., Brentford Werner, J.L.S. f.g. Manor Mount S., Forest Hill</p>
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JUNIOR FORMS EXAMINATION.—PASS LIST, MIDSUMMER, 1899.

BOYS.

<p>Abraham, H.C. Taunton Trade S., Southampton Adams, J.W. 20 South Street, Greenwich Aikman, W.J. Margate Coll. Ailberry, W.H. Stafford Coll., Forest Hill Allsopp, A.H. Read's S., Drax, Selby Anderson, W.J. Christian Brothers' Coll., Gibraltar Andrews, J.H. Taplow Gram. S. Andrews, P.C. Richmond Hill S. Andrews, R. Convent S., Southampton Annett, F.L. Margate Coll. Armstrong, W. Read's S., Drax, Selby Arnold, F.J. Park S., Wood Green Arnold, H. Market Bosworth Gram. S. Arnold, R.J. Ryde H., Ripley, Woking Atkins, H.J. Taunton Trade S., Southampton Back, G.K. Egerton Park Coll., Bexhill Bacon, E.H. Mutley Gram. S., Plymouth Bagnall, J. Catholic Coll. Inst., Manchester</p>	<p>Bailey, E. Hutton Gram. S. Baker, B. St. Aloysius Coll., Hornsey Lane Baker, C.H. Taunton Trade S., Southampton Baichin, F. Taunton Trade S., Southampton Balfe, E. Convent S., Pulteney Rd., Bath Balfe, M. Convent S., Pulteney Rd., Bath Barlee, R.H. Oswestry Gram. S. Barlee, R.J. Oswestry Gram. S. Barratt, F.C.W. Margate Coll. Barrington-Ward, R. McG. Market Bosworth Gram. S. Batkin, W.C. Wirksworth Gram. S. Batt, F.E. Devises Boys' Coll. Battersby, J. Catholic C. Inst., Manchester Baxter, J.H. Ryde H., Ripley, Woking Beach, T.E. Chandos Gram. S., Winchcombe Beahon, T. Cath. Inst., Hope Street, Liverpool Beal, E.H. Wynford H., Heron Hill, Belvedere Beauty, G.H. Sandwich S.</p>	<p>Bellamy, A.E. Cumberland H., S. Newington Bennett, H.D. Streatham Gram. S. Berry, R.S.B.S. Oswestry Gram. S. Best, H.W.J. Mutley Gram. S., Plymouth Beusted, W.P. Wreight's S., Faversham Biggs, E.A. Private tuition Bisson, J.S. Oakwood H., Jersey Bisson, W.C. Oakwood H., Jersey Blair, J.D. Gram. S., Cork Blake, I. Convent S., Pulteney Road, Bath Blake, L.S. Richmond Hill S. Blane, S. Hutton Gram. S. Bloss, H. Read's S., Drax, Selby Bond, W.T.N. Huish S., Taunton Bonnard, L.H. Richmond Hill S. Bonner, A.S. Taunton Trade S., Southampton Botting, E.H. Ryde H., Ripley, Woking Bower, A.V.P. St. Philip's Gram S., Edgbaston Bowles, C.A. Gram. S., Cork</p>	<p>Bray, C. Bethany H., Goudhurst Bridges, H.C. Egerton Park Coll., Bexhill Briely, C. Catholic Coll. Inst., Manchester Bright, D. Sandwich Gram. S. Broadbridge, M. St. Aloysius C., Hornsey Lane Broadrick, G. Alvechurch Gram. S. Bromfield, D. St. Aloysius C., Hornsey Lane Brookfield, C. Taunton Trade S., Southampton Brown, W.J. Margate Coll. Browne, S.H. Gram. S., Cork Buck, E. Cath. Inst., Hope Street, Liverpool Budden, W.A. Margate Coll. Burchell, A. Wreight's S., Faversham Burden, L. Taunton Trade S., Southampton Burgess, F.J. Huish S., Taunton Burrell, T. St. Aloysius Coll., Hornsey Lane Butler, R.F. Warwick H., Southsea Butt, W.G. Taplow Gram. S. Butter, S.E. Wreight's S., Faversham</p>
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<p>BOYS, JUNIOR FORMS—Continued. Calland, A. Snettisham S. Campbell, C. Chandos Gram. S., Winchcombe Cannon, W.V. Taplow Gram. S. Cantlie, C. Holt H., Cheshunt Canton, D. Private tuition Carden, R.W. Walden H., Herne Bay Carroll, R. Catholic Inst., Hope St., L'pool Cartwright, B.H. St. Philip's Gram. S., Edgbaston Castle, E.J. St. Mary's Coll., Woolhampton Castle, W.J. Margate Coll. Castleman, E. Ryde H., Ripley, Woking Catford, A.E. Richmond Hill S. Chapman, F.E. Sandwich Gram. S. Chinery, H. Cavendish Gram. S. Clamp, J.P. Market Bosworth Gram. S. Clare, F. Taplow Gram. S. Clark, L. St. Aloysius Coll., Hornsey Lane Clarke, G. Wharfedale Coll., Boston Spa Clarke, H. Catholic Coll. Inst., M'chester Clarke, W.S. Huish S., Taunton Clayton, S.C. Gram. S., Cork Cole, W.V. Belmont H., Cheltenham Colley, W. Bethany H., Goudhurst Collins, A.M. St. Austell Coll. Collins, L.T. Kingsholme S., Weston-s.-Mare Colyer, P. Wright's S., Faversham Conde, A. Catholic Inst., Hope St., L'pool Conde, G. Catholic Inst., Hope St., L'pool Conto, A. da S. New Brighton High S. Cook, O.R.M. St. Catharine's S., Broxbourne Cook, S.H. St. Catharine's S., Broxbourne Cooke, F.C. St. Bartholomew's Gram. S., Newbury Cordingley, P.W. Margate Coll. Cornfoot, D. Wright's S., Faversham Courtteen, G.T.M. Devezes Boys' Coll. Cowley, P. Catholic Coll. Inst., Manchester Crocket, J. Catholic Inst., Hope St., L'pool Crow, F.G. Kent Coll., Canterbury Crowley, W.S. Park S., Wood Green Croxford, P.H. Taplow Gram. S. Curd, C. St. Aloysius Coll., Hornsey Lane Cureton, T. Meredith H., Lichfield Curry, A. Gram. S., Cork Curtis, A.R. Kent Coll., Canterbury Curtis, J. Hutton Gram. S. Dalgleish, O. Southwell Gram. S. Dalman, S.S. Holt H., Cheshunt Dalton, A.T. Gram. S., Cork Daly, W. Catholic Inst., Hope St., Liverpool Daniel, W.B. Huish S., Taunton Darracott, W.A. Belmont H., Walmer Davies, E.F. Lady Hawkins' Gram. S., Kington Davies, J.O. Margate Coll. Davies, M.S. Taunton Trade S., Southampton Davies, R.T. Park S., Wood Green Davis, J.W. Hanley Castle Gram. S. Dawson, H.J. Gram. S., Cork Deane, A.B. Market Bosworth Gram. S. De Carteret, R.E.F. Oakwood H., Jersey Diesch, R. St. Aloysius Coll., Hornsey Lane Dingle, A.C. Cavendish Gram. S. Dingley, C.S. Richmond H., Handsworth Dobbin, L. Gram. S., Cork Doherty, L. St. Aloysius C., Hornsey Lane Dougherty, S. Convent S., Pulteney Rd., Bath Doyle, F. Catholic Coll. Inst., Manchester Duck, W.C. Taplow Gram. S. Duncan, L.S. Horsmonden S. Dunning, J.D. Independent Coll., Taunton Dunsford, F.H. New Brighton High S. Earley, F. Catholic Coll. Inst., Manchester Edmondson, W. Oswestry Gram. S. Edwards, G.H. Wright's S., Faversham Edwards, L. Private tuition Ellis, E.J.R. Streatham Gram. S. Ellis, J.C. Margate Coll. Elmer, H. Cavendish Gram. S. Entwistle, S. Ryde H., Ripley, Woking Evans, B. Pencader Gram. S. Evans, I. Oswestry Gram. S. Evans, J. Pencader Gram. S. Fairry, H. Taunton Trade S., Southampton Farquharson, J.R. St. Catharine's S., Broxbourne Farrell, F. Catholic Inst., Hope St., L'pool Felton, H.E. Hanley Castle Gram. S. Ferns, J. Catholic Coll. Inst., Manchester Ferrary, N. Christian Brothers' Coll., Gibraltar Finlay, F.S. Wright's S., Faversham Finlay, D.A. St. Philip's Gram. S., Edgbaston Finigan, A. Catholic Inst., Hope St., L'pool Fish, N. Read's S., Drax, Selby Forrester, G. Bethany H., Goudhurst Forsyth, P. Catholic Coll. Inst., Manchester Freeman, H.W.A. St. Bartholomew's Gram. S., Newbury Fugby, E. Market Bosworth Gram. S. Gandy, C. Taunton Trade S., Southampton Gapes, S.A. St. John's Coll., Brixton Gardiner, F.W. Kingsholme S., Weston-s.-Mare Gardiner, W. Hutton Gram. S. Gardner, H. Read's S., Drax, Selby Gaved, A. St. Austell Coll. Gavin, O. Catholic Inst., Hope St., L'pool Gell, M. St. Aloysius Coll., Hornsey Lane George, H.H. Park S., Wood Green Gibbins, M.E. Gram. S., Cork Gibson, E. Gram. S., Cork Gill, F.G. Eye Gram. S. Gill, T.W. Margate Coll.</p>	<p>Gloster, P.R. Ryde H., Ripley, Woking Godsmark, L.H. Kent Coll., Canterbury Govier, E.J. Huish S., Taunton Graham, J.A. Private tuition Graham, W.T. New Brighton High S. Gray, L.S. Hanley Castle Gram. S. Green, E.E. Huish S., Taunton Greenlade, R.N. Huish S., Taunton Greensted, W. Belmont H., Walmer Grey, B. Taplow Gram. S. Griffin, G. Catholic Coll. S., Manchester Griffith, W.G. Gram. and Coll. S., Carnarvon Grinsted, J. Ryde H., Ripley, Woking Groom, J.E. Eye Gram. S. Guilding, N.H. Hanley Castle Gram. S. Haddrell, C.A. St. Bartholomew's Gram. S., Newbury Hall, C.E. Huish S., Taunton Hallett, J.F. St. Mary's Coll., Woolhampton Hamblly, W.P. Mutley Gram. S., Plymouth Hand, R.H.J. Oswestry Gram. S. Hankin, A. Gosberton Hall, Spalding Hanson, F.J.C. Horsmonden S. Hard, F.W. Osborne High S., W. Hartlepool Hargreaves, H.E. Hanley Castle Gram. S. Harmon, L.C. Taunton Trade S., Southampton Harnor, P.W. St. John's Coll., Brixton Harrison, H.F. Gram. S., Cork Harrop, D. Catholic Coll. S., Manchester Harrowsmith, I.R. Ryde H., Ripley, Woking Hatch, E.D. Margate Coll. Hatchwell, L.H.J. Margate Coll. Hawes, A.F. Park S., Wood Green Hawkins, T.R. Lady Hawkins' Gram. S., Kington Haynes, J.J.P. Christian Brothers' Coll., Gibraltar Haynes, W.E. Paddington High S. Hayward-Browne, B.H. Oswestry Gram. S. Henmi, C. Christian Brothers' Coll., Gibraltar Henri, A.W. New Brighton High S. Hills, A.H. Osborne High S., W. Hartlepool Hingston, R.G.W. Gram. S., Cork Hinton, H. Market Bosworth Gram. S. Hogan, P. St. Aloysius Coll., Hornsey Lane Horne, C.H.M. Gram. S., Cork Hubert, P. Oakwood H., Jersey Huggett, S.G. Modern S., East Grinstead Hughes, J.G. Oswestry Gram. S. Hughes, J.T. Gram. & Coll. S., Carnarvon Huish, H.C. Paddington High S. Hulland, W.E. Kenilworth, Lr. Weston Bath Humphries, A. Meredith H., Lichfield Hunt, N.C. New Brighton High S. Hyde, E.C. Private tuition Ingarfield, F.W. Margate Coll. Ings, A. Taunton Trade S., Southampton Jackson, B.L. Mutley Gram. S., Plymouth Jackson, H. Catholic Coll. Inst., Manchester Jackson, W. Catholic Coll. Inst., Manchester Jarrad, E.E. Taunton Trade S., Southampton Jarvis, C. Cavendish Gram. S. Jarvis, H. Taunton Trade S., Southampton Jennison, H.G. Mutley Gram. S., Plymouth Johnson, F.S. Private tuition Jones, E.H. Kingsholme S., Weston-s.-Mare Jones, F.T. Hanley Castle Gram. S. Jones, H.L. Preswylfa, Cardiff Jones, L.M. Gram. & Coll. S., Carnarvon Jones, O.H. Gram. & Coll. S., Carnarvon Jordan, H.F. Bethany H., Goudhurst Joynt, N.L. Gram. S., Cork Keene, A. Bethany H., Goudhurst Keene, K. 4 Arlington Villas, Brighton Kelly, J. St. Aloysius Coll., Hornsey Lane Kent, W. Hanley Castle Gram. S. Kew, C.A. Egerton Park Coll., Bexhill Kidner, R.W. Independent Coll., Taunton Kilbride, T. St. Aloysius C., Hornsey Lane Kilkelly, J. Convent S., Pulteney Rd., Bath Kiloh, A.J. Gram. S., Cork Kilroe, W. Wharfedale Coll., Boston Spa Kilroy, J.N. Catholic Inst., Hope St., L'pool Kinch, E.N. Margate Coll. Kirk, J. Egerton Park Coll., Bexhill Kirtton, H.H. Margate Coll. Kitchen, E.A. Hanley Castle Gram. S. Klitz, C. Taunton Trade S., Southampton Kneese, R.W.H. Hurst Leigh, Southampton Knock, E. Kent Coll., Canterbury Knott, W. Kent Coll., Canterbury Knowlenden, C.A. Margate Coll. Knowles, J. Catholic Coll. Inst., M'chester Lake, A.J. Huish S., Taunton Lale, H.P. Independent Coll., Taunton Lambert, A. St. Aloysius Coll., Hornsey Lane Lane, C.L. Chandos Gram. S., Winchcombe Larralester, C. Jersey Modern S., St. Helier Leach, I.J. Huish S., Taunton Le Bouthillier, B.J. Oakwood H., Jersey Leighton, N.C. Elm Bank S., Nottingham Leonard, E. Oakwood H., Jersey Le Pavs, R. Taplow Gram. S. Lillis, W.O. St. Philip's Gram. S., Edgbaston Lillywhite, R. Ryde H., Ripley, Woking Linekar, A.M. Margate Coll. Lisby, S.W. Taunton Trade S., Southampton Llewellyn, J.L.B. Devezes Boys' Coll. Lloyd, F.H. Oswestry Gram. S. Long, R.J. Devezes Boys' Coll. Long, W.R. St. Bartholomew's Gram. S., Newbury Longley, E.G. Wright's S., Faversham Longman, G. Taunton Trade S., Southampton</p>	<p>Lund, F. Hutton Gram. S. Lupton, S.A. Comm. Coll., York Macintosh, J.P. Bethany H., Goudhurst Maclaren, C.W.D. New Brighton High S. Magner, L. St. Aloysius Coll., Hornsey Lane Mair, I. Catholic Coll. Inst., Manchester Mallous, G. Ryde H., Ripley, Woking Mallous, H.T. Ryde H., Ripley, Woking Marsh, A. Margate Coll. Marsh, S.T. Park S., Wood Green Marsh, W. Forest Hill Martin, E. Bethany H., Goudhurst Martin, H.J. Margate Coll. Martin, L. St. Aloysius Coll., Hornsey Lane Mather, F. Catholic Coll. S., Manchester Mather, P. Catholic Coll. S., Manchester Matthews, A. Holt H., Cheshunt Matthews, W.E. Hasland H., Penarth McCormack, P. Catholic C. Inst., M'chester McLaughlin, P. Catholic C. Inst., M'chester Meade, J. Catholic Coll. Inst., Manchester Middleton, T. Catholic C. Inst., Manchester Milburn, S. Chandos Gram. S., Winchcombe Milburn, T.M. Chandos Gr. S., Winchcombe Minter, R.H. Southwell Gram. S. Molyneux, H.H. Sandwich S. Montgomery, S. New Brighton High S. Moore, C.S. Private tuition Moore, G. Hatfield H., St. Leonard's Moran, E.D. Wright's S., Faversham Moran, T. Catholic Coll. Inst., Manchester Morasse, A.C. Christian Brothers' C., Gibraltar Morgan, W. Taunton Trade S., Southampton Morris, A.A. St. Catharine's S., Broxbourne Morrish, W. Barnstaple Gram. S. Morse, F.P. Ebor S., Bexhill Mout, A.R. Margate Coll. Munro, J. Margate Coll. Murray, J.C. Taplow Gram. S. Murray-Morgan, E. Private tuition Murray-Morgan, R.H. Private tuition Musgrave, H. Independent Coll., Taunton Naylor, W. Catholic Coll. Inst., Manchester Nep, H.W. Market Bosworth Gram. S. Newson, G.F. St. Philip's Gram. S., Edgbaston Nichols, F.G. Sandwich Gram. S. Norman, P.G. Huish S., Taunton Norton, G.H. Cavendish Gram. S. Nutt, T. Convent S., Southampton Oakley, F. Horsmonden S. O'Keary, P. St. Aloysius C., Hornsey Lane Oliver, R. Lady Hawkins' Gram. S., Kington Oliver, W.R. Sandwich S. Orbell, D. Cavendish Gram. S. Osborne, C.N. Bethany H., Goudhurst Oyler, A. Holt H., Cheshunt Packman, R.J. Stafford Coll., Forest Hill Page, S. Richmond Hill S. Pain, E. Richmond Hill S. Palmer, T.T. Gram. S., Cork Pardington, W.V. Chandos Gr. S., Winchcombe Parker, R. St. Philip's Gram. S., Edgbaston Parks, W. Cath. Inst., Hope Street, Liverpool Parr, P.W. St. Philip's Gram. S., Edgbaston Patching, E.G. Ascham Coll., Westcliffe-on-Sea, Essex Payton, H. Ascham Coll., Westcliffe-on-Sea, Essex Peach, S.G. Cavendish Gram. S. Peck, S.G. Independent Coll., Taunton Pegg, P.T. Market Bosworth Gram. S. Perrott, F.W. Gram. S., Cork Petherbridge, H.V. Church St. S., Newington Petley, C.C. Sandwich S. Phillips, R.G. Hanley Castle Gram. S. Phillips, S.V. Bryn Haug, The Mumbles Phillips, W.H. Taunton Trade S., Southampton Pike, W.R. Eye Gram. S. Pitcock, E.L. Sandwich S. Pitcock, E.L. Sandwich S. Plackett, H.W. Commercial Coll., York Plewes, H. Read's S., Drax, Selby Poole, R. Hutton Gram. S. Popham, A.S. Gram. S., Cork Posso, L. Christian Brothers' Coll., Gibraltar Poulton, T. Catholic Inst., Hope St., L'pool Powell, A.S. Huish S., Taunton Powell, F.E. Kent Coll., Canterbury Prevel, J. St. Aloysius Coll., Hornsey Lane Prevost, H.H. St. Philip's Gram. S., Edgbaston Prosser, G.F. Hanley Castle Gram. S. Quinn, G.A. Taplow Gram. S. Quinn, J.C. St. Philip's Gram. S., Edgbaston Rash, J.J. Eye Gram. S. Read, W.J. Pierremont Coll., Broadstairs Reeves, H.G. Sandwich S. Reed, J.B. Modern S., East Grinstead Rich, W. Huish S., Taunton Richards, R. Huish S., Taunton Richards, R.S.H. Stoke Newington Gram. S. Richardson, P.H. Southwell Gram. S. Rigney, J.H. St. Philip's Gram. S., Edgbaston Roberts, J.F. Lady Hawkins' Gram. S., Kington Roberts, J.W. St. Philip's Gram. S., Edgbaston Roberts, M.V. Private tuition Roberts, R.F. Oswestry Gram. S. Robson, R.H. Osborne High S., W. Hartlepool Rollinson, F. Read's S., Drax, Selby Ronald, J. Convent S., Pulteney Rd., Bath Roskelly, A. Taunton Trade S., Southampton Rowe, H. Penwerris Gram. S., Falmouth Rowney, F.H. Taplow Gram. S. Rutland, S. Streatham Gram. S. Ryan, B. Catholic Coll. Inst., Manchester</p>	<p>Ryott, S.W. St. Bartholomew's Gram. S., Newbury Sanders, W. Barnstaple Gram. S. Sanderson, W.E. Gram. S., Cork Saunders, K.S. Sandwich Gram. S. Savage, J.G. Seaford Coll. Savigear, A. St. Aloysius Coll., Hornsey Lane Scarborough, R.J. St. Philip's Gram. S., Edgbaston Schlienger, A.V. Hillmartin Coll., Camden Rd. Scott, R. New Brighton High S. Scott, W. Taplow Gram. S. Segundo, A. Christian Brothers' C., Gibraltar Sellers, A.J. Prospect H., Dover Sellers, R. Commercial Coll., York Sellers, E. Taunton Trade S., Southampton Setford, B.E. Park S., Wood Green Shank, J.J. St. Philip's Gram. S., Edgbaston Shaw, G.B. Hasland H., Penarth Sheldon, B. Southwell Gram. S. Sheppard, C. St. Aloysius C., Hornsey Lane Shilling, W. Wright's S., Faversham Shilton, C.P. Market Bosworth Gram. S. Shirley, A.A. St. Philip's Gram. S., Edgbaston Shrubsole, F. Wright's S., Faversham Simmons, G.H. Kingsholme S., Weston-s.-Mare Simpson, C.A. Southwell Gram. S. Smith, A.W. St. John's Coll., Brixton Smith, A.F. Eye Gram. S. Smith, C. Wharfedale Coll., Boston Spa Smith, C.B. St. Mary's Coll., Woolhampton Smith, G.J. 4 Arlington Villas, Brighton Smith, W.H. Oswestry Gram. S. Smith, W.J. Richmond H., Handsworth Solly, D. Sandwich S. Solomon, D.W. Sandwich Gram. S. Solomon, E.E. Kent Coll., Canterbury Soundy, L.H. Taplow Gram. S. Sowerly, L.W. Mutley Gram. S., Plymouth Spence, E. St. Bartholomew's Gram. S., Newbury Spendiff, C.K. Wright's S., Faversham Steel, J.C. Independent Coll., Taunton Stevens, V.G. Seaford Coll. Stock, G.H. Chandos Gram. S., Winchcombe Stokes, F.G. Kingsholme S., Weston-s.-Mare Stow, E. Ryde H., Ripley, Woking Sullivan, J. Catholic Inst., Hope St., L'pool Summers, T. Market Bosworth Gram. S. Sunderland, A. Catholic Coll. Inst., M'chester Swan, D.B. Sandwich S. Synmons, W. Barnstaple Gram. S. Taaf, W. Convent S., Pulteney Rd., Bath Tanner, L.C.H. Modern S., East Grinstead Tanner, W. St. Aloysius Coll., Hornsey Lane Tapp, J. Taunton Trade S., Southampton Taylor, A.C. Huish S., Taunton Taylor, G.E. Coll. S., Deal Taylor, J. Catholic Coll. Inst., Manchester Terry, P.R. Sandwich S. Thomas, C. Barnstaple Gram. S. Thomas, D.H. Gram. & Coll. S., Carnarvon Thomas, J. Pencader Gram. S. Thomas, W. Ascham Coll., Westcliffe-on-Sea, Essex Thompson, E.J. Southwell Gram. S. Tonge, A.S. Commercial Coll., York Townshend, R.A. St. Mary's C., Woolhampton Travers, G. Catholic Coll. Inst., Manchester Treadway, A.J. St. Philip's Gram. S., Edgbaston Treadgold, H. Private tuition Trenchard, R. Independent Coll., Taunton Tresise, H. Barnstaple Gram. S. Turner, A.W. Lady Hawkins' Gram. S., Kington Turner, C. Margate Coll. Turner, J.E. West Cliff Prep. S., Preston Twoomey, V. Catholic Inst., Hope St., L'pool Underwood, F.H. St. John's Coll., Brixton Underwood, W.T. Ryde H., Ripley, Woking Vassalli, J.F. St. Mary's C., Woolhampton Veale, W.E. Margate Coll. Verney, E. Barnstaple Gram. S. Vickers, R.B. Gram. S., Cork Wales, F.J. Winchester H., Ot. Yarmouth Walker, F.J. Grove H., Hightate Walters, H.C. Grove H., Hightate Ward, T. Catholic Inst., Hope St., Liverpool Watkins, F. Catholic Coll. Inst., Manchester Watson, J.S. Gosberton Hall, Spalding Watson, P.H. Private tuition Watson, S.M. Private tuition Watts, F. Barnstaple Gram. S. Way, V.E. Margate Coll. Webb, S.N. Mutley Gram. S., Plymouth Weeks, C. Taunton Trade S., Southampton Weinburg, G. St. Aloysius C., Hornsey Lane Wells, A.J. Richmond Hill S. Whelpdale, D.H. Streatham Gram. S. White, F.B. Margate Coll. White, H.E.G. Grove H., Hightate White, J. Catholic Coll. Inst., Manchester Whitfield, E. Gosberton Hall, Spalding Whyte, M. Convent S., Pulteney Rd., Bath Wicks, G. Belmont H., Cheltenham Wild, G.B. Taunton Trade S., Southampton Wilkinson, G. Read's S., Drax, Selby Williams, F.P. Warwick H., Southsea Williams, G. Pencader Gram. S. Williams, R.B. Osborne High S., W. Hartlepool Williams, T. Kingsholme S., Weston-s.-Mare</p>
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BOYS, JUNIOR FORMS—Continued
Willis, H.
Ascham Coll., Westcliffe-on-Sea, Essex
Willis, R. Bethany H., Goudhurst

Wilson, C.S.
Wilson, R.F.
Wood, F.J.
Woods, H.S.

Modern S., East Grinstead
Gram. S., Cork
Belmont H., Walmer
Eye Gram. S.

Wordsworth, J. Wharfedale Coll., Boston Spa
Worsley, G. Hutton Gram. S.
Wright, B.H. Winchester H., Gt. Yarmouth
Wright, C. St. Aloysius Coll., Hornsey Lane

Wright, W.F.
Wyard L.

Taplow Gram. S.
Hasland H., Penarth

GIRLS.

Adlington, A. Thorne Road S., Lambeth
Allen, W. Lulworth Lodge, Birkdale
Andrea, M.M. St. Mary's Conv., Bruff
Armstrong, L. St. Hilda's, Gosforth-on-T.
Armstrong, M. Lulworth Lodge, Birkdale
Ashton, H. Moravian Ladies' S., Fairfield
Ashworth, C.E. Moravian Ladies' S., Fairfield
Austen, E.L. Percy Lodge, Margate
Baggs, E.M. Fellenberg S., Maidstone
Ball, C. Girls' Coll., Broadgreen, Liverpool
Ball, H.H. Private tuition
Ball, M.A. High S., London Rd., Salisbury
Ball, T.M. Bursledon S., Exeter
Barber, Ellen Wincham Ladies' Coll.
Barber, Esther Wincham Ladies' Coll.
Barney, L.E. St. James's Coll. S., Jersey
Barnfield, E.C.E. Coll. S., Ashford, Midd'ssex
Barrington, G.E. Up. St. Leonards Ladies' C.
Bassett, M. Clare Lodge S., Newcastle, Co. Down
Beck, E.M. Addington H., Thornton Heath
Bird, E. Cork High S.
Birl, H. Warwick Coll., Brixton Hill
Birl, M.P. Private tuition
Black, N. Stroud Green High S., N.
Blackhurst, M.M. Highfield Coll., Blackpool
Blundell, A. Lulworth Lodge, Birkdale
Boddy, M.L. Girls' High S., Sutton-on-Trent
Bolger, J.M. Stratford Abbey C., Stroud
Boose, L.G. Fulham Park Coll.
Bourgeois, J. Catholic Up. Grades., Bayswater
Bradburn, N. Beechcroft Coll., Richmond
Bradbury, M. Lulworth Lodge, Birkdale
Bradley, D. College for Ladies, Boston Spa
Braye, K.L. Rutland H., S. Hackney
Bridgland, M.A. Tufnell Park Terrace S., N.
Brierley, D.M. Moss House S., Whitefield, M'chester
Brooker, L.M. West H., Forest Hill
Brooks, D.E. New Brighton High S.
Brown, F. Brantwood, Trinity Rd., Bootle
Brown, G.M. Thornton S., Grays
Brown, L.M.S. Thornton S., Grays
Browning, E.G. Priory H., York
Bryant, E. Linwood S., Altrincham
Buckler, D.L. Westford, Streatham
Burt, R.E. Private tuition
Canfor, J.L. Westbourne S., Westbourne Park, W.
Card, C.A. High S., London Rd., Salisbury
Carpenter, H.M. Wine Street H., Froume
Carter, G.M. Woodford S., Southsea
Cates, A.M. Denmark Coll., Wimbledon
Cerutti, E.L. Convent S., Leicester Place, W.C.
Chapman, A.M. North Park Coll., Croydon
Chapman, E.H. Montreux H., Brondesbury
Chartres, G. North Park Coll., Croydon
Chandler, C. Private tuition
Chillingworth, E.H. Cork High S.
Chubb, M. Cavendish H., Liverpool
Clark, M.A. St. Mary's Conv., Newtownbarry
Clegg, A. Convent S., Eden Grove, N.
Cochran, O.M. Cavendish H., Liverpool
Collard, E. Stratford Abbey Coll., Stroud
Connor, L. Catholic Up. Grade S., Bayswater
Cortazzi, I.K.C. North Park Coll., Croydon
Costiff, M. Private tuition
Cotter, B.E. Royal Naval S., Twickenham
Cowdy, D.M. Hamilton Coll., Sidcup
Cox, A.M.E. Royal Naval S., Twickenham
Craig, E.I. Private tuition
Craig, L.M. Private tuition
Creagan, A. St. Mary's Convent, Bruff
Crichtley, E. Stratford Abbey Coll., Stroud
Croe, D.J. Aston H., Hammersmith
Crowhurst, M.E. The Coll., Goudhurst
Cruyker, M.G. High S., Walton-on-Thames
Curtler, W.M. The Hollies, Handsworth
Dale, D.B. Private tuition
Daniels, M. Stratford Abbey Coll., Stroud
Darling, R. The Avenue Berwick-on-Tweed
Davidson, A.Y. Denmark Coll., Wimbledon
Davies, E.M. Rose Hill S., Whittington, Oswestry
Davies, H.M. Queen Anne's Coll., Southend
Davis, M.L. High S., London Rd., Salisbury
Day, M. Stroud Green High S., N.
De la Haye, M.D. St. James' Coll. S., Jersey
Dennis, G.M. Addington H., Thornton Heath
deNormanville, C. Convent S., Eden Grove, N.
dePeyrecave, H. Westford, Streatham
Dickins, A. Brook Hall S., Winslow
Dingley, M.D. The Hollies, Handsworth
Dismorr, R.S. West H., Forest Hill
Doggett, M.G. Warwick Coll., Brixton Hill
Drapper, A.E. Raleigh S., Stoke Newington
Drury, L. The Maze, Bournemouth
Eastwood, B.E. Oak Hill S., Edgerton
Eastwood, P.L. Oak Hill S., Edgerton
Edkins, D. Westbourne S., Westbourne Pk., W.
Ellam, E.M. Coll. High S., W. Didsbury
Elliot, F. Priory H., York
Ellor, E. Moravian Ladies' S., Fairfild

Fausset, E.M.
Field, M.
Finch, B.
Finucane, J.
Firth, H.
Flock, K.
Forster, D.L.
Fowler, M.
Francis, O.M.
Fraser, P.
Freeman, P.
Fullbrook, M.K.G.
Gannan, K.
Garratt, C.V.
Garriban, M.
Gilbert, M.
Gibbey, A.
Gilles, A.B.L.
Gillingham, A.G.M.
Montreux H., Brondesbury
Gillingham, W.F.
High S., London Road, Salisbury
Glassborow, F. Powerscroft, South Woodford
Godard, E.R. Craven Park Coll., Harlesden
Godlard, M.I. Fulham Park Coll.
Goreham, L.S. Mayfield, Broxbourne
Gow, M. Private tuition
Greenhill, M.P. Kingsley H., Plymouth
Griffin, G. Up. St. Leonards Ladies' C.
Gruchy, C. St. James' Coll. S., Jersey
Hainsworth, H. Moravian Ladies' S., Fulneck
Halford, B.N. Holt H., Fakenham
Hall, G.S. Ashby Coll., Brockley
Hamlett, C.E. London Coll., Stratford
Hanson, D.E. Ellenborough H., Clifton
Harding, K. High S., London Rd., Salisbury
Harding, M.A. Stroud Green High S., N.
Harding, M.E. Moseley Ladies' Coll.
Hargreaves, D. Fern Bank, Harpurhey, Manchester
Harkiss, J.M. The Hollies, Handsworth
Harris, F.C. Harley H., Hereford
Harrison, D.A. High S., Wyde Green, Birmingham
Harrison, M.E. St. Hilda's C., Hexham-on-T.
Harvey, W.C. Coleridge Coll. S., Finsbury Pk.
Hawkins, G.I. Parkfield Coll., High Barnet
Hay, A.H. Coll. S., Ashford, Middlesex
Haynes, B. Halton View, Exeter
Heath, E.J. Hamilton Coll., Sidcup
Hetherington, C.J. Private tuition
Hewer, E.E. Private tuition
Higgs, M.E. London Coll., Stratford
Hishon, M. St. Mary's Conv., Bruff
Hodgkinson, D.W. Private tuition
Hodgson, M. Warwick H., Poulton-le-Fylde
Holden, E.M. Upper St. Leonards Ladies' C.
Holdon, I.M. Brook Hall S., Winslow
Holmes, E.G. The Maze, Bournemouth
Holmes, F. Moravian Ladies' S., Fairfield
Holt, E.M. Granville H., Southampton
Houghton, V. 19 Fitzclarence St., Liverpool
How, L.D. Denmark Coll., Wimbledon
Howard, E.L. Stroud Green High S., N.
Howard, F.M. High S., Wyde Green, B'ham
Howe, W. Coll. High S., W. Didsbury
Howland, H. The Coll., Goudhurst
Hudson, A. Stretton H., Fleetwood
Huggins, F.A. Stroud Green High S., N.
Hughes, B.E. Private tuition
Humphreys, V.B. Stretton H., Fleetwood
Hunt, E.W. Denmark Coll., Wimbledon
Hutchinson, G. Elmshie, Maidenhead
Imperial, E. Convent S., Eden Grove, N.
Ingram, M.E.C. The Hollies, Handsworth
Iredell, D.M. Girton. London Road, Croydon
Jackson, G. Convent S., Eden Grove, N.
Jackson, L.A. Fern Bank, Harpurhey, Manchester
Janion, L. Lulworth Lodge, Birkdale
Jerys, I.A. Oxford Coll., Gunnedersbury
Jesty, E.M. Southoe H., Richmond
Johnston, E.G. 4 Princess Gardens, Belfast
Jones, A.E. Stratford Abbey Coll., Stroud
Jones, H.J. Stroud Green High S., N.
Jones, K.S. 59 Summerfield Cres., Edgworth
Jones, L.R. Stretton H., Fleetwood
Jones, M.A. Rose Hills, Whittgton, Oswestry
Jones, M.C. 2 Duke Street, Bath
Jones, M.S. Rose Hills, Whittington, Oswestry
Jones, R. The Newlands, Bootle
Jones, R.A.P. 19 Fitzclarence St., Liverpool
Joyce, D.J. Private tuition
Kenny, G.M. Convent S., Southampton
Kenyon, H. Lulworth Lodge, Birkdale
Kenor, M.R. Mansfield H., Maids Vale
Kidd, F.M. North Park Coll., Croydon
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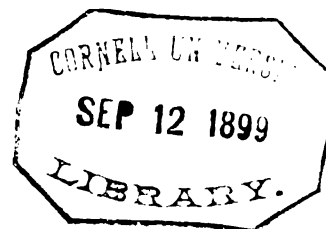
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Three Entrance Scholarships will be offered for competition in September, viz., one of £150 and one of £50 in Chemistry and Physics, with either Physiology, Botany, or Zoology, for First Year's Students; one of £50 in Anatomy, Physiology, Chemistry (any two), for Third Year's Students from the Universities.

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The School Buildings and the Hospital can be seen on application to the Medical Secretary.

The fees may be paid in one sum or by instalments. Enquiries may be made separately to Lecture or to Hospital Practice, and special arrangements are made for students entering from the Universities and for Qualified Practitioners.

A Register of approved lodgings is kept by the Medical Secretary, who also has a list of local Medical Practitioners, Clergymen, and others who receive students into their houses.

For Prospectus and all particulars apply to Mr. RENDLE, the Medical Secretary.

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The WINTER SESSION begins on October 2nd with an Introductory Address, at 3 p.m., by H. G. PLIMMER, Esq.

The ANNUAL DINNER will be held in the Evening, at the King's Hall, Holborn Restaurant, Dr. SIDNEY PHILLIPS in the Chair.

ENTRANCE SCHOLARSHIPS IN NATURAL SCIENCE.

One of £144, two of £78. 15s., one of £52. 10s., two of £57. 15s. (both open to students from Oxford and Cambridge), will be awarded by Examination on September 20th and 21st.

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A complete reorganization of the Pathological Department has also lately been made, with provision of extensive new Laboratories for Pathology and Bacteriology, and an improved Museum for radiological specimens, with a special Anatomical Department.

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The ANNUAL DINNER of the Past and Present Students and their friends will take place the same evening at the Trocadero at 7 o'clock. Mr. A. PEARCE GOULD, M.S., F.R.C.S., in the Chair.

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Physician to the Skin Department—Dr. J. J. Pringle. Assistant Obstetric Physician—Dr. R. Boxall.

Consulting Surgeons—Mr. Nunn, Mr. George Lawson. Surgeons—Mr. Henry Morris, Mr. Andrew Clark, Mr. A. Pearce Gould.

Assistant Surgeons—Mr. J. Bland Sutton, Mr. John Murray, and Mr. T. H. Kellock.

Ophthalmic Surgeon—Mr. William Lang. Aural Surgeon—Mr. Stephen Paket.

Consulting Dental Surgeon—Mr. J. S. Turner. Dental Surgeon—Mr. Storer Bennett.

Assistant Dental Surgeon—Mr. W. Horn. Other Lecturers—Dr. Robinson, Dr. Young, Dr. Plimpton, Dr. W. J. Muckle, Dr. Wethered, Dr. Crombie, Mr. A. G. R. Foulerton.

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There are eighteen Resident Clinical Appointments open to Students of the Hospital annually.

Two open Entrance Scholarships (value £100 and £60) will be competed for on September 21 and 22, and one Entrance Scholarship (value £60) in Anatomy and Physiology (open to Oxford and Cambridge Students only) on September 21 and 22. Notice in writing to be sent to the Dean on or before September 14.

Composition Fee 135 guineas, or by three yearly instalments of 60 guineas, 50 guineas, and 35 guineas.

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The WINTER SESSION will begin on Monday, October 2nd, 1899. Five Open Entrance Scholarships of the combined value of £400 are offered for competition in September next, and numerous prizes, Medals, and Scholarships are awarded annually.

The College accommodates 60 residents, and contains Reading Rooms, Dining Hall, and Gymnasium for the general use of the Students. During last year more than 6,500 patients have been treated in the Wards of the Hospital. The Preliminary Scientific Class for Students who matriculated at London University in July will begin on October 2nd.

The Clubs' Union Athletic Ground at Honor Oak Park is easily accessible from the Hospital. A handbook of information for students about to enter the profession will be forwarded on application. For further particulars, or Prospectus of the School, apply personally or by letter to the DEAN, Guy's Hospital, London Bridge, S.E.

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.

The WINTER SESSION will begin on Monday, October 2nd, 1899.

Students can reside in the College within the Hospital walls, subject to the collegiate regulations.

The Hospital contains a service of 750 beds. Scholarships and Prizes of the aggregate value of nearly £900 are awarded annually.

The Medical School contains large Lecture Rooms and well-appointed Laboratories for Practical Teaching, as well as Dissecting Rooms, Museum, Library, &c.

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For further particulars apply, personally or by letter, to the WARDEN of the College, St. Bartholomew's Hospital, E.C.

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the dubious attitude of those who do not altogether like this new Act of Parliament; and there is a word or two which we should like to say to them to-day. The Act is not a code of regulations, but a framework which needs to be filled in—a skeleton which has yet to be clothed with flesh and blood. It asserts a principle and confers a power. The principle is that efficient teachers shall be backed by the public purse, on the sole ground and condition of their efficiency. The power is that a Cabinet Minister, a Department, a representative Council of men drawn from all ranks of the profession, may—and indeed they must—insist on efficiency, help every efficient school which needs and asks for help, and establish new schools only after proof of deficiency. Now, as to the principle, we make bold to say that all schoolmasters striving for efficiency, and needing nothing but money to satisfy every demand for efficiency, are absolutely in favour of a system based on efficiency; and with men who do not strive for efficiency, and do not care to be efficient, nobody can have any sympathy whatever. Let us add, by way of parenthesis, that the private schoolmaster whose quality is ethical rather than technical, who devotes his genius to the training of a handful of pupils, and who could not square his methods with any formal and prescribed test of efficiency, is often more truly efficient than all the rest of us put together—that no statesman and no Educational Council would dream for a moment of interfering with him, and that under no form of organization is he likely to be disturbed or injured in the pursuit of his vocation.

Now, as to the power which the Board of Education Act has conferred upon the Board and its Consultative Committee, that is still a virtual and an undefined power. Who is to define it? Surely, to a large extent, public opinion, set and guided by the profession, at whose instance the Act has been passed. Public opinion will operate directly upon the Local Authorities, and we do not believe that in the long run these Authorities will be either inequitable or oppressive. If they should be so in exceptional instances, they will be subject to the control of the Central Authority; and this Authority, so far as it deals with matters of secondary education, will take the opinion and follow the advice of its Consultative Committee, on which there will be spokesmen of every class of schools, and a two-thirds majority of "persons representing Universities and other bodies interested in education." The functions of this Committee are not exhaustively defined in the Act. It will create the register, and it will advise as to choice of inspectors, and prob-

ably as to the scope of inspection. But we may anticipate that it will do a good deal more than this. It ought to be at least the assessor in all appeals made to the Central Authority. We confess that our main hope in regard to the new Act is based upon the guarantees which will be provided for secondary education by the existence of a permanent Consultative Committee.

Well, then, the filling in of the framework of the Act is still a matter for discussion; and it is a matter on which the whole profession would now do well to concentrate their attention. The Government will expect us to speak our mind as freely in the future as in the past. They will look for our opinions in regard to registration and inspection, to the constitution of Local Authorities, and to the functions of the Consultative Committee. On the organization of the Board itself, and on its internal economy, the Education Department will give themselves a free hand, and we have not the slightest doubt that they will forge and sharpen a very effective instrument. But, where this Board comes into close contact and relations with secondary schools, they will want, as a matter of course, to know the convictions and wishes of secondary schoolmasters. Would that we could speak to them with one mind and one voice, not for ourselves, and not even for our own interests, except in so far as the interests of education are our own! Then, beyond all question, we should get precisely the organization and the guarantees which we consider essential for the common welfare.

In any case, what we chiefly want to emphasize is that the work of discussion is only half accomplished. All the talk of the past—the Commissions, the Conferences, the Joint Committees, the spoken and written arguments—would lose half their value and justification if we failed within the next seven months to address ourselves to the details of the new organization.

NOTES.

We do not quite see the significance of the proviso inserted by the House of Commons in the fourth (Registration) clause of the Board of Education Act. The Consultative Committee is to frame regulations for the formation of a register of teachers, provided that the names are to be arranged in alphabetical order. It is fortunate that the lawyers are not likely to be called on to interpret the meaning of these simple words. If they are merely held to enjoin a general list of teachers of every kind, arranged for ready reference in the order of the alphabet, surely no one would dream of a complete register in any other form. But there is nothing in the clause as it stands to prevent the Registrar from giving separate lists of teachers in elementary schools, teachers in secondary schools, professors and lecturers at the Universities, teachers of music and drawing, private tutors, and so forth. It matters little so long as the distinctions are noted in the general list—though, when the register becomes an electoral roll, these distinctions will be important. But the oddity of the thing is that this proviso enjoins what no one would think of omitting, and fails to prohibit the separate lists which many think desirable—and a few others, apparently, undesirable.

It may be hoped that the recent conference between the

London School Board and the Technical Education Board will turn out to have been successful in diminishing, if not in abolishing, the serious overlapping of the two organizations in the metropolitan area. The School Board, which seems to have been mainly responsible, by its overweening ambition, for the waste of energy and resources, has undertaken to limit its instruction in science and art in all its evening schools "to such grades as can be conveniently taught in its premises," leaving the Technical Education Board to give advanced instruction in its own premises. It also promises not to conduct classes in technological subjects, and not to "offer instruction specially intended for University degrees." This last self-denying ordinance on the part of a Board which exists to give elementary education to children under the age of fourteen is distinctly amusing. But we will only repeat our hope that the understanding arrived at by the two Boards has put an end to the mischief.

DR. LEWIS LLOYD, late Bishop of Bangor, whose death was recently announced, was not much known out of Wales. Before his elevation to the bishopric of Bangor he had, however, established his reputation as one of the most successful of Welsh schoolmasters during this century. His teaching career began with an assistant-mastership at Ystradmeurig, an old-established Cardiganshire grammar school where, in the good old days, before the modernizing Welsh Intermediate Education Act endeavoured to put new wine into old bottles, boys talked in Latin and thought in Welsh. His next appointment was that of Headmaster of Dolgelly Grammar School, followed after a few years by his appointment to Friars School, Bangor, where at one time he had a sixth form of some dozen boys, every one of whom took a scholarship or exhibition at Oxford or Cambridge. His subsequent success at Christ's College, Brecon, was almost equally striking. Although not a man of any exceptional learning or culture, his power of clear exposition and attention to detail, coupled with a rigid insistence on thorough preparation of lessons by his boys, seemed always to give him a sixth form without a "tail." He had a strong right arm, but, nevertheless, he was always a favourite of his boys, and a good cricketer who played with his school team. Absolutely devoid of educational fads, his method might have seemed to some old-fashioned. It was simply to encourage the willing to do their utmost, and to apply Father O'Flynn's remedy to the lazy ones.

It was probably owing to the fervour displayed at the Conference on Education at the Chicago Exhibition of 1893 that the famous Chatauqua movement made British proselytes. For we note that a fifth annual meeting of the British Chatauqua has recently been held at Saltburn on the Yorkshire coast. This little town, with its fine open beach and pleasant inland woods, is a happy spot to choose for a "plan of systematic self-education." Of course, this peripatetic institute can never reach the standard of its original on the American lake. There you may find a town of many thousand inhabitants, all healthily and happily employed, with secondary schools and kindergartens, outdoor games and gymnasia, popular lectures and magnificent concerts, religious services, and every help to culture, fancied or real, that can be devised. It is inexpensive too, and specially intended for the sober-minded working man, who spends his life in monotonous routine, never having a chance to improve

himself or even indulge in his hobby. We still find it strange and awkward in England to do anything in company with others; perhaps our sense of the ridiculous is too keen. But certainly this method of spending a week's holiday is preferable to the inanities of the ordinary seaside tripper. And Chatauqua may be a good thing in spite of the fact that a highly cultivated man like Prof. James, of Harvard, steps out of it with a cry: "Ouf, what a relief!" and longs for something primordial and savage to destroy the nightmare of that tame paradise.

THE buoyant exuberance of our American friends infuses a freshness even into their educational advertisements, as the following instances taken from current American magazines amply prove; and they incidentally show the existence of popular educational ideals in the States which seem somewhat foreign to the cultured calm and sound learning of Harvard and Yale. Of a boys' school: "We give a useful money-making education. It will pay you. Try it." This suggests the school described in Stevenson's "Wrecker." Of a college of Law: "Students can be self-supporting." Does this mean that the poorer students litigate with the richer and levy execution without the aid of the sheriff? It seems that most things can be "taught by mail," even engineering, and we are not surprised, therefore, to find that degrees may be conferred "by mail." They do not, however, seem to be sent "on approval." Girls' schools are far less prosaic. For instance: "Special attention given to everything that makes for the development of a well-rounded womanhood," "preparation for travel—summer classes in Europe." We thus find the secret why good Americans, when they die, go to Paris; and the following, mostly from Washington, explain how the English aristocracy capitulates so easily to American maidenhood. "The peer of any elsewhere—chaperonage and social advantages for special pupils," "sight-seeing parties every Monday; no nerve-straining examinations; character building; official and social life studied," "all the advantages of the national capital." All buildings and grounds which are not "unsurpassed" are "matchless," and we find that fees only range between £40 and £90 a year. Military academics seem very plentiful, the result, probably, of the Spanish war.

It is interesting to note that the Welsh county intermediate schools are rising into greater prominence each year in the Matriculation lists of the University. This is a good indication that the schools in question are devoting much attention to genuine secondary work. In future, however, it is probable that the names of Welsh intermediate schools will not be so much to the fore in the Matriculation lists, inasmuch as the Senior Certificate of the Central Welsh Board (in certain subjects) will be accepted in lieu of the University Matriculation. The results of the Central Welsh Board Examination are awaited with peculiar interest this year, for the examination was the first upon which the Senior and Junior Certificates of the Board will be granted. The Chief Inspector under the Central Welsh Board, Mr. Owen Owen, has promised to award a gold medal annually to the boy or girl who stands highest in the examinations of the Board.

ONE of the leading aims of the Central Welsh Board is to

encourage the training of boys and girls on the best modern methods, and to discourage the hasty and imperfect assimilation of knowledge merely for examination purposes. Accordingly, in the detailed reports sent to each school, there are a few brief remarks upon the work of each pupil in each paper, written by the actual examiners of the pupils' work. Thus the headmaster is guided in his efforts for the future, not only by the list of marks gained by the pupils, but also by the remarks of the examiners upon the work of the individual children. These reports, together with those upon the work of the classes as a whole, have already been highly appreciated by teachers, and they are one of the best features of the Welsh system.

At a meeting of primary teachers recently held at Aberystwyth, Dr. Macnamara again pointed out the defects of primary education in the Principality. The most thoughtful leaders of education in Wales have long been aware of the evils which he has pointed out, and are only too anxious to remedy them. His utterances will, it is hoped, have a salutary effect in arousing public opinion in Wales to the importance of appointing thoroughly qualified teachers, and to the necessity for regular and punctual attendance on the part of the children. It is clear, as we said last month, that the secondary schools and the University colleges will be greatly hampered in their work unless that of the primary schools is of a thorough character.

THE women students in Dublin are renewing their complaint that they are excluded from the Arts classes of the Royal University College; and we cannot wonder at it. This University was founded expressly for the benefit of both sexes. The statutes make no distinction of sex, except that women graduates are excluded from Convocation. It is pointed out that in Cork, Belfast, and Galway the lectures at the Queen's Colleges were at once thrown open to women, who have ever since had equal advantages with the men students at these colleges, and, moreover, are allowed to compete for the scholarships and prizes offered out of the direct endowments of the Queen's Colleges. But in Dublin nothing of the kind has been done. The persistent prejudice of the Senior Fellows is woefully out of date.

WITH the recent death of an old woman living on the outskirts of a Cornish town, probably the last of the old hedge-schools has disappeared. In a tiny cottage kitchen, with the open door giving straight on to the street, there might any day be found the old dwarf, helpless with rheumatism, perched on a high chair, an open Bible by her side. Around her on little forms sat about ten children, demurely reciting from their spelling-books, which were so black with dirt that the print could hardly be deciphered. For such schooling each child brought about a penny a week, if it could be raised; otherwise the payment was in kind—a Cornish pasty or a little tea. We wonder how the inspectors under the Board of Education Act would report on a school of this type. And yet—if only those books had been cleaner—Ruskin's highest ideal of education, the fostering of honesty, obedience, and cleanliness, was, no doubt, striven for, and sometimes, perhaps, more nearly attained than in many a State-aided school.

SUMMARY.

THE MONTH.

THE Board of Education Act (62 & 63 Vict., c. 33) received the Royal assent on August 9. The Act provides that on April 1, 1900, a Board of Education, consisting of the Lord President of the Council—the Duke of Devonshire will doubtless be the first President of the Board—of the existing Vice-President of the Committee of Council, of the Secretaries of State, the First Lord of the Treasury, and the Chancellor of the Exchequer, shall take the place of the present Education Department, including the Department of Science and Art; and it further provides that the Privy Council may at any time transfer to the Board any of the powers of the Charity Commission or the Board of Agriculture relating to education. The Board is to come into existence on the appointment of the President.

THE definitive form assumed by the third clause of the Act, which, with the fourth clause, is of special interest to secondary teachers, may now be placed on record:—

3.—(1) The Board of Education may by their officers, or, after taking the advice of the Consultative Committee hereinafter mentioned, by any University or other organization, inspect any school supplying secondary education and desiring to be so inspected, for the purpose of ascertaining the character of the teaching in the school and the nature of the provisions made for the teaching and health of the scholars, and may so inspect the school on such terms as may be fixed by the Board of Education with the consent of the Treasury: Provided that the inspection of schools established by scheme under the Welsh Intermediate Education Act, 1889, shall, subject to regulations made by the Treasury under Section 9 of that Act, be conducted as heretofore by the Central Welsh Board for Intermediate Education, and that the said Board shall be recognized as the proper organization for the inspection of any such schools as may be desirous of inspection under this section.

(2) The Council of any County or County Borough may out of any money applicable for the purposes of technical education pay or contribute to the expenses of inspecting under this section any school within their county or borough.

IT will be observed that there can be no inspection by University or other organizations [amongst which Clause 3 (2) virtually includes the County Councils by anticipation, at any rate as paymasters] until after the creation of the Consultative Committee. The creation is provided for by the fourth clause:—

4. It shall be lawful for Her Majesty in Council, by Order, to establish a Consultative Committee consisting, as to not less than two-thirds, of persons qualified to represent the views of Universities and other bodies interested in education, for the purpose of—
(a) framing, with the approval of the Board of Education, regulations for a register of teachers, which shall be formed and kept in manner to be provided by Order in Council: Provided that the register so formed shall contain the names of the registered teachers arranged in alphabetical order, with an entry in respect to each teacher showing the date of his registration, and giving a brief record of his qualifications and experience; and (b) advising the Board of Education on any matter referred to the Committee by the Board.

ON the eve of prorogation, Parliament voted a sum of £65,000 "for the purchase of the buildings now occupied by the Imperial Institute, and for their adaptation in part for use by the London University." The estimate for this vote was accompanied by a Treasury minute, comprising a report from the First Lord and the Chancellor of the Exchequer, and referring in general terms to the arrangements which had been made for acquiring the whole group of buildings from the governing body of the Institute.

These arrangements will enable Her Majesty's Government to offer to the London University accommodation in the building which may roughly be described as follows:—The eastern and central portions of the main block, including the principal entrance, vestibule, and staircase, and the great hall; subject to occasional use by the Institute of certain portions of the central block when not required by the University, under regulations approved by the Chancellor of the University, and subject also to certain reservations in favour of the Government of India. Also a portion of the upper floor of the inner block of building running east and west; and the temporary structure now standing in the south-eastern court. . . . The University will occupy its new quarters under conditions substantially the same as those under which it now occupies the building in Burlington

Gardens. As regards accommodation for the practical examinations of the University in Physics and Chemistry, it has been agreed that this shall be provided in the new buildings about to be erected for the Royal College of Science, subject to arrangement between the two bodies as to dates of user. The Science and Art Department will take charge of, and keep in order, the instruments and appliances for the examinations.

THE Secretary of the Charity Commission has forwarded to the Secretary of the Governors of Grantham Grammar School the following letter, dated August 5, announcing the decision of the Commissioners upon the facts recently inquired into on their behalf by Mr. Selby Bigge:—

SIR,—The Commissioners have had under consideration the report of the Assistant Commissioner, who visited Grantham on May 30, and held a public inquiry, with reference to the recent dismissal of three assistant-masters of Grantham Grammar School.

The Commissioners much regret that an impression should have obtained among those responsible for the administration of the charity that the engagements of the assistant-masters in the school were *ipso facto* terminated by the resignation of the Headmaster. As has already been intimated to you, this impression was without foundation.

Upon a review of all the facts of the case, the Commissioners are of opinion that the three assistant-masters were, in fact, dismissed without notice by Mr. Hutchings, the late Headmaster, by his letters of December 29 and 30, addressed to the assistant masters, taken in conjunction with previous communications between the parties. They are also of opinion that, under the terms of their engagement, the assistant-masters became, by the custom of the profession, entitled to one term's salary in lieu of notice, and that these sums are payable out of the funds of the charity.

The Commissioners are further of opinion that the scheme confers on the Governors no authority to make payments out of the funds of the charity to assistant-masters by way of *honoraria* for past services, and that, consequently, the sum of £155 so paid by the Governors, in pursuance of their resolution of February 27, should be refunded to the endowment by the Governors responsible for the resolution.

In order to avoid any further misapprehension, I am to add that the provisions of the scheme do not appear to impose any personal liability on a headmaster vacating his office by reason of his omitting to give notice to terminate the engagements of the assistant-masters, a step which is neither customary nor, in the interests of the school, desirable.

HER MAJESTY'S COMMISSIONERS FOR THE EXHIBITION OF 1851 have made the following appointments to Science Research Scholarships for the year 1899, on the recommendation of the authorities of the respective Universities and colleges. The scholarships are of the value of £150 a year, and are ordinarily tenable for two years (subject to a satisfactory report at the end of the first year) in any University at home or abroad, or in some other institution approved by the Commissioners. The scholars are to devote themselves exclusively to study and research in some branch of science the extension of which is important to the industries of the country. A limited number of the scholarships are renewed for a third year where it appears that the renewal is likely to result in work of scientific importance. The nominating institution of each scholar follows his or her name in brackets:—Robert John Tainsh Bell, M.A., B.Sc. (University of Glasgow); James C. Irvine, B.Sc. (University of St. Andrews); Henry Leonard Heathcote, B.Sc. (Mason University College, Birmingham); Winifred Esther Walker, B.Sc. (University College, Bristol); Frederick William Skirrow, B.Sc. (Yorkshire College, Leeds); Charles Glover Barkla, B.Sc. (University College, Liverpool); Harriette Chick, B.Sc. (University College, London); Henry James Tomlinson (University College, London); Frank Austin Lidbury, B.Sc. (Owens College, Manchester); William Campbell, B.Sc. (Durham College of Science, Newcastle-upon-Tyne); Louis Jenkens, B.Sc. (University College, Nottingham); James Travis Jenkins, B.Sc. (University College of Wales, Aberystwyth); Robert Duncombe Abell, B.Sc. (University College of North Wales, Bangor); William Caldwell, B.A. (Queen's College, Belfast); William Brown McLean, B.Sc. (McGill University); Bertram D. Steele, B.Sc. (University of Melbourne).

THE Commissioners appointed by the Lord Lieutenant to inquire into the working of the intermediate system of education in Ireland, with a view to its improvement, recommended in their report that a separate examination should be held for students who have passed, but are desirous of competing for honours and exhibitions. They consider that two distinct syllabuses should

be prescribed—the grammar-school course and the modern course, in either of which a student may present himself for examination. There should be a system of inspection, or *viva voce* examination, in subjects where an accurate test of efficiency is not obtained from a written examination. Each intermediate school should receive a yearly grant, not upon the general results of the examination in one year, but upon the average results of the three years immediately preceding the examination; and public general (not competitive) examinations should be retained as a basis for the calculation of this grant.

The quarterly report of the Technical Education Board of the London County Council has been issued. It mentions that a system of co-operation has been established between the Bolt Court School and the Northampton Institute, whereby the pupils of the school will secure the advantages of the optical and electro-depositing laboratories of the Institute, and will also be able to attend special lectures and demonstrations, in which the valuable collection of apparatus belonging to the Institute and the services of the scientific staff of the Institute will be available to the pupils of the school. The attendance at the classes of the Bolt Court School has been well maintained, while the work carried out by the students is much improved in character. Mr. Cecil L. Burns, having received an appointment under the Government of India, has resigned the post of Headmaster of the Camberwell School of Arts and Crafts, and his place has been filled by Mr. W. Dalton, Headmaster of the Huddersfield School of Art. Additional accommodation has been provided for the bookbinding department of the Central School of Arts and Crafts, Regent Street. Negotiations are taking place between the Charity Commissioners, the Board, and the governors of the Hackney Institute with reference to the acquisition by the governors of the premises of the North-East London Institute for the purposes of a technical institute and school of science, art, and music, as well as commercial subjects. It is hoped that when this is accomplished there may be some approximation to a complete polytechnic for Hackney. By the consent of the Statutory Commissioners, the Board has had an opportunity of expressing its views on the statute recently drafted for the government of the reorganized University of London. The Board has expressed its general approval of the Commissioners' proposals, but has asked for further consideration of the provision in respect of two or three matters which affect the institutions in which the Board is specially interested.

The Council of Sheffield University College report that they have made another unsuccessful effort to obtain affiliation to Victoria University. They sent an influential deputation to the University Council, asking their advice as to the best way of attaining their object. Four conditions were mentioned which the University Council thought would be necessary. The College Council saw no difficulty as to three of these conditions; and as to the fourth, which referred to increased accommodation, they expressed themselves as "ready to carry out the requisite improvements to the satisfaction of the University if they could obtain an understanding from the University Council that it would be prepared in such an event to recommend the Court of Governors to accept the College. They expressly stated that they recognized that such an understanding would not bind the Court of Governors of the University in any way, but that they were anxious to obtain an opinion from a body in whose judgment the Court would have confidence as to what provision of buildings, &c. the former would consider adequate." The College Council regret to state that a refusal to meet their wishes in this respect has been received.

PSYCHOLOGY IN TRAINING COLLEGES.

The training of teachers in this country is still a cause, a thing to be defended and argued about, and, perhaps, the majority of teachers, not to mention other people, still oppose it. There are several reasons for this opposition, but one of them seems to be a certain vagueness about psychology and its right position in the course of training—if, indeed, it can be said to have any position at all. The Headmaster of Haileybury, a veteran champion in the cause of training, recently expressed his opinion that psychology is the least obviously useful branch in the course of study, and that the practical side is by far the most important. Coming from such a quarter the remark is very discouraging;

and it may be well to point out some of the mistakes of the past in the matter of teaching psychology which have probably led Canon Lyttelton to this opinion.

First, perhaps, it would have been wiser not to call the subject "psychology" at all. It is absurd to suppose that any grasp of the science can be acquired in the fraction of the training year devoted to it. Some such name as "Studies of the pupils' minds" would be far more appropriate, and would be less likely to excite the ridicule of University professors. But the chief error in training colleges has been the overdoing of book-work. It may safely be asserted that no two text-books of psychology use the same technical terms, and there is no leading book acknowledged to be the best in this matter. Students, therefore, when puzzled by some definition in one, and seeking light on the point in another, only get into worse confusion. As for those books on psychology especially adapted to teachers, most of them seem neither one thing nor the other, but a sorry patchwork of snippets of psychology, followed by snippets of a teacher's experience, as tedious and void of life as the old-fashioned Sunday school lesson, with its extract from the Bible and then its "application," no matter whether applicable or not.

Another error has been the waste of time devoted to those parts of the subject which do not concern the teacher directly; such problems as—the order of development of the senses; which law of association is the fundamental one; the distinction between fancy and imagination, between perception and apperception, and so forth; while some lecturers wander into realms of free-will, and others, again, have been known to put before raw beginners the contradictory opinions of different writers, and even "exploded" ideas. In short, the lecturers have been too ambitious, too academic, one might almost say too thorough, for the purpose in hand. A medical student does not regard his anatomy as a study of theory quite divorced from his practical work on the human body. Why should a teacher regard psychology as a mysterious body of learning far beyond his comprehension, and offering him no light when he has to deal with the human mind? This mistake has been in large part due to the public examination papers, which, although not really above the students' capacities, have had a bookish tone, and are couched in mystifying language. For instance, here are three consecutive questions from a paper set a year or two ago:—

Explain the term "faculty" as employed in current text-books of psychology.

What topics are included under "the psychology of cognition"?

Explain "localization in time."

What I would suggest is that no text-books in psychology be used in a training college. Let those who cannot enjoy a course of training struggle with them as best they can; but they need not be used to handicap and confuse any one who can be in touch with a lecturer who is also an experienced teacher. That is the great point. There must be the utmost living connexion between the lessons given and the psychology taught. All are agreed that psychology at present has a very small range of definite conclusions and established laws—perhaps only some ten or twelve that can be properly presented to students in a year's course. But a large quantity of definite conclusions is not the desideratum. What is necessary is to form a habit of mind, to get the young teacher into the way of always trying to find a cause whenever anything goes particularly well or particularly badly in his lesson. It is half way to the remedy to find the cause of an evil; and this power of making intelligent use of experience is far more valuable than many years of unprofitable experience; it is, in short, the aim of training, and everything else in the year's work is subsidiary.

Now, how can this be managed so as not to become vague and unsystematic? There must, of course, be an introductory lecture dealing with the aims, the methods, and the difficulties of the study of our pupils' minds. The lecturer should then draw up a list of the few leading facts that he wishes his students to grasp, placing earliest those which are most commonly illustrated in ordinary lessons. There seems no need whatever for keeping to any more logical order, and even this chosen order can be altered if circumstances require. He should then settle exactly what technical terms he will use (the fewer the better) and draw up careful definitions. Problems should be set for the students to think out week by week in connexion with each subject. In listening to the lessons given in the practising schools the lecturer should make private notes of all the little points that occur to illustrate the law he is about to expound. For instance, suppose the subject of the lecture is to be Memory and the Law of Association. A week beforehand the students might be set the following questions to think about and make rough notes on:—What is the peculiarity of your own memory? How far does learning by heart seem to improve your own memory? What process do you go through in trying to remember a name? Why should a pupil who is bad at dates easily remember on what day the holidays begin? By the time the lecture hour arrives the students' minds are alive to the subject and ready to benefit by a discussion. Meanwhile the lecturer has been collecting some such material for work as the following:—One student has repeated a purely memory question to a class *ad nauseam*: "What is the date of Waterloo? Oh! surely you know. What I not know the date of Waterloo?" &c., &c. Another student has suggested other events that

will help to recall the wanted date, or has simply given the answer. A blackboard has been arranged so that facts to be remembered are grouped logically, while another has displayed the facts put together anyhow. A certain map of a journey and a genealogical tree have been rendered lucid by means of a coloured chalk. A statesman's character has been described so vividly that he will "never be forgotten." An important point has been hurriedly mentioned at the close of a lesson. Revision questions (specially intended to help the memory) have been so badly managed as to only cover a quarter of the ground. And, of course, in most lessons, too much matter has been put before the class. But, whenever possible, successes, or the germs of successes, should be picked out rather than failures; for, as a rule, one learns far more from one's half successes than from one's failures. After a discussion on these lines, and another on the subject of the problems, filled out by the lecturer's suggestions, and followed by a clear summing up, the students will have understood more about the psychology of memory than from reading the chapter devoted to that subject in a dozen text-books, or from hearing a learned discourse on it. The second term's work can be arranged to cover the same ground, rather more difficult problems being set, such as (to keep to our single illustration of Memory): What is the effect of *rest* in any subject—of letting a rule in arithmetic simmer in pupils' minds for a week before setting examples on it; of dropping a language for a year; and so on? The intellectual drawbacks of a good verbal memory. The value of forgetfulness (illustrated by Mrs. Nickleby). "On songe à tout ce qu'on aime, sans le savoir." The use and abuse of mnemonics. Again, the lecturer's criticism of the practical work might be given from a different standpoint, dealing with the general method of a whole course of lessons, so far as it affected the pupils' memory, rather than with isolated points as in the first term; whether the students formed a practice of referring to and revising back lessons, of giving their pupils the right kind of notes, sufficient examples to work out, appropriate home work, and so on. Of course, if the students contribute problems that have not occurred to the lecturer, so much the better.

And what is to be the third term's work in psychology? The same ground again, from yet another standpoint—the discussion of larger questions of general school method and organization on psychological grounds. For instance:—Why languages require more time to be devoted to them than science. Why it is better to defer beginning a language at all unless several lessons a week can be given to it. The "coming in useful" fallacy, the "what not to teach." What is really necessary to be committed to memory in arithmetic, history, geography, &c. Why all learning by heart of poetry should be as far as possible optional, both as to kind and amount. The effect of examinations on the memory. During this term also the students must be trained to express themselves clearly in describing mental processes—a by no means simple matter even to those who have acquired a great deal in the subject. It is so fatally easy to become over-explanatory and merely wordy, and there is no subject in which ignorance can be so well veiled by a fine phrase as in psychology. The utmost simplicity of statement, as far as possible in words of Anglo-Saxon origin, accompanied by apt illustrations drawn from actual experience in teaching and observation of the minds around them—this should be the students' ideal of style. One of the chief difficulties lies in the fact that the technical terms of psychology are mostly taken from the language of everyday conversation; such terms as perception, sensation, imagination, judgment, feeling, &c. The students must be warned that not only are these terms vague as used by ordinary people, but are not fixed in meaning by a consensus of psychologists, and are, therefore, best avoided, unless defined in each case. Exercises in clear expression can be given in a variety of ways—perhaps the easiest is a description of a student's own state of mind in a given situation; while a favourite one has always been a so-called "child-study." This latter is, no doubt, of great value in forming a habit of regarding pupils as individuals; but it must be acknowledged that it is frequently a very barren exercise in any other direction. The facts noted are often very trivial, even when certain; and it seems almost wiser to leave this branch of the work to the after days, when the teachers will have ample opportunity for studying their pupils. A far better use of the short time would be a study of character in some of our best novelists—notably George Eliot. A written paper on Tito Melema would interest the students, provide plenty of matter for thought, and tend to produce clearness of expression, with no danger of technical terms. Indeed, George Eliot analyzes her characters to such an extent that her books are more like psychological studies than novels, and, therefore, are much easier to understand than, for instance, Shakespeare, who is as complex and puzzling as life itself.

There is no danger that a student trained in this way will fail in the final public examination. A question or two demanding a knowledge of technical terms may have to be left unattempted; but this omission will be easily counterbalanced by the candidate's power of applying his knowledge and illustrating his statements, and certainly there will be none of those excruciating mistakes which irritate an examiner more in this subject, probably, than in any other.

It seems to me that, if this simple and unpretentious course were adopted, a good deal of the opposition to training would disappear.

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FORECASTS AND COMMENTS.

September 1, 1899.

THE BISHOP OF LONDON has consented to take the Fixtures. chair at the next public Distribution of Diplomas, Certificates, and Prizes awarded by the College of Preceptors. The Distribution will take place at the College on October 26, at 3 p.m.

* * *

We repeat our announcements of last month that the next Professional Preliminary Examination of the College of Preceptors will begin on September 5, and that the first of Mr. Barnett's course of lectures on "The Practice of Education" will be given at the College on September 22.

* * *

THE next Certificate Examination of the College of Preceptors has been fixed to begin on December 5, and the next Diploma Examination on January 2.

* * *

THE autumn conference of the Association of Chambers of Commerce of the United Kingdom will be held at Belfast on September 5 and 6. The Birmingham delegates will move that an application should be made to the Government that equally liberal Government grants may be given to commercial subjects as are at present given to the science subjects in all schools to which such grants are voted.

* * *

THE Civil Service Commissioners announce that an open competitive examination will be held in London in October next for two student interpreterships in Her Majesty's Consular Service in the Levant. Candidates must be between eighteen and twenty-four years of age, and physically qualified for service in Eastern countries.

* * *

EVERY ONE, we suppose, except the Governors of Grantham Grammar School, is content with the decision of the Charity Commissioners in regard to the dismissal of the assistant-masters last December. The only wonder is how any one could have supposed that assistants could be legally dismissed without notice on the appointment of a new headmaster. The declaration of the Commissioners may serve to protect other assistant-masters against similar injustice.

* * *

THE raising of the fees at Harrow seems to be an arbitrary proceeding. Whatever may be the supposed necessity for such a step, one cannot have any sympathy in these days with those who increase the cost of education, even in a school professedly adapted for rich men's sons. The vulgarity of plutocrat swagger is doubtless costly, but it has nothing in common with true education.

* * *

THE division lists of the Oxford Local Examinations show that 6,309 candidates have obtained certificates, as against 7,071 last year. The change is manifestly in the right direction. The comparative facility of the Oxford and Cambridge examinations has long been a matter of comment. The total number of candidates examined by Oxford this year was 9,442, so that the percentage of passes is still over 66·8.

* * *

THE Scottish Education Department have acknowledged the

protest of Gordon's College, Aberdeen, against a proposal of the School Board to erect a free higher-grade school in its neighbourhood, and have stated that, if the School Board should submit plans for such a school, the Department would receive a deputation from the Governors of the College.

* * *

THERE is something in the nature of a precedent in this case. The College Governors demand, on grounds of equity, either that the erection of the higher-grade school shall be prevented altogether, or that they shall receive a public grant sufficient to enable them to abolish their fees. In other words, it is not competition which is objected to, but the extinction of efficient fee schools by State-supported free schools.

* * *

WE shall soon have plenty of such cases in England. By all means let us have free secondary schools, built and supported by public money. But, in that case, every existing secondary school which can show its entire efficiency, and which lives by fees, has a right to claim either the barring of a free school in its own district or a grant equivalent to the fees.

* * *

WE need hardly say that the problems in England and Scotland are not identical. Thus, the last report on the inspection of higher-class schools in Scotland, and on the examination for the Leaving Certificate, states that the higher schools inspected were this year 85 in number, of which 31 are higher-class public schools under the management of School Boards, 25 are endowed schools, and the remainder are under private management—whether that of a governing body or a proprietor. The proportion in England, at all events as to higher-grade Board schools, is vastly different from this.

* * *

SCOTLAND affords us another precedent in regard to the public inspection of secondary schools. Sir Henry Craik points out that the Education and Local Taxation Account (Scotland) Act provides funds for the purposes of inspection and examination, and it has thus far been possible, in all ordinary cases, to relieve the schools and the candidates at the Leaving Certificate Examination from the fees formerly exacted. Unfortunately, however, "in view of the increase of the work, it may be necessary, in spite of every effort to curtail expenses, to make such a charge in order to prevent an undue deduction from the amount available for distribution for secondary education."

* * *

THE Research Fellowships founded by the Salters' Company and the Leathersellers' Company for the encouragement of higher research in chemistry in its relation to manufactures, tenable at the City and Guilds Central Technical College, being now vacant, the Executive Committee of the City and Guilds of London Institute will, before the commencement of next session, consider applications and elect candidates. The grant made by each of the companies to the Institute for this purpose is £150 a year. Copies of the schemes under which the Fellowships will be awarded may be had on application to the Honorary Secretary of the Institute, Gresham College.

Appointments
and
Vacancies.

LORD MORRIS has been elected Vice-Chancellor of the Royal University of Ireland, in succession to the late Right Hon. Christopher Redington.

* * *

THE Directorship of the Natural History Department of the British Museum has been vacated by the death of Sir William Flower, F.R.S.

* * *

DR. J. E. H. STARLING, F.R.S., has been appointed to the Jodrell Professorship of Physiology at University College, London, in succession to Prof. E. A. Schäfer.

THE University Court of St. Andrews have appointed Dr. Sutherland, Assistant-Professor of Pathology, Glasgow, to the Chair of Pathology, in succession to Prof. Muir, recently transferred to Glasgow.

* * *

THE death is announced of Dr. Balmain Bruce, Professor of Theology in the Free Church College at Glasgow; also of Dr. David Johnston, Professor of Biblical Criticism in Aberdeen University. Dr. Johnston was recently superseded in his duties by Dr. Gloag, but declined to resign his legal position as Professor.

* * *

THE governing body of the City of London College have elected Mr. Sidney Humphries, LL.B., to be Principal of the College, in succession to Prebendary Whittington, resigned.

* * *

MR. F. W. THURLOCK, B.A., B.Sc., Principal of the Swindon Technical College, has been elected to the Principalship of the Derby Municipal Technical College.

* * *

THE Principalship of King William's College, Castletown, Isle of Man, is vacated by the sudden death of the Rev. F. B. Walters; and the Headmastership of Goole Grammar School by the sudden death of Mr. Biggadike.

* * *

THERE are vacancies for an Assistant-Lecturer in Classics at Mason College, Birmingham, and for an Assistant-Lecturer in Logic and Philosophy at Aberystwyth University College.

* * *

THE Headmastership of Kidderminster Grammar School, worth about £500 a year, which recently fell vacant, has been filled by the election of the Rev. H. de B. Gibbins, Litt.D. Dublin, M.A. Oxford, Headmaster of Liverpool Grammar and Commercial School.

THE "Dictionary of National Biography" reaches this month its sixtieth volume, which brings us towards the middle of the letter W. Three or four more volumes will end the alphabet, and then there is to be a supplement containing the names of men and women who have died too late to take their turn in the original series, which began its course in 1885. A combined index of names, with dates and short descriptions, will complete this splendid work in the second or third year of the twentieth century.

* * *

THE *Times*, in its capacity as publisher of big "remainders," having successfully disposed of an Encyclopædia, and having undertaken to perform the like office for the American "Century Dictionary," has set a host of collaborators on the compilation of a detailed index to the latter work. As a rule, an alphabetical dictionary does not need an alphabetical index; but, no doubt, in this case purchasers will be glad to have an additional guide to a somewhat complicated mass of information.

* * *

WE do not yet seem to have exhausted the zeal of the nineteenth century for voluminous dictionaries and encyclopædias. A new big thing is promised us from America, "considerably larger than any similar publication." The Harper-McClure Encyclopædia is to be estimated, therefore, at least in part, by cubic measure—a sort of preliminary table of contents.

* * *

MR. CHARLES WELCH appeals to the readers of the *American Critic* to supply him with "old nursery rhymes and jingles and descriptions of different kinds of children's playing games" distinctly American in their character. He wants to show "how far America has gone in the way of evolving a national nursery literature of its own." Of nigger lullabies there is, we believe, a great store in Dixie-land. The records of the old colony days, further north, should be rich in nursery lore; but much of it must date back to an English origin.

THE John Rylands Memorial Library at Manchester will be formally opened early in October. The magnificent building in Deansgate, which has been erected by Mrs. Rylands in memory of her husband, contains the famous Althorp Library, which she purchased seven years ago from Earl Spencer, in addition to a large number of valuable books otherwise acquired. We have received an early copy of the catalogue prepared by Mr. Gordon Duff, one of the librarians.

* *

WE mentioned last month the Winchester memorial to Miss Charlotte Yonge. Another memorial to a popular woman writer of stories for the young has been raised in honour of the late Mrs. J. H. Ewing, author of "The Brownies," "Jack-anapes," &c. The fact has been recalled that Mrs. Ewing's husband was the writer of the familiar hymn tune of "Jerusalem the Golden."

* *

THE Society of Comparative Legislation has taken in hand what should be an interesting, and will certainly be a useful, work—the indexing of all the laws of the British colonies. As these laws not infrequently afford precedents and models for Imperial Acts of Parliament, there is good reason why we should know as much about them as possible.

THE AMERICAN SCHOOLGIRL IN 1830.

BOOKS, like other things, find their own level, and, among the books of a household, there are always a certain number which inevitably shrink into modest retirement at the back of our bookshelves. The front places we reserve for those companions, guides, and friends whose advice and comfort, stimulus and entertainment are in constant demand. Here, as elsewhere, of course, there is much diversity in choice of friends. There are some among us who would never dream of having the "Autocrat of the Breakfast Table" out of sight or hearing. The poets should always be within call. Charles Dickens used to be sure of a reserved seat in the front row of the shelf, though it is said that he is moving gradually to the back in the present generation; and nobody can afford to waste time looking for Robert Browning, since all we have at our disposal is needed for his understanding when found. But books bearing such titles as "Youthful Pilgrims," "Lectures to Young Men," and "Watts's Hymns" we can cheerfully dispense with on ordinary occasions; and these are relegated to cool, dark recesses, and left, for the most part, to themselves.

Yet sometimes, in the spring of the year, these neglected volumes are brought once more to the light, and occasionally we find among their number unexpected treasures, relics of a bygone day, which has its own interest, and bears, moreover, a relation to our own time not to be overlooked. Turning over, the other day, such a pile of forgotten books, I came across a quaint little volume bound in red and gold, and bearing the following old-world title: "Mrs. Phelps's Female Student; or, Lectures to Young Ladies on Female Education, for the Use of Mothers, Teachers, and Pupils." Mrs. Elizabeth Phelps was, in fact, the Vice-Principal of Troy Female Seminary (New York, U.S.A.), and this small book consists of a series of lectures delivered by her to the pupils of the institution during the years 1830-31.

To-day America is renowned for the number of her "college-women," and it is interesting to see the small beginnings of women's higher education in America so early as 1831. As some of the two hundred pupils of the "seminary" were preparing themselves to become teachers, and others were quite young children, Mrs. Phelps had to cast her net somewhat wide, and a consideration of the number of subjects dealt with in these lectures is well calculated to have a humbling and chastening effect upon any airy young specialist who confines herself to the teaching of history, mathematics, or modern languages. The object of the lectures, as we learn from the preface, was "to awaken in the minds of the pupils habits of thought with respect to the nature and design of education and the practical application which ought to be made of the various branches."

Besides general remarks on education as a whole, Mrs. Phelps discourses on physical, intellectual, and moral culture, on religious education, and on teaching as a profession. She takes a bird's-eye view of the history and substance of languages, ancient and modern. She discourses with equal ease on history, geography, and heathen mythology (the last with a certain apologetic manner); on astronomy, chemistry, and geology; on mathematics and *belles-lettres*. Nothing, in short, comes amiss to this learned lady, and she confesses to having personally instructed pupils in most of the sciences she surveys in the course of her lectures. Troy Female Seminary was, in fact, a pioneer institution. Its founder was Mrs. Emma Willard,

who, in 1818, published a little book in which she sketched the plan of a girls' public school to be founded and endowed by public money. Mrs. Willard was encouraged to petition the New York Legislature in favour of her scheme, which, though it produced considerable discussion in that body, did not find general favour there.

A few of the more progressive members shared Mrs. Willard's view that girls' education had as much claim on the State as that of their brothers; but the majority feared that "masculine studies would spoil the gentleness of their disposition, produce in them a desire to rival men, and disturb the established order of society." "Learning," said they, "would not help them to knit stockings or make puddings"; and that was considered final. The Bill for endowment of a girls' public school was defeated, and it was left to the generosity and public spirit of Troy City to enable Mrs. Willard to put her schemes into practical form in a suitable building, with proper equipments. By 1830 the institution had so thoroughly established itself that we find Mrs. Willard able to take a holiday in Europe, leaving her two hundred pupils to the charge of Mrs. Phelps.

Perhaps the main interest of the book for us is to be found in the comparison it affords between present day educational manners, if one may so speak, and those of sixty years ago. Morals, we are told, change far less slowly than manners, and Mrs. Phelps's educational manners are certainly not those of our own day. Her instruction is set in an entirely different key from that which we are accustomed to in a modern high school, and it is perfectly impossible to imagine a class of thirty modern matter-of-fact young persons listening to any of Mrs. Phelps's admirable discourses. We find in these lectures, as in many old school-books, a curious mixture of technical information and direct moral instruction—a zeal to "improve the occasion."

In a lecture dealing, amongst other things, with the circulation of the blood, the lecturer remarks: "The good old custom of former times of knitting and weaving woollen has given place to *idleness* and cotton and silk hose. . . . A young lady who, induced by the vanity of displaying a delicate foot, appears abroad in cold or damp weather with a stocking and shoe fit only for walking over a drawing-room carpet may succeed in attracting admiration, but she will not fail of receiving severe censure for her imprudence. What man of sense would wish to marry a female who had no prudence with regard to her health?" That little touch at the end, as to the effect of such conduct on the hypothetical husband of the future, is quite early Victorian. It reminds one of Mr. Ruskin's odd advice on the education of girls: "Speaking broadly, a man ought to know any language or science he learns thoroughly; while a woman ought to know the same language or science only so far as may enable her to sympathize in her husband's pleasures and those of his best friends." Nobody, by the way, has ever suggested how a practical teacher is to decide what will be the problematical interests of that problematical husband and his problematical friends. Mrs. Phelps's language is distinctly ornate, not to say sentimental. One is bound to confess that she is shockingly lacking in a sense of humour. Had she possessed that invaluable quality, she would scarcely have addressed her pupils thus: "We would not that you should be like the butterfly, who, when on giddy wing she has sported away the short summer of youth, sinks into oblivion; but like the evergreen, which seems brightest and most beautiful when frosts prevail," &c. The comparison of a schoolgirl to an evergreen is irresistible, and no modern teacher would risk it if she wished to preserve the gravity of her class.

The adjectives "elegant" and "amiable" have no longer their old and favoured place in our vocabulary, but Mrs. Phelps desires all her pupils to be "amiable." She does not often call a spade a spade. The sky is spoken of as "the brilliant canopy of heaven." Moss is described as "a verdant carpet." The young ladies of Troy are "eager to pluck the rosebuds of delight with which the world is tempting" them. It is all very quaint and old-fashioned, reminding one of flowered chintzes, wool-work pictures, and the days of crinoline.

During the lecture on botany, Mrs. Phelps remarks that "the cultivation of flowers has a most happy effect upon the disposition. To the cheerful they suggest images of hope and happiness, and to the disturbed mind they seem to have a power of imparting serenity." There is evidence that the young ladies did get a little bored sometimes by good Mrs. Phelps's flowery speeches and moral lessons, for she asks sadly on one occasion: "How often are the minds of pupils slumbering in torpid inactivity while others are exerting all their energies to impart instruction to them?" We have, indeed, more than one hint that the young ladies of Troy seminaries were very like their present-day sisters of many an English boarding school. On one occasion, Mrs. Phelps delivers a solemn address on character to her pupils, dividing them into the following four classes: (1) The idle and careless. (2) The gay and fashionable. (3) The moral. (4) The pious. A dark picture is drawn of the idle and careless pupil, who on a Wednesday or Saturday morning might be found "sitting by a basket of nuts, fruit, or confectionery, her dress slatternly, her hair disordered, and the appearance of the apartment in harmony with that of its mistress." The effects of such conduct are traced in the headache with which "our young miss" awakes next morning, and her "degraded sense of her own mental inferiority" at the hour for recitation. We might follow the same pupil to the public examination

and see her exposing her ignorance, to the chagrin of her friends, the mortification of her teacher, and her own confusion.

The "parent," too, seems familiar to us. "Sometimes, one who brings to the seminary a bold and conceited girl informs us that his daughter is excessively diffident, and needs to be brought forward and encouraged. Children of dull intellects are committed to our care as remarkable geniuses, who will be in danger of injuring themselves through an excessive love of study. One, destitute of any natural capacity for comprehending either time or tune, is recommended for her fine talents in music." "These mistakes," adds Mrs. Phelps, "are far from being confined to ignorant parents; parental blindness often falls upon those who, in other respects, are wise and enlightened."

In reviewing the field of knowledge in her series of lectures, Mrs. Phelps is always very careful to note the effect of any particular study upon the "female mind." Ancient languages are not recommended for their study, except where circumstances permit a liberal course of education. Where the circumstances of the parents permit it, "girls as well as boys should be put to the study of Latin as soon as they are able to read intelligibly"; but "it is not to be expected that, among the many pursuits to which the female mind must be directed, many young ladies will acquire that facility in reading Latin which is necessary to the enjoyment of its classical literature." "But," continues Mrs. Phelps, in a burst of enthusiasm and daring, "a knowledge of the principles on which this noble language is constructed and a limited acquaintance with its beauties are invaluable. Why should these be denied to us merely because we are women?" And she looks forward to the time when "females may be allowed to read Virgil, or even Homer, with as little cause for blushes as if they were working lace or embroidering muslin."

Mrs. Phelps is not encouraging in the examples she chooses for her young ladies' imitation. At the end of this lecture we meet with a young lady, "Elizabeth Smith, of England," who early showed a great desire for instruction, and devoted that time which is often spent in trifling amusements to the acquisition of knowledge. We learn that, "under adverse circumstances of fortune, she early learned the Spanish and Italian languages and became familiar with geometry. She acquired the German, Latin, Greek, and Hebrew languages, and made considerable progress in the Persian and Arabian. She was a very fine musician, and remarkable for her attention to domestic employments, and for her delicate taste in dress, displaying as much skill in making a gown or cap as in explaining a problem in Euclid, or a difficult passage in Hebrew."

The mind is paralyzed by the accomplishments and graces of Elizabeth Smith, of England; but one thing yet remains to be told. This paragon of all the virtues was called to an early grave. And small wonder! One can imagine the spirits of the Troy young ladies falling, falling, till this point in the story was reached. Naturally, their faces would brighten appreciably here, because the moral is obvious, viz., that if Elizabeth Smith had devoted more time to trifling amusements, and lopped off half-a-dozen languages or so, she might have been living still and enjoying life. Was it not a solemn warning against undue eagerness for study and linguistic ambition? Poor Mrs. Phelps! But there is no denying that her knowledge was encyclopædic. After a comprehensive lecture on natural science, astronomy, and natural philosophy, she opens next time with the airy announcement: "I shall now proceed to give a general view of chemical science, with an outline of its history." Of geology she remarks: "To females, geology is chiefly important by its effect in enlarging the sphere of thought, rendering them more interesting as companions to men of science, and better capable of instructing the young." Arithmetic is insisted on as a necessary part of female education; for, says Mrs. Phelps, severely, "I should blush for any pupil of this institution who, after having studied arithmetic, even but a short time, should be found ignorant of the proper method of keeping an account or making a bill." But, hastening to do justice to any whom she may have appeared to undervalue, Mrs. Phelps adds: "It is far from my intention to depreciate those many excellent and elevated women who have honourably discharged their duties in life without a knowledge of mathematics."

The "young ladies" of Troy are warned against such employment of their time as the writing of stories, on the ground that "it is better for young ladies to occupy themselves with realities than to stray too much into the dangerous regions of imagination." But, if Mrs. Phelps was tried by the "idle and careless" or the "gay and fashionable" pupil, there were those among the young ladies of the seminary who rejoiced her heart by their virtues and their intellectual worth. Of these, "Jane Vail" may be taken as a shining example—only, alas! like Elizabeth Smith of England, she, too, found an early grave. Writing to her young friends two years after severing her connexion with them, Mrs. Phelps thus laments her loss: "Where is Jane Vail? She was not wont to be absent where instruction was to be had or a duty performed. First in her classes, and first on the conduct list, her presence was ever welcome and encouraging to her teachers. . . . Never, my dear young ladies, did a look or an action unbecoming the occasion appear in Jane Eliza on the public assembling of the school. New scholars will hear of her patient industry, her attention to rules, and her attainments, and many, it is to be hoped, will be emulous to

follow her example." One wonders how far the young ladies of Troy were responsive to Jane Eliza's example, and the sanguine spirit of Mrs. Phelps.

THE SECOND RICHARD.

A HOLIDAY EXCURSUS.

ON August 21, just five hundred years ago, Richard II. of England delivered up his state and crown into the hands of his rival, Henry Bolingbroke. A happy idea prompted Mr. F. R. Benson to celebrate the historic date with a representation by his company of Shakespeare's play in the grounds of Flint Castle. The lovely ruins, dating probably from the days of the first Edward, overlook the estuary of the River Dee, and on this self-same spot the surrender of the ill-fated King did actually take place. It is a far cry from the end of the nineteenth century to the storm and stress of those troublous times; and, if the pathetic figure of Richard Plantagenet stands out for us still, the chief credit is due to Shakespeare.

Among the plays of Shakespeare his "Richard II." is of the lesser known; yet it contains rare gems of utterance, passages and whole scenes whose beauty and pathos are worthy to rank with the finest of the poet's achievements. Despite occasional blemish of style, absent from works of a later date, most readers must endorse the *dictum* of Coleridge, no mean critic: "It is the most admirable of Shakespeare's purely historical plays." For acting purposes it has been almost entirely neglected, falling of late years into complete abeyance. It is practically a one-part piece; but many of the speeches put in the mouth of the deposed monarch are brilliant examples of rhetoric, affording plenty of scope to a tragedian. Some of the scenes are strong in dramatic effect, notably the impressive one in Act iv. where Richard is forced to resign his power. Shakespeare's chief authority throughout was, without doubt, Holinshed, who gives us a graphic and complete picture of all the circumstances leading up to the culminating tragedy.

The whole story of the brief and troubled rule of the unfortunate Plantagenet is one that merits dramatic setting. At the hour of Wat Tyler's rebellion in 1381, we can see the boy-King, son of the well-loved Black Prince, fearless and confident with the sublime confidence of youth, riding out to address the seething, shouting mob: "I am your King and Lord, good people! What will ye?" "We will that you free us for ever, us and our lands," is the cry, "and that we be never named nor held for serfs." "I grant it," said Richard. And, bidding them disperse to their homes, he pledged himself to issue charters of freedom and amnesty. Again, the next morning, when Tyler lay smitten to earth by the blow of Walworth the Mayor, "What need ye?" cried the boy, riding boldly into their midst. "I am your Captain and your King! Follow me." And they followed him in pathetic trust and loyalty. Indeed, the desire to free him from the nets thrown about him by the bad counsellors who, in their eyes, took advantage of his youth was no small cause of their uprising. To his mother, who came weeping to meet the lad, he called out in the flush of his pride: "Rejoice and praise God! for I have recovered to-day my heritage which was lost, and the realm of England." It is a memorable picture, this of the young Richard all aglow with the hopes and the ardour of first youth, at the head of the ignorant, adoring crowd. And it touches hearts the more nearly beside that companion picture of the disgraced, abandoned man, humbled to the dust, sitting forlorn among the ruins of his dream.

As matters fell out, it was not till 1388, when the King was twenty-two years old, that he finally found himself strong enough to demolish the government of his uncles, against which he had made battle so long. Parliament had declared his grant and letters of 1381 to be null and void according to the law. The serfs were their goods, said they, and the King could only take them by their consent. The rebellion was put down with a heavy hand; but such pacification by brute force could be but skin deep. Sedition seethed beneath.

It is admitted that for nine years the young King often wielded his power wisely and well. But the age was one of social revolt, of religious and moral upheaval. The misery of the serfs is limned for us in the living pages of William Langland. Richard's reign had fallen on evil times. Moreover, his generous nature and brilliant capabilities were spoiled by his fickleness and instability of purpose, by overweening ambition, and a spirit of fierce revenge against his many enemies. By making himself to all appearances an absolute monarch, gradually he lost the nation he had won. We are told that he alienated all classes alike. "He had estranged the nobles by his peace policy, the landowners by his refusal to sanction the insane measures of repression they directed against the labourer, the merchant class by his illegal exactions, and the Church by his shelter of the Lollards." So his good deeds and had alike rose up against him.

Shakespeare's play opens with a sketch of the famous dispute between Henry Bolingbroke, Duke of Hereford, and Thomas Mowbray, Duke of Norfolk, and the King's arbitrary adjustment thereof—a ruling that was to cost him dear. He availed himself, we are told, of the quarrel, in which each made accusations of treachery against the other, to banish both. So he produced a clever, unscrupulous

leader to head the national discontent. In the first scene of the second Act we have the old John of Gaunt's fine denunciation of his nephew's abuse of power: "Methinks I am a prophet now inspired," &c., with its panegyric of England: "This precious stone set in the silver sea." The seizure of his estates on the death of the Duke of Lancaster put a fresh match to the fast kindling discontent at the King's illegal measures. Holinshed tells us that Richard's uncle, the Duke of York, "was therewith sore amoued, who before this time had borne things with so pacient a mind as he could, though the same touched him very neare, as the death of his brother, the Duke of Gloucester, the banishment of his nephewe, the said Duke of Hereford, and other mo injuries in greato number, which, for the slippery youth of the king, hee passed ouer for the tyme, and did forget as well as he might."

Act III. brings us up to the crisis. The scene is laid before the "Castell of Flint." The whole of the gradual awakening of the King to the bitter truth is evolved with the masterly touch of the consummate artist. The situation lends itself admirably to dramatic treatment. "The King," says Holinshed, "that was walking aloft on the brayes of the walls . . . myghte see that the Archbysshoppe and the other were come, and as hee tooke it to talke with him: where-upon hee forthwith came down unto them, and, beholding that they did theyr reverence to hym on theyr knees, hee tooke them up, and, drawing ye Archbysshop aside from the residue, talked with hym a good while, and as it was reported, the Archbysshoppe willed him to bee of good comforte, for hee should be assured, not to have any hurte, as touching his person, but hee prophesied not as a Prelate, but as a Pilate, as by the sequela it well appeared." This refers to the cruel trick by which Richard was made to yield up his rights to Bolingbroke. Invited to a conference with the Duke of Lancaster, he found himself hemmed in by the rebel forces.

The speech of Richard in Sc. ii., Act III.—

"No matter where; of comfort no man speak"

--where first he fully realizes the extent of the treachery towards him, is full of pathos. Cf.

"For within the hollow crown
That rounds the mortal temples of a king
Keeps Death his court, and there the antic sits,
Scolling his stato and grinning at his pomp," &c.

And no less memorable is that in Sc. iii.—

"What must the King do now? Must he submit?"

--when he asks but for a grave,

"A little, little grave, an obscure grave," &c.

The tragic elements of the downfall are fully seized by the dramatist. He powerfully attracts our sympathies to the King, and, in his representation, loses no opportunity for sadness, scathing sarcasm, anger, indignation, outraged majesty, wounded pride, bitter humiliation, and despair. It is a rôle to run the gamut of emotion. And through the genius of an artist's brush the face of Richard rises for us out of the mists of the past, sorrow-shrouded and dignified withal.

The passages that cling to the memory are too numerous to quote. The dramatic scene of the deposition, afore-mentioned, abounds in such lines. Cf. the whole of the abdication speech commencing:

"Ay, no; no, ay: for I must nothing be;
Therefore, no, no, for I resign to thee.
Now mark me how I will undo myself," &c.

Also the touching lines:—

"Yet I well remember
The favours of these men: were they not mine?
Did they not sometime cry 'All hail!' to me?
So Julius did to Christ: but He, in twelve,
Found truth in all but one; I, in twelve thousand, none."

And again:—

"Mine eyes are full of tears; I cannot see:
And yet salt water blinds them not so much
But they can see a sort of traitors here.
Nay, if I turn mine eyes upon myself,
I find myself a traitor with the rest;
For I have given here my soul's consent
To undeck the pompous body of a king;
Made glory base and sovereignty a slave,
Proud majesty a subject, state a peasant."

Act v. contains the pathetic parting between the King and his faithful Queen, Isabella, daughter of Charles V. of France. And, in the fifth and last scene, where Richard is a prisoner in Pomfret Castle, he gives utterance to the long contemplative speech containing the fine passage:—

"Music do I hear?
Ha! ha! keep time: how sour sweet music is
When time is broke and no proportion kept!
So is it in the music of men's lives," &c.

The tragedy culminates in the murder of the unhappy monarch by

the knife of Exton, but not before, turning at bay, he has smitten down two of the latter's accomplices, valiant to the end.

There is a true touch in Bolingbroke's subsequent grief and indignation:—

"Though I did wish him dead,
I hate the murderer, love the murdered.
The guilt of conscience take thou for thy labour," &c.

Corruptio optimi pessima. The crimson flower of youth lies grey and withered in the dust; the golden hopes of dawn are faded into night. There were elements of greatness in Richard II. Had Fate willed his reign to fall in smoother days, he might have made a better king. But his position was one to summon out rather his evil tendencies, all more or less the *défauts de ses qualités*.

Aristotle has told us that one of the two greatest means whereby Tragedy casts her spell are the sudden turns of fortune—the *περιπέτειαι*. And by this test the tragic tale of Richard Plantagenet, when we see his

"glory like a shooting star
Fall to the base earth from the firmament,"

his humiliation, imprisonment, and early death, was worthy of dramatic treatment at the hands of our greatest playwright.

REVIEWS.

A GOSSIP ON PSYCHOLOGY.

Talks to Teachers on Psychology, and to Students on some of Life's Ideals. By William James. (Longmans.)

A book from Prof. William James is always welcome to teachers, who, it must be confessed, very rarely get a professional work that is at once useful and flavoured with humour. Such a statement of the leading conclusions of psychology (in so far as they affect the work of teachers), put forth in a readable form with the minimum of technical terms, phraseology, and classification, is exactly what has been needed by students in training and young teachers generally for many years. They have extensively used the author's earlier books, with judicious skipping, and here at last they have the work in a handy inexpensive form, with no need to skip. Indeed, the cutting-down has been rather too rigorous, and we regretfully miss the wealth of illustration and anecdote that makes his larger works on psychology so valuable. Perhaps in a later edition the space now devoted to "Talks to Students" may be used for enlarging the more strictly psychological portion. These "Talks" on the "Gospel of Relaxation," "Blindness in Human Beings," and "What makes Life Significant," however alluring the topics, are out of keeping with the main subject of the work, which, with some modifications, might become a permanently useful handbook.

Prof. James sets out with a very clear definition of the place psychology holds in the equipment of a teacher. He disclaims for it any power in itself to make a good teacher. "Psychology is a science, and teaching is an art; and sciences never generate arts directly and of themselves. An intermediary inventive mind must make the application, by using its originality." And later on: "Psychology can state the laws; concrete tact and talent alone can work them to useful results." It is one of the oddities of the teaching profession that such a disclaimer needs reiteration, when, in a parallel case, no one imagines that the study of medicine will of itself produce the sympathetic voice and touch, the bedside manner, and the hundred things that go to make a good doctor. As for original research, with all the apparatus for child-study and experiments for testing the senses and the memories of pupils and collecting statistics—all this, according to Prof. James, is quite outside the province of a teacher, and he makes some very trenchant remarks as to the net results of these now so fashionable pursuits. He then proceeds to lay down—or, rather, suggest and hint at—some conclusions of psychology on the subjects of Instinct, Attention, Association, Will, &c., in an easy, haphazard way, with delightfully apt illustrations, applications, personal confessions, and moral reflections on things in general. The sins are chiefly sins of omission. The difficult subject of Reasoning, eminently practical and important for teachers, is left untouched; Feeling fares little better (by the way, is Prof. James recanting from his former extreme position in this subject?); the chapter on Apperception is amusing, but totally inadequate for giving the reader any such grasp of the point as was given in the author's earlier text-book under the head of Perception. In short, the book as a whole is tantalizingly meagre, the chapters on Habit and Memory being the only ones that are full enough

to be really useful. Had the other chapters been worked out on this pattern, the book would have left little to be desired.

One small blemish is a very occasional turbidity of language, especially disappointing in a book which tilts against technical formality. For instance, what does this sentence convey?—"Whatever of transmundane metaphysical insight or of practically inapplicable aesthetic perception or ethical sentiment we may carry in our interiors might be regarded as only part of the incidental excess of function that necessarily accompanies the working of every complex machine." But, in spite of such blemishes and omissions and inadequacies, the book is a treat, if only for the incidental hits at many of our modern fads. To take one instance, the namby-pamby methods of some kindergartens are exposed delightfully by this fragment: "I heard a lady say that she had taken her child to the kindergarten, 'but he is so bright that he saw through it immediately.'"

AN ENTOMOLOGICAL PRIMER.

Insects: their Structure and Life. A Primer of Entomology. By George H. Carpenter, B.Sc. Lond. (Dent & Co.)

The author of this book remarks somewhere on the fact that, of all the divisions of animal life, it is the order of insects which more particularly forces itself on our attention, whether indoors or out. Partly owing to this, no doubt, is the existence of a very extensive literature on the bionomics, &c., of this branch of the arthropod family. Moreover, the study of insects is so intimately connected with important practical questions—e.g., with the transmission of disease, the raising of grain, and various branches of commerce—that the place occupied by a seemingly less significant order of animal life is out of all proportion even to the actual room taken by insects in the world. The extreme age, too, of the insect in geological history gives an additional interest. It is hard to realize that when, as Mr. Carpenter says, "the mammals, now the dominant class of land-vertebrates, were small and struggling, and orders of huge reptiles, now quite extinct, lorded it on the continents, insects of the highest orders living to-day—Lepidoptera, Diptera, and Hymenoptera—were already flying through the air." The question of the origin of insects takes us back in point of time to an incalculably remote period.

In his last chapter the author gives an excellent brief summary of the conclusions at which he has arrived as to the place of insects in the animal world. The table on page 376, which shows the suggested relationship between the various insect orders and between insects and other arthropods, is very clear. On the very vexed question as to whether insects were originally aquatic or terrestrial, Mr. Carpenter is at pains to show that insects are primarily creatures of the land and the air. "It may be admitted readily," he says, "that life began in the water, and that to the waters we must go for the remote progenitors of insects. But the class, as we know it now, is composed of typically land animals"—the aquatic forms, it is held, being modified from their land relations—"and we have every reason to believe that its immediate ancestors were air-breathers."

As a handbook, Mr. Carpenter's volume is concise and well planned. He deals, in successive chapters, with the form and structure of insects, their life history, their classification, their various orders, their environment, and their pedigree. The "References to Literature" at the end make a very serviceable, though admittedly incomplete, bibliography of entomological literature: and there is an ample index, always a necessity in a work of this kind.

The plentiful illustrations must not be passed over without praise. Almost without an exception, they are excellently reproduced—some, like Fig. 172, are rather faint—and they furnish a most useful addition to the text. Mr. Carpenter was fortunate enough to secure the use of blocks from Prof. L. C. Miall's monograph on "The Cockroach" and from the publications of the United States Department of Agriculture, to mention only two of the sources from which his figures were obtained. The result is a set of illustrations fit to accompany a valuable text-book.

HISTORY IN SCHOOLS.

The Study of History in Schools. Report to the American Historical Association by the Committee of Seven. (Macmillan.)

Whether due to a lack of system or to the paucity of specialist teachers, history, as Prof. Bryce has said, "is, of all subjects which schools attempt to handle, perhaps the worst taught." This is undoubtedly true of English schools, and on opening this

book we turned to Appendix V., containing the report of Mr. George L. Fox on "History in English Secondary Schools," to find, however, that "the history teaching reflects the general characteristics of the whole school system, thoroughness and virility." That he should have remained to bless after an early discovery that an English master's form-room is his castle shows on his part much perseverance and no little charity. Fortunately we are, to some extent, cognisant of the defects of the provisions made for history teaching in our secondary schools, and masters in search of a remedy may derive much profit from this report made by seven American professors of history on the best means of improving the teaching of the subject in American schools.

The defects and faults in American schools are just those most patent here: no appreciation of the proper relation of general history to national; no system in the formation of the school syllabus; no proper adjustment or logical arrangement of the work done in different years and in different forms; no settled time value, and consequently no trace of uniformity in attainment even in schools of similar type; and, what is perhaps worst of all, no recognized method to guide the footsteps of the non-specialist teacher who at present does most of the history teaching. The advantages of a rigid and general system seem fully borne out by the account given of history in German *Gymnasien*, which appears as an appendix to the report. The German scheme, continued during the nine years of the pupil's career in the secondary school, embraces, firstly, legends from classical and German mythology; secondly, an elementary course of Greek and Roman history, followed by a first course of medieval and modern history; and, thirdly, a complete course of classical, medieval, and modern history, the last two branches being treated with special reference to German history. The first course takes up two years, and the last two courses four and three years respectively. Such an arrangement seems only common sense, and it is somewhat humiliating to have to travel to Germany for such an Anglo-Saxon commodity. It is true that, combined with geography, three hours a week are given up to the subject; but, as the result is a high uniform standard of history and geography knowledge in the students who enter the University, the expenditure of time is well repaid.

The main recommendation in this report is the adoption of a similar scheme for American schools, with the substitution of American history for German. Specialist teachers are strongly recommended wherever available, and the report contains some useful suggestions as to method and material for illustrations.

A PHILOLOGICAL FRENCH GRAMMAR.

A Historical French Grammar. By Arsène Darmesteter. Edited by Prof. E. Muret and Prof. L. Sudre. Authorized English Edition by Alphonse Hartog. (Macmillan.)

No language is more interesting to study for its historical development, from a definite source along plainly indicated lines, than French. To say that French is essentially identical with Latin, and not merely derived from Latin, is a perfectly justifiable statement; the mode and degree of divergence are manifest in the history of almost every word and every syntactical phrase. It was the aim of M. Darmesteter to set forth this divergence, and to exhibit in detail the actual process of development. He originally undertook the task as Professor of Historical French and Medieval French Literature at the Sorbonne, and cast many of his simpler illustrations into the shape of a course of historical grammar for the women students at the Higher Normal School of Sèvres. The subject grew under his hands, and he was preparing his "Grammaire Historique" for the press when he died. The completion and revision of his manuscript were undertaken by two of his Sorbonne pupils, MM. Muret and Sudre, now in their turn professors; and they have done their work very thoroughly, in the spirit of their teacher. It must be admitted that both they and the English translator, Mr. Alphonse Hartog, have put a liberal construction on the duty assigned to them, but mainly in the sense of an ungrudging contribution of labour. The outcome appears to be eminently satisfactory, and this book of nine hundred pages deals with nearly all the main constituents of the French vocabulary. As a rule, so far as etymology is concerned, it has been sufficient to place the Latin (classical or late), the early or medieval French, and the modern equivalent, side by side. Often, however, the development is reasoned out and explained, whilst, of course, the inflexional and syntactical changes are discussed in greater detail. We have little criticism to pass on the manner in which this laborious task has been

accomplished. Any book on the niceties of syntax must afford ample ground for debate on particular points. In M. Darmesteter's treatment of the infinitive we should have liked to see a little more direct appeal to the Latin uses. Some further assistance might have been gained, for instance, in § 449, from a consideration of the accusative-and-infinitive construction, of the prolativ infinitive, and of the simple substantival infinitive. We are not altogether satisfied with this remark: "In il le fait périr, the pronoun *le* is both the direct object of *fait* and the subject of *périr*. It follows that, in compound tenses, the participle *fait* ought to agree with the object when this precedes it." Apart from the doubtful accuracy of the first sentence, the second is scarcely in accord with modern literary usage.

On the whole, we welcome this book as one of the most important recent contributions to the study of historical French, and strongly commend it to the attention of serious grammatical students. The chapters on the Formation of Words and the Life of Words are exceptionally interesting; but, indeed, the volume in its entirety is more interesting and more significant than any recent work on French philology.

UNITED STATES HISTORY.

Source-Book of American History. Edited by A. Bushnell Hart, Ph.D. (Macmillan.)

The Professor of History in Harvard University makes an excellent contribution to the history of his country. He covers the ground by a series of one hundred and forty-five extracts from contemporary sources—in much the same way as Prof. York Powell did it some years ago for English history. His extracts are, on an average, less than three pages in length; they are all pertinent and characteristic, carefully cited and referred to their origins, and sufficiently annotated in the margin. This is the work of a genuine scholar, performed with true historic instinct, and at the same time very readable and attractive. It is not often that one can recommend an American school-book for use in English schools—partly owing to such a trivial cause as the liberties which American writers insist on taking with the normal English language—but we strongly recommend this volume as an aid to the study of American history and as a book for general reading.

The extracts on the period of "The Slavery Contest," between 1851 and 1860, are especially interesting. They include R. H. Dana's account of the rescue of Shadrach, T. H. Benton's criticism of the Kansas-Nebraska Act, Erastus Ladd's "Troubles in Kansas," Justice McLean on the Dred Scott decision, Senator Douglas on Lincoln, John Brown's last speech at the bar, A. Hamilton Stephens's defence of slavery as "the corner-stone of the Confederacy," and Abner Doubleday's narrative of the attack on Fort Sumter. We quote a passage from a speech of Stephens as Vice-President of the Southern Confederacy:—

Our new government is founded upon exactly the opposite idea; its foundations are laid, its corner-stone rests, upon the great truth that the negro is not equal to the white man; that slavery—subordination to the superior race—is his natural and normal condition. This our new government is the first in the history of the world based upon this great physical, philosophical, and moral truth. This truth has been slow in the process of its development, like all other truths in the various departments of science. It has been so even amongst us. Many who hear me, perhaps, can recollect well that this truth was not generally admitted, even within their day. The errors of the past generation still cling to many as late as twenty years ago. Those at the North, who still cling to these errors with a zeal above knowledge, are justly denominated fanatics. All fanaticism springs from an aberration of the mind—from a defect in reasoning. It is a species of insanity. One of the most striking characteristics of insanity, in many instances, is forming correct conclusions from fancied or erroneous premises. So with the anti-slavery fanatics: their conclusions are right if their premises were. They assume that the negro is equal, and hence conclude that he is entitled to equal privileges and rights with the white man. If their premises were correct, their conclusions would be logical and just; but, their premises being wrong, their whole argument fails.

This is a good instance of the historic value of many of these extracts; it illustrates the perverse conviction of the best Confederate partisans. An extract in another section from the narrative of a freed woman slave, who had seen her children "sold away" from her, one after another, by the white woman who owned her, and who, with infinite patience, saved up two hundred dollars in order that she might buy one of them for herself ("Oh, how many times that woman's broke my heart!")

puts the humanitarian side of the same great controversy, proving that white and black were equal after all, to the extent of their common humanity.

Prof. Hart is so keen for the comprehensiveness of his documents that he has introduced a few turbid and ungrammatical newspaper extracts; but it is a fault on the right side, and does not greatly detract from the value of the collection.

GENERAL NOTICES.

MATHEMATICS.

"Arnold's Mathematical Series."—*An Elementary Treatise on Practical Mathematics for Technical Colleges and Schools.* By John Graham, B.A., B.E. (Edward Arnold.)

This book of 280 pages is confined to the analytical methods of algebra and trigonometry, with practical applications and a large number of examples, tables of logarithms and antilogarithms, &c., metric units, and a few easy problems connected with electrical and mechanical engineering. There is a useful chapter on the plotting of curves and the deduction of their laws, and another on the usual approximative methods of finding the areas of plane figures by the "strip," and by Simpson's rule. It is a businesslike and serviceable book.

Elementary Trigonometry. By A. J. Pressland, M.A., and Charles Tweedie, M.A., B.Sc. Part I. (Oliver & Boyd.)

The more novel features of this trigonometry include the use of the "addition theorem" and a decided preference for the method of projection in defining and employing the trigonometrical ratios. By this mode of exposition, which is familiar in French works on the subject, the authors avoid what they call "the hopeless and confusing duplication of definitions and demonstrations which appears to be indispensable to the geometric method." We do not see that much is gained. The geometric methods are themselves indispensable; and, in fact, Messrs. Pressland and Tweedie have used so many of them that they need scarcely have excluded the rest.

The Principles of Mechanics. By Herbert Robson, B.Sc. Lond. (The Scientific Press.)

This is a viewy book, and, as might be expected, some of the views arrest the attention, whilst others are not worth stating. Amongst the latter we should certainly include ninety-nine hundredths of the author's objections to the works of his predecessors. We cannot learn mechanics by being taught pure Robson. Why should a student be constantly encountered by this sort of thing?—"The application of the principle of work to machines, as it is usually done, is, I think, inaccurate. As has been just hinted at . . . As I have already admitted, the truth of the result obtained for the *m. a.* is unquestionable, but I object strongly . . . If the reader will kindly refer back, he will find, if he does not remember it without searching, that I insisted . . . I maintain . . . So far the books are unanimously with me." Too viewy!

Complete Arithmetics. (Longmans.)

A series of simple exercises, adapted to the elementary standards, with answers, in separate paper-covered books. The editor struggles, in a prefatory note, with the significance of the requirements as set forth in the Code. He really cannot make out whether, in Standard II., he may or may not deal with a number higher than 99. And we used to start our babies with "notation and numeration," and tickle their imaginations with millions and billions!

MISCELLANEOUS.

Educational Aims and Educational Values. By Paul H. Hanus. (Macmillan.)

A collection of lectures and articles on contemporary educational problems, dealing, from an American standpoint, with the aims and practical methods of elementary and secondary education. A few chapters are added on the professional training of "college-bred teachers" and on the work of Comenius, "who, in the seventeenth century, advocated nineteenth-century educational reforms." The English reader will find in this book much useful material for comparison and consideration, especially in the chapters on "Secondary Education as a Unifying Force in American Life" and "The Study of Education at Harvard University."

A School Geography, with special reference to Commerce and History. By Prof. Meiklejohn, M.A., and M. J. C. Meiklejohn, B.A. (Holden.)

This is a well planned book, with many good features, and the promise of the title-page is sedulously fulfilled. It will be found useful, but more care might have been exercised in writing and revising the text. On page 195 we read: "Greece is divided into sixteen 'monarchies'" (for "nomarchies"). The spelling of *Salembrina* and *Negropont* is unfortunate. On the same page we find: "Commerce.—The Greeks possess an inborn talent for buying and selling," and "Character.—The Greeks are very fond of bargaining." The

"Acropolis" is wrongly interpreted as "rock-town." Patras is twice on the same page described as the "port for currants." "The imports are cereals and yarns" is a poor way of telling us what the Greeks purchase from other countries. With a little misgiving we turn at hazard to other pages, and find: "The Magyars in Hungary are an Asiatic race. So is their language"; "Warsaw . . . its railways go everywhere"; and so forth. Some of the maps and diagrams are very ingenious.

Physical Geography. By W. Morris Davis and W. H. Snyder. (Ginn & Co.)

This is a comprehensive, painstaking, and very readable volume of physical geography, the writers of which are ambitious to trace physical facts "back to their causes and forward to their consequences." The book is adequately illustrated, and it advances from a general description of the earth and its changes to the distribution of animal and vegetable life. It is not, however, precisely suited for English schools.

The Human Boy. By Eden Phillpotts. (Methuen & Co.)

"The Human Boy" is a very amusing book, being made up of a series of episodes in the school life of Merivale, related by Mr. Phillpotts with an unflinching fund of humour, and with an unmistakable insight into the ways and thoughts of schoolboys. The stories are not all equally natural and convincing, but most of them ring true, and we imagine that a majority of the boys who read them will accept them as faithful transcripts from life. Mr. Phillpotts has probably written this volume for grown-up readers as well as for boys. His main object is to be frankly amusing, and at the same time a little pathetic; and in this he has succeeded beyond question.

The Adventures of Reuben Davidjer; Seventeen Years and Four Months Captive among the Dyaks of Borneo. By James Greenwood. (Ward, Lock, & Co.)

Here is a summer gift-book—or are we to regard it as amongst the first light of the Christmas stories?—which will certainly be welcome to any boy into whose possession it may come. It is freely, though unequally, illustrated, and full of excitements, with plenty of information about the natives and the natural history of Borneo.

Tom Brown's School-days. By an Old Boy. Abridged Edition for Schools. (Macmillan.)

This is, we think, about the sixtieth edition of "Tom Brown." The abridgment makes a rather small book of it, but a good one still. The cutting down has been judiciously done, and a schoolboy fresh to this evergreen schoolboy story will be sure to appreciate it as it stands.

"Famous Scots Series."—*King Robert the Bruce.* By Prof. A. F. Murison. (Edinburgh: Oliphant, Anderson, & Ferrier.)

Prof. Murison, whose life of Wallace in this series we noticed about a year ago, gives us here a complementary volume on Bruce, and so completes a careful and independent narrative of the successful struggle of the Scots against the aggressions of Edward I. and Edward II. "Declining the guidance of modern historians," the author claims to have formed his own conclusions on contemporary or early documents. The story is pleasantly, and we think impartially, told, and the volume would serve very well as a reading-book.

Britain on and beyond the Sea. By Cecil H. Crofts, M.A. (W. & A. K. Johnston.)

This little volume is described as a handbook to the Navy League Map of the World, and it includes a sketch of British naval history from 1588 to 1882. The map itself is separately published as a wall-map, but a good reproduction, reduced to a manageable size, is printed here as a frontispiece.

The Study of Colloquial and Literary French: A Manual for Students and Teachers. Adapted from the German of Dr. Edward Koschwitz by P. Shaw Jeffrey, M.A. (Whittaker.)

Mr. Jeffrey has brought together a remarkable amount and variety of useful information on holiday courses, French pensions, lectures, excursions, and conversation classes, with other modes of popularizing and facilitating the study of French. If his title is somewhat ambitious, he certainly does throw a good deal of light on certain aids and inducements to the acquisition of spoken and written French. In addition to utilizing the work of Koschwitz, Mr. Jeffrey has printed some notes on the present state of modern language teaching in places of higher education, by Dr. Breul, M. Berthon, Prof. Weekley, Miss Stephen, Miss Pope, and Miss Beale.

Literature Readers. Edited by John Adams. Four Books. (Blackwood & Sons.)

These four volumes contain what seems to be, on the whole, an excellent selection of short pieces of English prose and verse. Most, if not all, of them deserve the description of "literature," and they are well calculated to give the young reader a taste for good writing, which should always be one of the main objects of collections of this kind. They are subject, of course, to the usual limitation of having had to be selected from works of which the copyright has expired; though, as the reading of extracts often inspires a wish to read the complete work, we fail to see why publishers of copyright books make any difficulty about the printing of short attractive passages. If they would relax their jealous veto in this respect, they would sell more of

their books, and our school Readers could be made more varied and interesting. The reason for the spelling lists and "exercises" at the end of these volumes is evident, but they do nothing to increase the appropriateness of the title.

The Essentials of School Diet; or the Diet suitable for the Growth and Development of Youth. By Clement Dukes, M.D., B.Sc. Lond. (Rivingtons.)

This second edition of a book published some eight years ago has a prefatory note of commendation by Sir William Broadbent, who emphasizes two points as particularly worthy of attention: that stimulants are wholly unnecessary for young people, and generally harmful; and that the food of the day should be so distributed that any evening meal should be a light one. Dr. Dukes has made use of his professional connexion with Rugby to collect a large number of statistics relating to the effects of diet on physical development. His experience, however, is by no means confined to Rugby, and his deductions and counsels are general in their character throughout. He defines his aim as being not merely to obviate the exorbitant demands of parents, but also to "prevent the possibility of an insufficient supply of food being provided by the masters themselves."

Practical Plane and Solid Geometry: Scales, Curves, and Pattern Drawing. By John S. Rawle, F.S.A. (Simpkin, Marshall, & Co.)

This is a revised edition of a well known book, originally published a quarter of a century ago. The present edition is the sixteenth, representing a sale of a quarter of a million copies. The connected publications include "Class-sheets for Practical Geometry," "Free-hand Drawing Test-Papers," and "Practical Geometry Test-Papers." Mr. Rawle, who was formerly Headmaster of the Nottingham School of Art, evidently knew his business, and this course of geometrical drawing is very well suited to its practical purpose.

WE HAVE ALSO RECEIVED the following publications and new editions:—

Forty-sixth Report of the Department of Science and Art of the Committee of Council on Education, with Appendices. (Eyre & Spottiswoode.)

Professions for Boys, and How to Enter Them, by M. L. Pechell and James L. Nolan (Beeton & Co.)—a second edition, enlarged, of a very serviceable publication.

Descriptive Geography, a Text-book for Pupil-teachers and Scholarship, Certificate, and Matriculation Candidates, by Samuel Brook (Nelson & Sons)—the eighth edition, revised and enlarged, with new maps and diagrams.

"Heath's English Classics."—*The Sir Roger de Coverley Papers from the Spectator; Introductions and Notes* by Prof. W. H. Hudson. *Goldsmith's Vicar of Wakefield.* Edited by the same. (Labister & Co.)

Domestic Economy, by H. Rowland Wakefield (Chambers)—a revised and enlarged edition.

"School Examination Series," edited by A. M. M. Stedman, M.A.—*Examination Papers on the Constitutional and General History of England,* by J. Tait Wardlaw, B.A. (Methuen)—a hundred and eleven papers, conveniently arranged for five successive periods, down to 1888.

Arithmetical Memoranda, by S. W. Finn, M.A. (Manchester: Galt & Co.)

CORRESPONDENCE.

THE CRAZE FOR ATHLETES AS MASTERS.

To the Editor of the Educational Times.

SIR,—I venture to ask you to allow me space for a few words on this subject. I shall best make my meaning clear by giving as a concrete example the case of a friend of mine. In 1892 he was engaged in scholastic work in England, but gave it up owing to the fact that he knew no one subject thoroughly. However, in 1896 he had occasion to go abroad for two years, and occupied his time in studying at a French University.

Returning to England in 1898, he put himself in communication with a scholastic agency, with a view to obtaining a post as a teacher of French, with the ordinary form subjects. As, however, his health is by no means robust, he is unable to take any active part in sports, and finds himself debarred from many otherwise suitable posts on this account. So disheartened, indeed, has he become at his non-success that he now proposes to return to France and teach English.

From what I myself have experienced and observed of the teaching of French in the average secondary school, I should have thought there would have been any number of headmasters only too willing to engage as a master a Cambridge graduate who had had the advantage of studying French in the country for such a considerable period.

It seems, indeed, a pity that the services of this young fellow—whom I know to be a keen educationalist—should be lost to the country because, forsooth, he is unable to take part in athletic sports.—Yours truly,

PATERFAMILIAS.

MATHEMATICS.

14236. (C. E. HILLYER, M.A.)—O is the circumcentre and I the incentre of a triangle ABC; AO, BO, CO meet the circumcircle again in a, b, c respectively; X, Y, Z are the points of contact of the incircle with the sides, and Xδ, Yε, Zζ the perpendiculars of the triangle XYZ. Prove that aδ, bε, cζ are concurrent in I.

Solution by R. F. DAVIS, M.A.; J. A. THIRD, M.A.; and others.

Let AI meet the circumcircle in E and YZ in M. Then

$$\begin{aligned} \angle IX\delta &= \text{OEA} \\ &= \text{OAE}; \end{aligned}$$

therefore

$$\delta M : IX = aE : Aa.$$

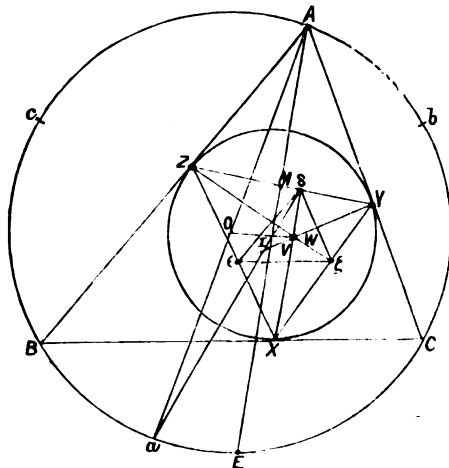
But

$$\begin{aligned} IX : IM &= IY : IM \\ &= 2R : EC \\ &= Aa : EI. \end{aligned}$$

Hence

$$\delta M : IM = aE : EI,$$

or aδ passes through I.



[The PROPOSER solves the Question as follows:—If aI meet YZ in δ,

$$\begin{aligned} I\delta : Ia &= IM : IE = IM : IA : IE : IA \\ &= IY^2 : IE \cdot IA = r^2 : 2R \cdot r = \frac{1}{2}r : R. \end{aligned}$$

Similarly, if δI meet ZX in ε, Iε : Ib = $\frac{1}{2}r : R$;

therefore δE is parallel to ab, and δE : ab = $\frac{1}{2}r : R$.

But ab is equal and parallel to AB; therefore δ, ε are the feet of the perpendiculars from X, Y on YZ, ZX; and similarly for ζ, which proves the proposition.]

14090. (G. H. HARDY, B.A.)—Evaluate

$$\int_0^{\pi} \tan^{-1}(p \operatorname{sech} u) du \quad \text{and} \quad \int_0^{\pi} \tan^{-1} \left\{ \frac{1}{2} \left(a - \frac{1}{a} \right) \operatorname{sech}^2 u \right\} du.$$

Solution by H. A. WEBB.

$$(1) \quad I = \int_0^{\pi} \tan^{-1}(p \operatorname{sech} u) du.$$

Put $\operatorname{sech} u = \cos x, \quad x = gdu, \quad du = \sec x dx.$

$$\begin{aligned} \therefore I &= \int_0^{\pi} \tan^{-1}(p \cos x) \cdot \sec x dx = \int_0^{\pi} \left\{ p - \frac{1}{2}p^3 \cos^2 x + \frac{1}{4}p^5 \cos^4 x - \dots \right\} dx \\ &= \left\{ p - \frac{1}{2}p^3 \cdot \frac{1}{2} + \frac{1}{4}p^5 \cdot \frac{1 \cdot 3}{2 \cdot 4} - \dots \right\} \frac{1}{2}\pi = \frac{1}{2}\pi \int_0^{\pi} \frac{dp}{\sqrt{(1+p^2)}} = \frac{1}{2}\pi \sinh^{-1} p. \end{aligned}$$

$$(2) \quad I = \int_0^{\pi} \tan^{-1} \left\{ \frac{1}{2} \left(a - \frac{1}{a} \right) \operatorname{sech}^2 u \right\} du$$

$$= \int_0^{\pi} \sec x \tan^{-1} \left\{ \frac{1}{2} \left(a - \frac{1}{a} \right) \cos^2 x \right\} dx,$$

from same substitution as before,

$$= \int_0^{\pi} \left\{ \frac{1}{2} \left(a - \frac{1}{a} \right) \cos x - \frac{1}{3} \cdot \frac{1}{2^3} \left(a - \frac{1}{a} \right)^3 \cos^3 x + \dots \right\} dx;$$

$$\therefore I = \frac{1}{2} \left(a - \frac{1}{a} \right) - \frac{1}{2^3} \cdot \left(a - \frac{1}{a} \right)^3 \cdot \frac{2 \cdot 4}{3 \cdot 5} + \frac{1}{2^5} \cdot \left(a - \frac{1}{a} \right)^5 \cdot \frac{2 \cdot 4 \cdot 6 \cdot 8}{3 \cdot 5 \cdot 7 \cdot 9} \dots;$$

therefore I is the real part of

$$-i \left\{ \sin^{-1} \left[\frac{i}{2} \left(a - \frac{1}{a} \right) \right] \right\}^2.$$

[The rest in Vol.]

14079. (Professor H. LANGHORNE ORCHARD, M.A., B.Sc.)—Exhibit the product of the two series

$1 - 8 + 27 - 64 + 125 - 216 + \dots$ and $1 - 16 + 81 - 256 + 625 - 1296 + \dots$, each to n terms, as a function of the roots of a quadratic equation.

Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.

Two cases arise, according as the number of terms (n) is odd or even.

Let $S_3 = 1^3 - 2^3 + 3^3 - \dots + (2m+1)^3$; $S_4 = 1^4 - 2^4 + 3^4 - \dots + (2m+1)^4$;

$S'_3 = 1^3 - 2^3 + 3^3 - \dots - (2m)^3$; $S'_4 = 1^4 - 2^4 + 3^4 - \dots - (2m)^4$.

Then $S_3 = \{1^3 + 2^3 + 3^3 + \dots + (2m+1)^3\} - 2 \{2^3 + 4^3 + \dots + (2m)^3\}$;

$S'_3 = \{1^3 + 2^3 + 3^3 + \dots + (2m)^3\} - 2 \{2^3 + 4^3 + \dots + (2m)^3\}$.

$$\begin{aligned} \text{Therefore } S_3 &= \left\{ \frac{1}{2}(2m+1)(2m+2) \right\}^2 - 2^4 \left\{ \frac{1}{2}m(m+1) \right\}^2; \\ S'_3 &= \left\{ \frac{1}{2} \cdot 2m(2m+1) \right\}^2 - 2^4 \left\{ \frac{1}{2}m(m+1) \right\}^2. \end{aligned}$$

Also $S_4 = \{1^4 + 2^4 + 3^4 + \dots + (2m+1)^4\} - 2 \{2^4 + 4^4 + \dots + (2m)^4\}$;

$S'_4 = \{1^4 + 2^4 + 3^4 + \dots + (2m)^4\} - 2 \{2^4 + 4^4 + \dots + (2m)^4\}$;

and the product of the two series is $S_3 \cdot S_4$ or $S'_3 \cdot S'_4$, according as $n = 2m+1$ or $n = 2m$.

Lastly, S_3, S_4 , or S'_3, S'_4 , are the roots of the quadratic

$$x^2 - (S_3 + S_4)x + S_3 S_4 = 0 \quad \text{or} \quad x^2 - (S'_3 + S'_4)x + S'_3 S'_4 = 0,$$

whose absolute term is the required product.

[The summations for S_3, S'_3 are taken from CHRYSTAL'S *Algebra*, Part I., Chap. xx., Art. 7; those of the parts S_4, S'_4 are also given there.]

14172. (Professor THOMAS SAVAGE.)—ABC is an isosceles triangle; DE, a parallel to BC, intersects AB, AC in D, E respectively. If DE, DB, EC are all equal, show that BC is not one of the equal sides of the triangle.

Solutions by E. WALTER TODD; Prof. LANGHORNE ORCHARD, M.A., B.Sc.; and many others.

Of course the triangle is assumed not equilateral.

Draw EX parallel to BA. Then, since DX is a parallelogram, EX = BD, (by i. 34)

$$= EC, \quad (\text{by hyp.})$$

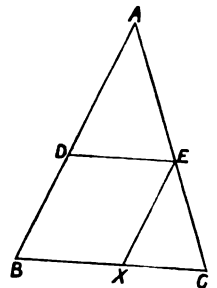
therefore $\angle EXC = C$. (by i. 5)

But $\angle EXC = B$; (by i. 29)

therefore $\angle B = C$;

therefore BC is base of isosceles triangle ABC, and therefore not one of equal sides.

The theorem is true if $BD = EC$ without each being equal to DE.



14177. (B. N. CAMA, M.A.)—Prove that the locus of the intersection of tangents, including a given angle β , to the spiral $r = ae^{\theta \cot \alpha}$ is the

$$\text{copolar spiral} \quad \frac{r \sin \psi}{\sin \alpha} = ae^{(\theta + \psi - \alpha) \cot \alpha},$$

$$\text{where } \psi \text{ is given by} \quad \cot \psi = \frac{k - \cos \beta}{\sin \beta},$$

and ak is the vertical distance of a point on the original curve whose vectorial angle is β . Show also that the locus touches the circle round the triangle formed by the tangents and the chord of contact.

Solution by Rev. J. CULLEN; G. BIRTWISTLE; and the PROPOSER.

Let $\angle RQO = \text{RPO} = \gamma$

any angle, $\text{ROA} = \phi$, and

$\text{QOA} - \text{POA} = \theta' - \theta = \beta$.

Then $\frac{r}{\rho} = \frac{\sin(\gamma + \theta - \phi)}{\sin \gamma}$,

$$\frac{r'}{\rho} = \frac{\sin(\gamma + \theta' - \phi)}{\sin \gamma}.$$

Therefore $r^2 - 2rr' \cos \beta + r'^2 = \rho^2 \sin^2 \beta \operatorname{cosec}^2 \gamma$;

also $r'/r = k = \sin(\gamma + \beta + \theta - \phi) / \sin(\gamma + \theta - \phi)$;

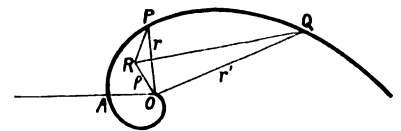
therefore $\cot(\gamma + \theta - \phi) = (k - \cos \beta) / \sin \beta = \cot \psi$,

if $\psi = \gamma + \theta - \phi$, and $r \sin \gamma = \rho \sin \psi$;

therefore $\frac{\rho \sin \psi}{\sin \gamma} = ae^{(\psi + \gamma - \phi) \cot \alpha}$, since $r = ae^{\theta \cot \alpha}$.

But, if $\gamma = \alpha$, QR and PR become tangents; hence the first result. In this case also the tangent at R to the circle PQR makes an angle α with OR; therefore the locus of R and the circle have a common tangent; hence they touch.

[Some interesting results follow by giving γ different values, e.g., $\gamma = \psi$ or $\frac{1}{2}\pi - \alpha$, &c.]



14139. (Professor NEUBERG.)—Eliminer x, y, z entre des équations

$$\cos x \sin y \sin z = a, \quad \cos y \sin z \sin x = b,$$

$$\cos z \sin x \sin y = c, \quad \cos x \cos y \cos z = d.$$

Solution by Rev. T. ROACH, M.A.; and F. H. PRACHELL, B.A.

$$\tan^2 x = \frac{bc}{ad}; \quad \text{therefore} \quad \cos^2 x = \frac{ad}{ad+bc}$$

Similarly with y, z ; therefore

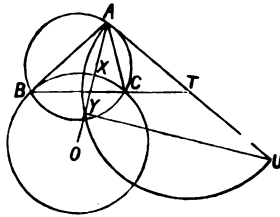
$$d^2 = \frac{ad}{ad+bc} \cdot \frac{bd}{ac+bd} \cdot \frac{cd}{ab+cd}$$

therefore $abcd = (ad+bc)(ab+cd)(ac+bd)$.

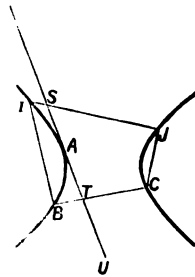
14237. (R. F. DAVIS, M.A.)—The tangent at A to the circumcircle of the triangle ABC meets BC in T and is produced to U so that AT = TU. Prove that the polar of A with regard to any circle through B, C passes through U.

Solutions (1) by J. A. THIRD, M.A., and many others; (2) by G. D. MUGGERIDGE and Professor A. DROZ-FARNY.

(1) Let O be the centre of any circle through B, C; and let OA meet this circle in X and the circle having AU as diameter in Y. Circle T is obviously orthogonal to all circles through B, C; therefore OX = tangent from O to circle T; therefore $OX^2 = OY \cdot OA$; and AYU is a right angle; therefore YU is the polar of A with regard to circle O.



(2) Consider a system of conics passing through the four points B, C, I, J. Of these conics one passes through a given point A. Draw the tangent at A to this conic, meeting IJ, BC in S and T. Take U the fourth harmonic to S, A, T; then AU are the double points of the involution on the line AT formed by the points of intersection of this line and the given system of conics.



Hence A, U are conjugate points for all conics passing through B, C, I, J. In the particular case when I, J are the circular points, all the conics are circles, and S being at an infinite distance, T bisects AU.

14180. (W. C. STANHAM, B.A.)—If O is a fixed point, and PQ is any chord of a conic drawn through one of its foci (S), and if OP, OQ meet the conic again at P' and Q'. P'Q' passes through a fixed point (Σ), and, conversely, if P'Q' is any chord through Σ, and if OP', OQ' meet the conic again at P and Q, PQ passes through S.

Solution by H. W. CURJEL, M.A.; and G. D. MUGGERIDGE.

This theorem is true if S is any point. If OS cuts the polar of O in R, then OR is divided harmonically by PQ, P'Q', i.e., in S and Σ; therefore, if S is a fixed point, Σ is a fixed point, and, conversely, if Σ is a fixed point, S is a fixed point. [The PROPOSER observes that this is the polar form of Quest. 14161 and its converse.]

14137. (Professor CROFTON, F.R.S.)—Prove that $(3n)^{4n} - 1$ is divisible by $24n + 1$, if the latter is a prime number.

Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.; and H. W. CURJEL, M.A.

Let $24n + 1 = p$ (a prime).
Then $24n + 1 \equiv 0 \pmod{p}$ and $2^3 \cdot 3n \equiv -1 \pmod{p}$;
therefore $(2^3)^{\frac{1}{3}(p-1)} \cdot (3n)^{\frac{1}{3}(p-1)} \equiv (-1)^{\frac{1}{3}(p-1)} \pmod{p}$;
therefore $2^{4(p-1)} \cdot (3n)^{4n} \equiv (-1)^{4n} = 1 \pmod{p}$.
But $2^{4(p-1)} \equiv 1 \pmod{p}$, because $p = 8\alpha + 1$; therefore $(3n)^{4n} - 1 \equiv 0 \pmod{p}$.

[Similarly, it may be shown that $(mn)^{2m-1n} - 1$ is divisible by $(2^m mn + 1)$ if the latter is prime; e.g., $(5n)^{16n} - 1$ is divisible by $(160n + 1)$ when the latter is prime.]

14185. (Rev. T. MITCHELSON, B.A.)—If R is the point of intersection of the normals drawn from the ends of semi-conjugate diameters of an ellipse, show that the distance of R from the centre is

$$x_1 y_1 a^{-3} b^{-3} \{ a^2 - b^2 \} \{ b^2 (bx_1 - ay_1)^2 + a^2 (bx_1 + ay_1)^2 \}^{\frac{1}{2}},$$

(x_1, y_1) being the extremity of one of the diameters.

Solution by G. BIRTWISTLE, B.Sc.; R. TUCKER, M.A.; and others.

CP and CD are semi-conjugates, PN and DN normals intersecting in N.

Thus, N is orthocentre of triangle CPD, and thus, by trigonometry,

$$CN = PD \cot \theta.$$

P is (x_1, y_1) , and therefore D is

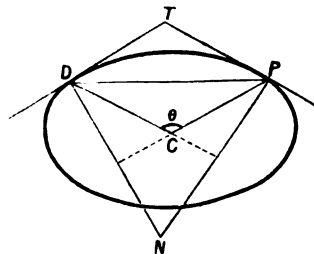
$$(-ay_1/b, bx_1/a);$$

therefore

$$PD^2 = (x_1 + ay_1/b)^2 + (y_1 - bx_1/a)^2 = 1/a^2 b^2 [(bx_1 + ay_1)^2 a^2 + (bx_1 - ay_1)^2 b^2],$$

and $CP \cdot CD \cdot \sin \theta = ab$;

therefore $\cot \theta = 1/ab \sqrt{(CP^2 \cdot CD^2 - a^2 b^2)}$,



$$\begin{aligned} CP^2 \cdot CD^2 - a^2 b^2 &= (x_1^2 + y_1^2)(a^2 y_1^2 / b^2 + b^2 x_1^2 / a^2) - a^2 b^2 \\ &= \{ (x_1^2 / a^2 + y_1^2 / b^2) - 1 \} a^2 b^2 + x_1^2 y_1^2 (a^2 - b^2) / a^2 b^2 \\ &= \{ x_1^2 y_1^2 (a^2 - b^2)^2 \} / a^2 b^2, \end{aligned}$$

since $x_1^2 / a^2 + y_1^2 / b^2 = 1$;

$$\therefore CN = 1/ab \{ (bx_1 + ay_1)^2 a^2 + (bx_1 - ay_1)^2 b^2 \}^{\frac{1}{2}} \cdot 1/ab \cdot \{ x_1 y_1 (a^2 - b^2) \} / ab = x_1 y_1 a^{-3} b^{-3} (a^2 - b^2) [a^2 (bx_1 + ay_1)^2 + b^2 (bx_1 - ay_1)^2]^{\frac{1}{2}}.$$

14122. (The late "LEWIS CARROLL.")—It is given that (1), if C is true, then, if A is true, B is not true; and (2), if A is true, B is true. Can C be true? What difference in meaning, if any, exists between the following propositions?—(1) A, B, C cannot be all true at once; (2) if C and A are true, B is not true; (3) if C is true, then, if A is true, B is not true.

Solution by H. W. CURJEL, M.A.

Using the notation of my solutions to Quest. 13234 and 13288 (Vol. LXVI.), (1) gives $CAB = 0$, (2) gives $AB = A$; therefore $CA = 0$; therefore either A or C is not true; therefore C may be true if A is not true.

The statements at the end of the question are equivalent, for

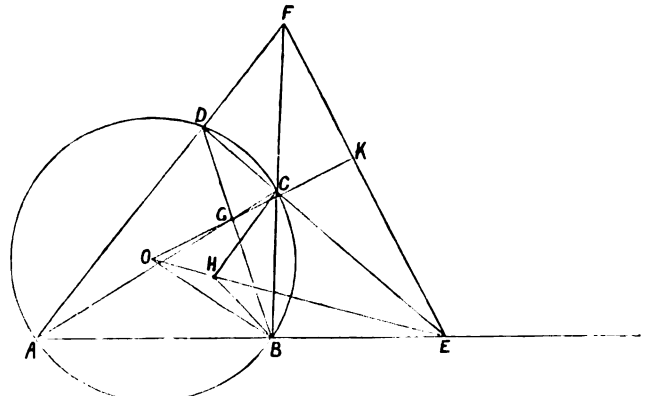
$$ABC = AC \cdot B = A \cdot C \cdot B.$$

14176. (R. F. DAVIS, M.A.)—ABCD is a concyclic quadrilateral, and E, F, G are the intersections (AB, DC), (AD, BC), and (AC, BD) respectively. Show that the focus of the parabola described to ABCD is the foot of the perpendicular from G on EF.

Solution by H. W. CURJEL, M.A.; and Professor SANJANA, M.A.

Let O be the centre of circle ABCD, and let H be the inverse point of E with respect to circle ABCD (H is cut of DE and FG).

$$\angle BHC = OBA + OCD = \frac{1}{2} \{ \text{AOD} + \text{BOC} \} = \text{CGB};$$



therefore B, C, G, H are concyclic, and circle BCGH is inverse of circle BEC, which therefore passes through the inverse of G, i.e., through K, the foot of the perpendicular from G on EF, since EF is the polar of G. Similarly, circle FCD passes through K; therefore K is the focus of the parabola described to ABCD.

13951. (R. KNOWLES, B.A.)—If the diagonals of a polygon, having an even number of sides, inscribed in a conic, concur in a point G, prove that (1) the diagonals of the corresponding circumscribed polygon also concur in G; (2) hence the diagonals of a polygon, having an even number of sides, circumscribed to a conic are concurrent.

Solution by H. W. CURJEL, M.A.

Project the points of intersection with the conic of the polar of G into the circular points at infinity; the conic then becomes a circle with centre G, and the first part of the Question becomes obvious; hence it is also clear that to every conic there may be circumscribed an infinite number of polygons of a given number of sides whose diagonals are concurrent. (2), however, is not true when the number of sides is greater than 6; since, having drawn a circumscribed polygon whose diagonals are concurrent, by displacing a side we cause two of the diagonals no longer to pass through the former point of concurrence, whereas the intersection of the remaining diagonals remains fixed.

QUESTIONS FOR SOLUTION.

14306. (Professor G. B. MATHEWS, F.R.S.)—Prove that, if p, q be odd primes such that p lies between q and $3q$, and if p/q be the penultimate convergent in the expansion of p/q as an ordinary continued fraction, then there is a multiple of pq between $(p+q)pq'$ and $(p+q)p'q$. Show, also, that $p+q$ is the least even number $2n$ such that a multiple of pq lies between $2npq'$ and $2np'q$.

Show, further, that, if $2n$ be an assigned even integer, and if odd primes p, q can be found such that $p > \frac{1}{2}n, q > \frac{1}{2}n$, and a multiple of pq lie between $2npq'$ and $2np'q$ when $pp' - p'q = \pm 1$, then $2n = p+q$.

14307. (Professor NEUBERG).—Soient P, Q, R les symétriques d'un point quelconque M par rapport aux côtés BC, CA, AB du triangle ABC. Démontrer que le centre de gravité des points P, Q, R, chargés respectivement de poids proportionnels à $\sin 2A, \sin 2B, \sin 2C$, est l'orthocentre de ABC.

14308. (Professor E. J. NANSON).—Find the condition that the ruled surface $\theta = 0, \phi = 0, \psi = 0$ may be developable, θ, ϕ, ψ being homogeneous functions of the six coordinates of a line.

14309. (Professor COCHEZ).—Lieu des points d'où l'on peut mener à l'ellipse quatre normales dont la somme des carrés soit constante.

14310. (Professor K. J. SANJANA).—A point moves on the circumference of a given triangle; trace the changes in its distance from the pedal line, and find when this is a maximum. Also, apply the result to the problem of inscribing a maximum parabola in a given triangle. [The distance is a maximum when the algebraical sum of the tangents of the angles made by the pedal line with the sides is zero.]

14311. (Professor U. C. GHOSH).—Points $O_1, O_2, O_3, \dots, O_n$ are taken in order on the circumference of a circle circumscribing a triangle ABC. If $AO_1, AO_2, AO_3, \dots, AO_n, BO_1, BO_2, BO_3, \dots, BO_n, CO_1, CO_2, CO_3, \dots, CO_n$ cut BC at $G_1, G_2, G_3, \dots, G_n, AC$ at $F_1, F_2, F_3, \dots, F_n$, and AB at $H_1, H_2, H_3, \dots, H_n$ respectively, show that (1) $F_1H_1, F_2H_2, F_3H_3, \dots, F_nH_n$ will all pass through the same point A'; (2) $\angle F_r A' F_{r+1} = \angle G_r O G_{r+1}$, O being the centre of the circle; (3) if $N_1, N_2, N_3, \dots, N_n$ be the points of intersection of $OG_1, OG_2, OG_3, \dots, OG_n$ with $F_1H_1, F_2H_2, F_3H_3, \dots, F_nH_n$, they will lie on the circumference of the circle described on OA' as diameter.

14312. (Professor N. L. BHATTACHARYA).—A parabola slides between the two foci of an ellipse, such that the focus of the parabola always lies on the ellipse. Find the envelope of (1) the directrix, (2) the axis, of the parabola.

14313. (D. BIDDLE).—A bag contains n counters, numbered from a to $a+n-1$, and, provided $n \nless m$, m persons draw out in rotation r counters each. Find the probability that the m sums of the numbers on the sets of r counters thus drawn shall be equal.

14314. (R. TUCKER, M.A.).—AC, BD are two parallel straight lines which are cut at right angles by OAB, and obliquely by OCD ($\angle COA = D$). CP, DQ are parallel to OAB, and DP, CA perpendicular to OCD. Prove loci of P, Q to be parabolas. Tangents at extremities of their latera recta are perpendicular (or parallel), and the points of intersection of these tangents lie on a hyperbola when BD varies in position.

14315. (B. N. CAMA, M.A.).—If parabolas be described cutting an equiangular spiral orthogonally, and having their axes in the direction of the polar subtangent, the loci of the focus and the vertex are copolar spirals whose linear dimensions bear a constant ratio.

14316. (R. F. DAVIS, M.A.).—A convex n -gon ABCD...H is inscribed in a circle centre O, radius R, and is of such a shape that a point P (whose distance from O is δ) can be found within it, so that the circumradii of the triangles PAB, PBC, ..., PHA are each equal to r . Investigate the restrictions as to shape and the connexion between R, r, δ .
 $n = 3$; no restriction: $R = r$.
 $n = 4$; rectangle: $2r^2 = R^2 + \delta^2$.
 $n = 6$; ACE, BDF have common orthocentre, $3r^4 = r^2(R^2 + \delta^2) + R^2\delta^2$.
 Note the theorems that may be obtained by inverting these properties with respect to P.

14317. (G. H. HARDY, B.A.).—Prove FRULLANI'S formula

$$\int_0^\infty \frac{\phi(ax) - \phi(bx)}{x} dx = \{\phi(\infty) - \phi(0)\} \log(a/b),$$

extending it so as to apply (1) to cases in which $\phi(x)$, while remaining integrable, has a discrete set of infinities within the range of integration, $\phi(\infty), \phi(0)$ being determinate; (2) to cases in which only the principal value of the integral is determinate. Consider also the case in which $\phi(x)$ oscillates at infinity between finite limits. As examples, evaluate

$$\int_0^\infty \log \left\{ \left(\frac{1-ax}{1-bx} \right)^2 \right\} \frac{dx}{x}, \quad \int_0^\infty \left(\frac{e^{-ax} - e^{-bx}}{x} \right)^2 dx,$$

$$\int_0^\infty \left(\frac{1}{\cos ax} - \frac{1}{\cos bx} \right) \frac{dx}{x}, \quad \int_0^\infty \left(\frac{1}{\cos ax} - \frac{1}{\cosh bx} \right) \frac{dx}{x}.$$

[The last two integrals are given by their principal values.]

14318. (H. MACCOLL, B.A.).—Two intersecting circles A and B are wholly enclosed in a circle E. Six points are marked in A outside B, three points in B outside A, two points in area common to A and B, and x points in E outside both A and B. Out of the total $x+11$ points in E a point P is taken at random. Let α denote the statement that P will be in A, and β the statement that P will be in B. What must be the value of x (1) so that α shall be independent of β , (2) so that the dependence of α upon β shall be $2/105$, (3) so that the dependence of α upon β shall be $-2/95$? [The dependence of α upon β means the increase or (when negative) diminution produced in the chance of α by assuming β .]

14319. (Rev. T. MITCHESON, B.A.).—Solve

$$x^3 + \frac{1}{2}x^2(\alpha^{-1}\beta\gamma + \alpha\beta^{-1}\gamma + \alpha\beta\gamma^{-1}) = \frac{1}{2}\alpha\beta\gamma.$$

14320. (J. J. BARNVILLE, B.A.).—Prove that

$$\frac{1}{1+2} + \frac{1}{13+2} + \frac{1}{233+2} + \dots = \frac{\sqrt{5}+1}{8},$$

$$\frac{1}{2+2} + \frac{1}{34+2} + \frac{1}{610+2} + \dots = \frac{\sqrt{5}}{8},$$

$$\frac{1}{5+2} + \frac{1}{89+2} + \frac{1}{1597+2} + \dots = \frac{\sqrt{5}-1}{8},$$

$$\frac{1}{1+5} + \frac{1}{2+5} + \frac{1}{5+5} + \frac{1}{13+5} + \dots = \frac{5\sqrt{5}}{22},$$

$$\frac{1}{1+1} - \frac{1}{4-1} + \frac{1}{11+1} - \frac{1}{29-1} + \dots = \frac{\sqrt{5}}{10}.$$

14321. (R. F. MUIRHEAD).—Given any two triangles, show how to dissect each into three triangular parts such that they are similar, each to each, i.e., to each part of one triangle there is a part of the other which is similar. Is there any restriction necessary in the data that the solution may apply? Show that, negative triangles being permitted, the problem has at least forty-five solutions. (I call this the Glasgow Dissection Problem.)

14322. (W. C. STANHAM, B.A.).—AA' is a diameter of a circle (C_1) centre Q. On AA' (or on AA' produced) any point P is taken, and with centre P and radius = $PA \cdot PA'/AA'$ a circle (C_2) is described. Show that, if any tangent to (C_2) cuts (C_1) at R and S, $\cos^2 2RPS = \cos^2 \frac{1}{2}RQS$.

14323. (V. DANIEL).—If the images of the vertices A, B, C of a triangle (area = Δ), in the opposite sides, form a triangle of area Δ' , show that $\Delta'/\Delta = 3 + 8 \cos A \cos B \cos C$. Hence show that, when the images are collinear, the triangle ABC has an obtuse angle lying between the limits 120° and $\cos^{-1}(-\sqrt{3})$, i.e., nearly $127^\circ 46'$.

14324. (W. S. COONEY).—P, Q, R are the centres of the insquares of the triangle ABC, to the sides a, b, c respectively. (1) AQ and AR are isogonal lines to b and c , &c. (2) If triangle be right-angled, given P, Q, and centre of inscribed circle, construct triangle. (3) In (2), if P and Q alone be given, area of minimum right-angled triangle equals $36(PQ)^2$.

14325. (R. KNOWLES).—Prove that the sum of the first $(r+1)$ coefficients in the expansion of $(1-x)^{-m/n}$

$$= \frac{(m+n)(m+2n)\dots(m+rn)}{n^r \cdot r!}$$

14326. (H. A. WEBER).—The curve whose intrinsic equation is $d\psi = a \sec^{2n+1}\psi$, where n is a positive integer, is of the $2n$ th degree; it has no asymptotes, double points, or points of inflexion, and consists of one infinite branch resembling a parabola in form. If x, y, z , and ψ vanish together, then, when $\psi = \frac{\pi}{4}$,

$$x = a \left\{ 1 + (n-1) \cdot \frac{1}{2} + \frac{(n-1)(n-2)}{1 \cdot 2} \cdot \frac{1}{2} + \frac{(n-1)(n-2)(n-3)}{1 \cdot 2 \cdot 3} \cdot \frac{1}{2} + \dots \right. \\ \left. \dots + \frac{1}{2n-1} \right\},$$

$$y = \frac{1}{2}a \left\{ 1 + (n-1) \cdot \frac{1}{2} + \frac{(n-1)(n-2)}{1 \cdot 2} \cdot \frac{1}{2} + \frac{(n-1)(n-2)(n-3)}{1 \cdot 2 \cdot 3} \cdot \frac{1}{2} + \dots \right. \\ \left. \dots + \frac{1}{n} \right\},$$

$$z = a \cdot \frac{1 \cdot 3 \cdot 5 \dots (2n-1)}{2 \cdot 4 \cdot 6 \dots 2n} \left\{ \log(1 + \sqrt{2}) + \sqrt{2} \left[1 + \frac{4 \cdot 8}{3 \cdot 5} + \frac{4 \cdot 8 \cdot 12}{3 \cdot 5 \cdot 7} + \dots \right. \right. \\ \left. \left. \dots + \frac{4 \cdot 8 \cdot 12 \dots (4n-4)}{3 \cdot 5 \cdot 7 \dots (2n-1)} \right] \right\}$$

When $n = 1$, the curve is the parabola $x^2 = 2ay$. When $n = 2$, the curve is the quartic $(9x^2 - 12ay + a^2)^2 = a(4y + a)^3$.

14327. (ROBERT W. D. CHRISTIE).—Investigate the easiest method of securing (1) the first primitive root of a prime, and (2) all the rest. E.g., prime = 29; first root 2; $\therefore 2^3 = 8$; $\therefore 8^3 = 19$; $19^3 = 15$, &c.,
 or $2 \cdot 3 \cdot 8 \cdot 27 \cdot 21 \cdot 26 \times 5$
 $10 \cdot 15 \cdot 11 \cdot 19 \cdot 18 \cdot 14 \times 6$

14328. (GEORGE SCOTT, M.A.).—Show that the relation between the square of a right-angled triangle's altitude and the rectangle under the segments of the hypotenuse is a particular case of a property belonging to all triangles: namely, that the rectangle under the altitude of any triangle and the height of its orthocentre is equal to the rectangle of the base segments. When the orthocentre coincides with the vertex, as it does in a right-angled triangle, the particular case occurs.

14329. (J. A. THIRD, M.A., D.Sc.).—L, L', M, M', N, N' are points on a conic. LL', MM', NN' form the triangle ABC; MN', NL', LM' the triangle A'B'C'; and M'N, N'L, L'M the triangle A''B''C''. The straight line AA'A'' meets BC, B'C', B''C'' in X, X', X'' respectively; the straight line BB'B'' meets CA, C'A', C''A'' in Y, Y', Y'' respectively; and the straight line CC'C'' meets AB, A'B', A''B'' in Z, Z', Z'' respectively. Show that the following are triads of concurrent lines:—
 YZ, Z'X', X''Y''; ZX, X'Y', Y''Z''; XY, Y'Z', Z''X'';
 YZ, Z''X'', X'Y'; ZX, X''Y'', Y'Z'; XY, Y''Z'', Z'X'';
 and that the points of concurrence lie on a conic.

14330. (R. CHARTRES).—BC is the fixed base of the triangle ABC, G the centroid, and K the symmedian point. Show that the maximum value of the triangle AGK: its mean value :: $\pi : 2$ if A describe a semicircle.

14331. (H. W. CURJEL, M.A.).—If the series $a_1x + a_2x^2 + \dots = f(x)$ is convergent when $x = \text{or} < 1$, and the series

$u_1x + u_2x^2 + \dots = \phi(x)$, $v_1x + v_2x^2 + \dots = \psi(x)$, $w_1x + w_2x^2 + \dots = \chi(x)$, &c., are convergent when $x < 1$, and if

$$\sum_1^n ar = \sum_1^{m/a} ur + \sum_1^{m/\beta} vr + \sum_1^{m/\gamma} wr + \dots,$$

where m is divisible by α, β, γ , &c., then $a_1 + a_2 + a_3 + \dots = f(1)$
 $= \text{limit} \{ \phi(x^m) + \psi(x^m) + \chi(x^m) + \dots \}$, where $x = 1$, if this limit is finite and has only one value.

14332. (Professor M. W. CROFTON, F.R.S.).—(1) If $4n - 1$ is a prime, $1^2 2^2 3^2 \dots (2n - 1)^2 - 1$ is a multiple of $4n - 1$. (2) If $4n + 1$ is a prime, $1^2 2^2 3^2 \dots (2n)^2 + 1$ is a multiple of $4n + 1$. It hence follows that $4n + 1$ is the sum of two squares.

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6021. (E. W. SYMONS, B.A.).—Prove that (1) the cosine of the angle between the planes $Ax + By + Cz = 0$, $A'x + B'y + C'z = 0$, referred to oblique axes inclined at angles α, β, γ , is

$$\frac{AA' \sin^2 \alpha + \dots - (BC' + B'C) (\cos \alpha - \cos \beta \cos \gamma) - \dots}{[A^2 \sin^2 \alpha + \dots - 2BC (\cos \alpha - \cos \beta \cos \gamma) - \dots]^{\frac{1}{2}} \times [A'^2 \sin^2 \alpha + \dots - 2B'C' (\cos \alpha - \cos \beta \cos \gamma)]^{\frac{1}{2}}}$$

and (2) the length of the perpendiculars from the point (xyz) on the plane $Ax + By + Cz + D = 0$ is

$$\frac{(Ax + By + Cz + D) \left(1 - \cos^2 \alpha - \cos^2 \beta - \cos^2 \gamma + 2 \cos \alpha \cos \beta \cos \gamma \right)^{\frac{1}{2}}}{A^2 \sin^2 \alpha + \dots - 2BC (\cos \alpha - \cos \beta \cos \gamma)}$$

6030. (SWIFT JOHNSTON, B.A.).—Prove that the first polars of points on a straight line, with regard to a ruled surface, cut the generators homographically.

6063. (Professor SYLVESTER, F.R.S.).—Let the term simple derivatives of a, b, c, \dots signify the quantities $1, a, b, c, \dots, ab, ac, bc, abc, \dots$; and total derivatives the quantities $1, a, b, c, \dots, a^2b^2c^2, \dots$; in a word, combinations of any powers of a, b, c, \dots

(1) Let p_1, p_2, p_3, \dots be the simple derivatives of a, b, c, \dots at the prime numbers of the form $4k + 3$; Q_1, Q_2, Q_3, \dots the total derivatives of those of the form $4k + 1$. Prove the inequalities $\frac{1}{2} \sum p_i < \sum x^Q < \sum x^p$ for all values of x less than unity.

(2) Again, let p_1, p_2, \dots now denote the simple derivatives of all the primes of the form $6k + 5$; Q_1, Q_2, Q_3, \dots the total derivatives of those of the form $6k + 1$. Prove the inequalities $\frac{2}{3} \sum p_i < \sum x^Q < \sum x^p$ for all values of x less than unity.

(3) Deduce from the first of each of the above pairs of inequalities that the primes of the form $4n + 1$ and the primes of the form $6n + 1$ are both of them infinite in number.

6074. (A. MARTIN).—The bottom of a circular box is covered with an adhesive substance, and two straight rods, each equal in length to the radius of the box, are dropped horizontally into it at random; find the probability that the rods are crossed in the box.

6085. (A. J. C. ALLEN, B.A.).—Through the orthocentre K of a triangle ABC a straight line DEF is drawn meeting the sides BC, CA, AB in D, E, F; and a point P is taken on the line so that

$$\frac{PE \cdot PF}{KE \cdot KF} \sin 2A + \frac{PF \cdot PD}{KF \cdot KD} \sin 2B + \frac{PD \cdot PE}{KD \cdot KE} \sin 2C = \text{a constant.}$$

Show that the locus of P is a circle, and find its centre and radius.

6090. (T. COTTERILL, M.A.).—A curve U (order m and class n) and a point Z not at infinity are given on a plane. Take the pedal curve of a point of U to the point Z, and the antipedal of a tangent to U to the same point, and then find the order of the pedal if the curve U touches the circular asymptotes of Z and the line at infinity Σ times, and the class of the antipedal of U if U passes S times through the origin and the circular points at infinity.

A similar construction holds for oblique pedals.

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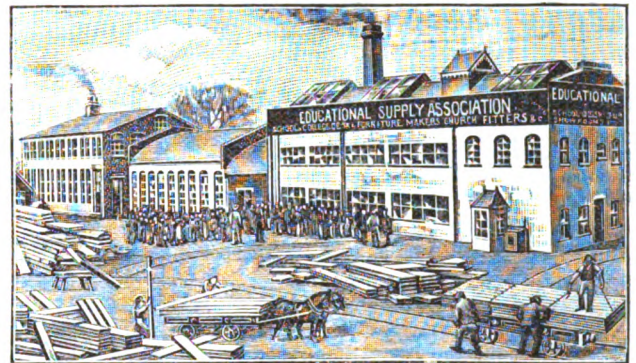
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3. **JUNIOR FORMS EXAMINATIONS.**—The Christmas Examination will commence on the 5th of December.

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The Educational Times.

Registration of Teachers. THE demand for an authoritative register of teachers has at last proved effective. We are to have a Board of Education ; the Board are to be advised by a Consultative Committee, of whom two-thirds are to be persons "qualified to represent the views of Universities and other bodies interested in education" ; and the Committee are to frame a register. But, though the battle has been won, the programme of the future is not yet drawn up. No more delicate and important task was ever assigned to a committee than that of deciding what are to be the qualifications for admission to this register—what degrees or other certificates are to be required, what knowledge of the history, theory, and practice of education, and what evidence of practical professional training. Unfortunately, though nearly all sections of teachers and educational bodies demand with one consent that there shall be a register, there is no common agreement as to the minimum of qualification that should be demanded. In fact, it is precisely because there is no such common standard of efficiency that a register becomes of so much importance, and the difficulty of definition so great. The work that lies, then, before the Consultative Committee requires the insight and firmness that go to make true statesmanship, and it behoves us as individual teachers and as members of a corporate body of secondary teachers not to cease maintaining the importance of making the test of qualification a real one. This duty is the more manifest because the conditions have changed since the time of Sir Richard Temple's Registration Bill.

The establishment of a Board charged with the superintendence of both primary and secondary education renders it necessary to have a universal register. Under the former conditions, when it was thought that a new educational authority dealing only with secondary education would be formed, the College of Preceptors pressed only for the registration of secondary teachers. Primary teachers were already trained and under a form of registration ; to admit them at that time to a new register would be to establish an *imperium in imperio*, and it was felt that no Government would agree to such a course. The conditions are altered by the Act. All grades of schools are to be under one governing body ; it follows that all classes of teachers must have

a common register. This appears to us a very desirable result ; it is, in fact, the beginning of the unification of the whole teaching profession. Nor do we think that it will tend to any undue lowering of the minimum of qualification. On this point a comparison of the present Act with the Government Bill of 1896 is instructive.

In this Bill the qualifications for registration are as follows :—
 (a) A degree or certificate of general attainments, granted by some University or other body recognized for that purpose by the Council, and accepted as satisfactory by the Council ; and
 (b) a certificate or diploma of adequate knowledge of the theory and practice of education and of practical efficiency in teaching, granted by some University or other body recognized for that purpose by the Council. These requirements were to apply to all teachers alike, including those engaged in private tuition, and irrespective of the "class or kind of educational institution in which they may be engaged or seeking engagement." On this basis the register would include all classes of teachers, primary and secondary, and would be arranged in two main divisions—the one containing the names in alphabetical order, with the date of registration and a brief record of each teacher's qualifications and experience ; the other arranged "with reference to the kind of educational institution in which they are employed."

According to the Act of 1899, the register is to contain the names in alphabetical order, with an entry in respect to each teacher, showing the date of his registration, and giving a brief record of his qualifications and experience. But sectional lists, which would manifestly be convenient for many purposes, are not in terms excluded.

In both it is left to the Committee of Council to determine the minimum amount of knowledge of the subjects of instruction to be insisted on, and the ways in which teaching ability is to be ascertained. There is no probability that a Committee in which representatives of the Universities and other educational bodies form a majority, will require less than the minimum suggested by the Royal Commission and indicated in the Registration Bills that practically adopted its recommendations. Nor is there anything in the Act to prevent the Committee, if they see fit, from forming, in addition to the general register, lists of persons suitable for employment in secondary schools or for teaching special subjects. Nothing is said in the Act as to the registration of existing teachers who may not be able to produce all the required proofs of their competence. In this, as

in other matters, the Committee are to have a free hand. But here again they are certain to follow the lead of the Bill of 1896, which gave power to the Council to admit all such persons whose names ought, in their opinion, to be placed on the register. On all these questions we do not doubt that the Consultative Committee will be glad to receive the opinions of teaching bodies. The great opportunity for which we have struggled so long has at length been brought about by the influence of the teaching profession itself. It remains for teachers to see that it is rightly used.

NOTES.

We are evidently not yet out of the wood of controversy as to the place of religion in education. From the official programme of the Church Congress we see that one of the sectional meetings on Wednesday, October 11, is devoted to the subject. The papers and discussions are to deal with (1) the inexpediency of an Imperial policy which excludes religious education, and (2) the lines of future progress in elementary and in secondary education; and the readers will be Messrs. T. C. Horsfall and F. C. Holiday and the Rev. G. C. Bell. The meeting will be held at the Kensington Town Hall at 8 o'clock in the evening, with the Bishop of Rochester in the chair. The subject is scarcely a burning one at the moment, and we may, therefore hope that a spirit of sweet reasonableness may be infused into the discussion. At the Bangor Diocesan Conference, held on September 21 and 22, a wail was raised over the lack of definite religious instruction, both in the Welsh elementary schools and in the secondary schools under the Intermediate Education Act; and apparently the Church in Wales is anxious to find some means by which more definite religious instruction can be given to children of Church parents attending these schools.

This faint roll of the "drum ecclesiastic" in itself justifies the discretion of the Government in its determination to save the Board of Education Act from the uneasy freight of a religious controversy; but, although the Bill became law in a clear sky, there are clouds below the horizon. Fortunately the first instalment of secondary education legislation gives no standing ground for a battle of the creeds. That will be provided at a later stage, when future legislation enables the Local Authorities to supply out of public funds the deficiency of secondary schools. Even then, we hope other matters may take precedence. When the statutory schools are in existence, and properly equipped for secular teaching, the religious question will, we fear, be thought to be "ripe for settlement." Either a *modus vivendi* must be agreed upon or the different religious bodies must be prepared for self-sacrifice, by undertaking the religious instruction of their own children at some fixed hour which does not interfere with the ordinary work of the school. Surely, only the lack of a living enthusiasm for religion can make the adoption of one of these courses impossible.

It is with much regret that we hear that the Rev. Richard Alliott, a member of the Council of the College, has been compelled by ill-health to resign the Headmastership of the Non-conformist Grammar School at Bishop's Stortford. Mr. Alliott

has occupied his present post since the foundation of the school in 1868. During the thirty-one years of his Headmastership he has succeeded in winning the affection of many generations of boys, and, by quiet, unostentatious perseverance in what has often been very uphill work, in raising the school to the level of modern requirements, and making it a home of sound learning and religious education.

For some years now there has been a Day Training College in connexion with Owens College, Manchester, but up to now there has been no Professor of Education. Hitherto the work of lecturing to the students on the science and art of education has been in the hands of the Master and Mistress of Method in the Training College. The removal of Mr. Good to London, in order to superintend the new Training Department of the London School Board, having created a vacancy in the post of Master of Method, the Council of the College took the opportunity of creating a Professorship of Education in the University; and they have chosen for the post Mr. H. L. Withers, Principal of the Borough Road Training College. Mr. Withers is no stranger to Manchester. After graduating at Oxford, and teaching for a time in an elementary school, he went to Manchester Grammar School as assistant-master, under Mr. Glazebrook. When the latter left Manchester to become head of Clifton College, Mr. Withers followed him, and thence he came to the Training College at Isleworth.

EDUCATION in Servia is nominally compulsory, but the lack of adequate machinery is responsible for the fact that only about one-third of the Servian children attend school. There are not enough schools and there are not enough teachers for the law to be carried out. In England we have schools and teachers enough, but even here the law of compulsion is not, as we know, generally enforced. For the population of two and a-half millions there are about one thousand elementary schools. These have four classes, or standards, through which the children pass from the age of six to ten years. Religion, the mother tongue, arithmetic, geography, Servian history, nature studies, and singing are the subjects of the curriculum. The secondary schools are intended for children from the age of ten to thirteen, and these have three classes, the main subjects of study being Servian literature and history and one foreign language. There are eleven gymnasiums directed by the State, and some private institutions calling themselves by this name. The gymnasiums are practically reserved for Servian boys, since the few girls who were admitted, at one time, under certain conditions, have now been excluded. There are, however, some high schools for girls, who are admitted at the age of nine, after having passed through the four classes of the elementary schools. Modern languages, needlework, and music form the main part of the curriculum, for accomplishments are still regarded as the most necessary thing in a girl's education. But women have recently been admitted to the Universities in Servia, and there are at the present time more than twenty of them studying philosophy or pedagogy. There is little choice in the matter of study for Servian students, whether men or women, as the only three faculties of the Servian Universities are philosophy, law, and technical science. It is, therefore, small matter of surprise

that many of the Servian young men are to be found studying at the German Universities.

MR. ANDREW CARNEGIE'S gifts to sundry libraries and educational institutions in the United States and in Scotland amount by the beginning of this year to about six millions and a half dollars. Of this amount Scotland claims 563,000 dollars, or £112,600. The Edinburgh Library has benefited to the amount of £50,000, and smaller sums have been given to the libraries at Dunfermline, Ayr, Stirling, Aberdeen, Jedburgh, Inverness, Wick, Peterhead, and Dumfries; and the technical school at Dunfermline received a donation of £10,000. In addition to the amounts above named, Mr. Carnegie contributed £50,000 to the Birmingham University Fund, and he has otherwise broken ground in England which he cannot do better than proceed to cultivate. The sum received by Mr. Carnegie for his Pittsburgh business has been variously estimated at between twenty and thirty millions sterling.

FURTHER particulars reach us as to the bequest of the famous Sloyd School at Nääs to the Swedish Government. By Herr Abrahamson's will it is laid down that the institution is to be maintained for ever on the Nääs estate, for the training of ordinary teachers in the art and principles of Sloyd. For this purpose £20,000 is bequeathed as an endowment. The first floor of the castle at Nääs, and the grand saloon, are to be used for lectures, meetings, and festive gatherings. The other rooms are to be set apart for the entertainment of distinguished educational visitors. The park is to be always open to students and teachers. The present well known director, Otto Salomon, is to be retained in his post until he resigns or dies; and, in the former case, he is to appoint his successor. In the event of his death whilst still at his post, the control of the institution is to be placed in the hands of a committee of three to five persons appointed by the State. In case the funds should, in the opinion of the Swedish Government, cease to be needed for the purpose indicated in the aforesaid will, they are to be handed over to the Royal Agricultural Academy.

MR. POWELL, the English Consul at Philadelphia, keeps an observant eye upon fresh educational developments in the States. In his last report he states that the University of Pennsylvania has drafted a curriculum for a "diplomatic" course of instruction, to extend over two years. Apart from a study of such subjects as international law and modern history, we should doubt the advantage of a special course of study for diplomatists. The formal strategy of the military schools of the eighteenth century was helpless when opposed by the dash and determination of Buonaparte; and we are afraid that a pure scholastic diplomacy would be equally unavailing when pitted against the natural deliberation and caution, let us say, of a Krüger.

THE education of the average man with that *rolle sciolto e pensieri stretti* commended by Wotton to Milton when about to set out on his travels will probably to the end of time be the diplomatist's best equipment. However, the "diplomatic" course is another illustration of the confidence of the American mind in education. It reminds us of an incident we once heard

from the principal of one of the leading American women's colleges. A new student was asked, as usual, what course of study she wished to enter upon. "I want to be fixed up as an all-round good wife for a Chicago lawyer." Of course, the principal was equal to the emergency. Now for the English contrast. An old farmer we knew, being told of the intended establishment of an agricultural college in his county, made this weird comment: "The best college I ever heard of for learning farming is a *rather dear farm*."

How far the habit of cigarette-smoking is prevalent among English schoolboys is difficult to determine; but, judging from observation during holiday time, it is certainly not uncommon among boys of the upper forms. In too many cases, at any rate, the moment a boy leaves school he seems to have the cigarette habit fully developed, which seems to show that its real origin must be traced to his later school-days. A week is hardly long enough in which to learn to roll a cigarette deftly, and a meerschaum holder cannot be well coloured in a night. A moral sanction is hard to find, especially as we must admit the beneficial effects of Raleigh's famous plant as a sedative for the overstrung nerves of schoolmasters. Still, we think a good deal more might be done in schools to combat the growth of the habit among boys in the upper forms. There are, we know, schools where the *esprit de corps* is so keen that a boy in the football team would not dare to touch a cigarette, lest his "wind" should be affected, as it undoubtedly would; and a similar general abstinence prevails during the term devoted to sports. Possibly, if it were impressed upon boys that smoking is injurious to the eyes, the same result might be obtained during the cricket term.

As the result of an inquiry in American schools, it has been found that boys who indulged in cigarette-smoking did not make such good progress as non-smokers; and the evil is considered so serious that it has been suggested that anti-tobacco leagues should be started among schoolboys. English doctors are agreed as to the evil effects of the early use of tobacco upon the eyes and respiratory organs; and probably the listless manner of some boys may be put down to the same cause. In a schoolboy manner is the shadow of a closely attendant reality; and, although we want no anti-tobacco leagues, schoolmasters might well consider how best to meet what may soon become a pressing difficulty.

SUMMARY.

THE MONTH.

MANY subjects of interest from an educational point of view were raised at the Dover meeting of the British Association. Sir Michael Foster, the President for the year, dwelt in his address on the educative and even ethical value of science teaching. The mind, he said, cannot be engaged in pursuing scientific research without being itself modified and invigorated. The features of the fruitful scientific mind were mainly three: an imperious truthfulness, not satisfied with "the nearly" and "the almost," but only with the exact; alertness of mind; and, thirdly, the courage of steadfast endurance. From this mental drill, men of science, though in themselves no better than other men, gain a strength not their own, but that of the science whose servants they are. Had she called to her service the many acute minds who have wasted their strength in trying to solve hopeless problems, how much greater had been her progress, and how

many false teachings would the world have been spared! The value of science as a mental discipline made it important that scientific teaching should, in educational schemes, be given not only to professional students, but to all. He would not exclude the older studies of literature, but let the two disciplines be used side by side. The ethical influence of science was being shown in the international intercourse and brotherhood to which it was giving rise.

A DISCUSSION arose in the Chemical Section on a report of the Committee on the teaching of science in elementary schools. It stated that the progress in this matter which was noted in the last report had been more than maintained in so far as concerned the number of scholars receiving instruction, and a hope was expressed that under the newly constituted Education Department far more attention would be given than heretofore to improving the conditions under which science was taught in schools. Especially was it important that attention should be paid to practical training in scientific methods. The President said that, in undertaking the teaching of science in elementary schools, a great responsibility had been incurred. Good could only come of it if science were properly taught. He thought more attention should be paid to the training of teachers, with regard to which the certificates of the Science and Art Department were no sufficient guarantee. Sir Henry Roscoe remarked that great advance had been made in this matter in the last thirty years, but we were now really at the beginning only of true science teaching. In the towns good work had been done, but in the rural districts the results so far had been practically nil. Prof. Tilden advised that as much latitude as possible should be given to the teachers in their methods of teaching science, and more attention should be paid to the science of common things. It was generally admitted that teachers found great difficulty in getting good training.

SIR PHILIP MAGNUS read a paper in the Section of Economic Science on "The Teaching University of London and its Faculty of Economics." In the developed University, he said, to the older faculties of Law, Medicine, Theology, Arts, and Music will be added the newer faculty of Science and the newest faculties of Economics and Engineering. The Science faculty would occupy a prominent position, and it was hoped that the teaching of the different branches might be duly co-ordinated and entrusted to separate professors, each occupied with his own subject, but all working together in close association.

The possibility of such an arrangement was one of the strongest arguments for locating the new University at South Kensington. Immediately opposite the University offices would be the new buildings of the College of Science, and in close proximity were the City and Guilds Technical College, the Natural History Museum, and the galleries of scientific apparatus. Closely allied to the faculty of Science would be the new faculty of Engineering, and there could be no doubt that the closer union of the teachers of the different engineering schools in a faculty of their own would tend to the better organization of the teaching, and would give to the schools that status and recognition in the University which they were entitled to claim. Another equally important innovation in the reconstitution of the University would be the new faculties of Economics and Political Science, including commerce. The introduction of those two new faculties would differentiate the University of London from other Universities. There could be no doubt that the deepening and expansion of our knowledge of economic science was one of the great desiderata of the present age. It would seem that in many matters practical legislation was in advance of the theory on which it should be founded, and was consequently unnecessarily, and often dangerously, empiric in character.

WE extract another passage from Sir Philip's timely and suggestive paper:—

Surely, in the geography and languages of our Empire, in the political considerations which link our colonies with the mother country, in the laws with which the rulers of such an Empire should be familiar, in the varied circumstances affecting its trade, in the history and habits of the people who dwell within its boundaries—surely, in all this there is subject-matter for the highest learning and research, for studies worthy of a great University. Such a school, fulfilling the functions of a Civil Service and commercial department, would draw students, not only from London and other parts of the United Kingdom, but from our colonies and our great dependencies—students who would be attracted by the unique opportunities it would offer for the study of subjects closely connected with their administrative and commercial duties. If we failed to take advantage of the opportunity which the

reorganization of the University and its removal to the Imperial Institute now presented, we might be sure that we should find ourselves before long behind one other great country at least—the United States—in the knowledge which an Empire should possess of its own conditions, functions, and responsibilities.

IN the Anthropological Section an elaborate report was presented from the Committee who had investigated mental and physical deviations from the normal among children in public elementary and other schools. It was the seventh annual report, and the tables appended showed the conditions of 1,120 children requiring special care and training. The Committee work in conjunction with the Childhood Society, and claim that since their first report in 1893 much attention has been directed to the subject, as evidenced by the Bill now before Parliament to make better provision for the elementary education of defective and epileptic children in England and Wales.

THE quarterly meeting of the Assistant-Masters' Association was held on September 16, at King Edward's School, Birmingham. Mr. Pickford read a paper on "Tenure of Office in Endowed Schools," and a resolution was carried "that the appointment and dismissal of assistant-masters should always be subject to confirmation by the governing body, with a right of appeal on the part of the assistant-masters before the dismissal is confirmed." Mr. Fabian Ware proposed: "That such steps should be taken immediately by the Executive of the A.M.A. as in its opinion would ensure—(a) That among the members of the Consultative Committee should be persons qualified to represent the views of assistant-masters; (b) that Clause 22 of the Endowed Schools Act, 1869, and Clause 4 of the Board of Education Act, 1899, should be amended so as to allow all headmasters and assistant-masters a right of appeal to the Consultative Committee in case of dismissal." Mr. McKinlay moved as an amendment to delete the first paragraph and to substitute: "The Executive be asked to take rigorous steps in the direction of drafting and introducing a Parliamentary Bill embodying either [certain suggested] amendments of the Endowed Schools Act and the Board of Education Act, or such equivalent remedies for insecurity of tenure of office as they may deem advisable." Mr. Ware accepted the amendment.

MR. G. F. BRIDGE read a paper on "Pensions," and concluded by moving: "That this meeting, having in view the inadequate remuneration given to assistant-masters in public secondary schools, and also the fact that they are engaged in the public service, considers that such assistant-masters have a just claim to a pension scheme assisted by public money. That any pension scheme to be satisfactory must be based on the principle of the formation of a central fund by the compulsory contributions of governing bodies and assistant-masters." A paper dealing with inspection was contributed by Mr. Swinstead, who proposed: (1) "That this meeting is of opinion that in secondary schools inspection should be compulsory, that the cost should be borne by the Board of Education, and that the inspectors should have had at least five years' recent experience in those schools." (2) "That the reports that follow an inspection or examination should consist of two parts—(a) a general part for publication, (b) a detailed part for the use of the staff, containing suggestions and advice on the working of the school." (3) "That, in the light of recent events, it appears to be necessary that a representative of the Board of Education should be present at the election of every headmaster of an endowed school and should report on the election to the Central Board." (4) "That the thanks of the A.M.A. are due to the Charity Commissioners for having held the Grantham inquiry, and for the decision they have arrived at." Both resolutions were carried.

ON September 20 Sir William Harcourt opened a new county school at Ebbw Vale, erected under the provisions of the Welsh Intermediate Education Act on a site given by the Duke of Beaufort, and at a cost of £2,600. Occupying an elevated and picturesque situation, it stands out a conspicuous object in the valley. It has accommodation for 60 boys and 40 girls, and includes a chemical laboratory and workshops for the boys, a kitchen and laundry for the girls, and music and art rooms for both. Sir William was rather jocular on the subject of Welsh education, saying that his English friends were almost as tired of the subject as the ancient Greeks were of hearing of the virtue of Aristides, and he thought that some of the English educationalists would be disposed to ostracize Welsh education

on account of hearing so much of its excellence. Indeed, they had some claim to these merits in Wales, for they had at least in experiment done that which in England had not yet been accomplished. They in Wales had completed the Jacob's ladder of education. In both countries there were elementary education and higher education; but in Wales was the missing link.

On the subject of commercial education, Sir William said:

One of the conspicuous deficiencies of English education in every class of the community was the neglect of the study of modern languages. We were very John Bullish, and we were in the habit of thinking that there was no language worth learning except our own. We had long had the monopoly of trade and commerce in the world, due partly to our coal and iron, and still more to the energy of our population and to the sea power which had given us access to every part of the globe. All that had given to England in the past a monopoly which no other country had been able to touch. But in these days there were coal and iron to be found elsewhere. There were other countries which were beginning to have mercantile fleets of great capacity. We were no longer in the era of that monopoly by which we had so much benefited. We had great competitors in our trade. We were told that what hindered our trade was hostile tariffs. But Germany had to meet hostile tariffs as well as we had, and yet Germany was, as people said, going ahead. He did not envy or complain of her doing so; but the reason was that she had, for the last ten years, made a scientific study and practice of commercial education. He had followed the reports of our Consuls abroad, which showed that the mercantile houses of Germany sent all over the world men acquainted with the language of the country to which they were commissioned.

A COMMITTEE of the Birmingham Chamber of Commerce, appointed to consider the best means of providing a sound commercial education, have sent in an elaborate report. Their general recommendations may be briefly summarized:—

Special attention, in all educational institutions, to commercial geography and modern languages. The development of training institutions, so as to provide a greater number of efficient English-born teachers of modern languages, and higher pay for these teachers. Not less than four hours a week to be given to a modern language when first taught. Teaching of Latin to be discontinued for those boys who intend to pursue commercial studies. One branch of the grammar schools to be remodelled as a modern side school.

In the appendix to the report a *résumé* is given of the International Congress for Commercial Education held at Venice. Accounts are also appended of the Municipal Commercial School at Munich and of the school system of Hamburg. It is pointed out that "when higher commercial and industrial education was first introduced in Germany it met with the same or similar difficulties as are now experienced in this country; but, at present, the great benefits which it has bestowed on the nation in general, and especially on the classes most interested, are so well recognized and understood on all sides that the enforced attendance at the higher-grade schools meets with very little opposition, and legal proceedings to enforce the regulations are of very rare occurrence."

THE London School Board have now as many as 368 evening continuation schools open to all comers, of which 12 are special schools for commercial work, and 8 special science and art schools. Lectures in literature are given in 21 schools, gymnastics are taught at 58 centres, and ambulance and home nursing are taught by doctors in upwards of a hundred schools. There are also facilities for women and girls to learn practical cookery, dress cutting and making, and laundry-work, and for men and boys to receive instruction in wood-work. Some form of physical exercise is taught in all schools.

THE National Union of Teachers have collected information concerning 1,015 voluntary and endowed schools, in rural districts of England and Wales, as to the administration of the moneys, at the rate of 5s. per scholar, voted under the authority of the Voluntary Schools Act, 1897. It appears that in 601 of the cases some of the money has gone to improve the school apparatus, and in 281 of the cases some of it has been expended in engaging additional teaching staff; while in 437 of the cases the stipends of teachers have been increased.

THE new draft scheme of the Charity Commissioners for the foundation of a grammar school for girls in Leeds provides that a capital sum of £12,000, together with the accumulations of

income thereon from May 19, 1898, and such a further capital sum out of the endowment of the Leeds Grammar School as may be required, shall be applied to the purchase of the Girls' High School, which shall be part of the foundation, and shall be maintained by the Governors as a day-school for girls, under the title of the Leeds Grammar School for Girls. It is suggested that the Governors shall pay out of the income of the foundation such a yearly sum, being not less than £250 and not more than half of the total net income of the foundation, as the Governors from time to time determine, to the committee to be appointed for the management of the girls' school. As to the constitution of that committee, the Commissioners provisionally propose that, when complete, it shall consist of seventeen persons—fifteen representative members and two co-optative members. The representative members are to be appointed as follows:—Nine by the Governors of the Grammar School from their own body; two women by the City Council (until the establishment of any Local Authority for Secondary Education having power in Leeds, and afterwards one by the Council and one by the said Local Authority); one woman by the Leeds School Board, one woman by the Council of the Yorkshire College, and two women by the Executive Committee of the Yorkshire Ladies' Council of Education.

SIR ROWLAND BLENNERHASSETT reports an increase in the number of students attending the Queen's College, Cork. He speaks highly of the discipline of the College and of the work accomplished in 1898-99; but his report is, in the main, an expression of dissatisfaction at the number of restrictions with which the staff and students have to contend in their effort to keep the College abreast of the times in its educational efficiency and progress. The President has "no hesitation in saying that the College can never accomplish all that it is capable of doing under the present conditions." Its endowment, he asserts, was small at the time of its foundation, and it is now inadequate to meet the requirements. Sir Rowland makes out a strong case for further endowment, especially for the purpose of establishing additional chairs.

AN application has been lodged with the Board of Trade, in compliance with Section 23 of the Companies Acts, 1867, for a licence for the registration, with limited liability, of an association about to be formed under the name of the Midland Clergy College Corporation. The main purpose of the society is stated to be to found, maintain, and conduct a college, and, by means of such college, to provide special training for the ministry of the Church of England for graduates of the Universities of Oxford and Cambridge, and of such other Universities as may be from time to time determined by the governing body, such training to be based on (1) a special devotion to the study of Holy Scripture; (2) a loyal adherence to the Book of Common Prayer, without unauthorized variations, doctrinal or ceremonial; and (3) a large measure of practical training in the work of the pastor and the preacher. The usual powers are sought to acquire, hold, deal with, and dispose of lands and buildings and other property, to found scholarships or exhibitions, to raise money on mortgage or otherwise, and generally to do all such other lawful things as may be conducive or incident to the establishment of the proposed college.

THE City of London College reopened under its new Principal, Mr. Sidney Humphries, on Monday last. Over forty professors are connected with this institution, and one hundred and thirty classes are organized for instruction in about fifty different subjects. The total of attendances for last session was nearly fifty thousand.

A NEW departure is made this term at University College School, classes (not, of course, compulsory) having been formed for instruction in Bible knowledge—English, Greek, and Hebrew. The school, which was founded under the same auspices and on the same basis as University College, has hitherto been without any religious teaching whatever. Last year, however, Mr. Lewis Paton, M.A., of Rugby School (a son of Dr. Paton, of Nottingham), on his appointment as Headmaster of the school, raised the question, and the Council agreed to the formation of classes as stated above, the new departure to come into operation with the present term. The *British Weekly* is "gratified to learn of this attempt to teach religion which is absolutely free from any ecclesiastical bias."

ENCYCLOPÆDIC COLLEGES.

COMENIUS presented encyclopædism as an aim in education. Hartlib carried into practice Comenius's theory by showing an encyclopædic interest in all kinds of social and educational progress. John Milton, in his "Tractate" (1644), advises, amongst the subjects of his courses in instruction, Agriculture, Aristotle on Animals and Physics, Architecture, Geography, Medicine, Natural Philosophy, Mathematics, Fortification, Enginry or Navigation, Anatomy. All these subjects were to be studied by the age of sixteen. Moreover, on all of them authors read were, for the most part, to be in Latin.

But, earlier than these educational writers, Comenius, Hartlib, and Milton, in 1635 an institution was projected and chartered by the King (Charles I.) for classes even more encyclopædic in scope, and through the medium of English. This institution was the *Museum Minervæ*. The founder was Sir Francis Kynaston, who offered his house in Bedford Street, Covent Garden, as the college. He furnished it with books, manuscripts, musical and mathematical instruments, paintings, statues, &c.

"It is sufficiently known," says Sir Francis,* "that subjects of His Majesty's dominions have naturally as well minds and as able bodies as any nation of the earth, and, therefore, deserve all accommodations for the advancing of them, either in speculation or action." Sir Francis takes pains to make clear that there is no injury intended to the Universities, and no desire to detract from the honours due to them. Yet there are many subjects in which a young gentleman or nobleman—and the college is only intended for such—ought to be well grounded, which are not fully provided for by the Universities, such as the "sciences" of Navigation, Riding, Fortification, Architecture, Painting.

"Albeit many of them are taught in London, in dispersed places; yet it cannot but be judged more convenient to reduce and unite them in one certain place: because whereas many men teach them perfunctorily rather for gain than any other respect: it was held necessary to select certain men, who upon oath should undertake to see them learnedly and sufficiently taught: and in brief, whereas in the City of London divers strangers profess to teach sundry, or rather all the liberal arts and sciences, of which many have been found to be upon examination and trial, egregiously ignorant, whereby our youth lose both their time and money: it could not but be thought most necessary for the benefit and convenience of all such virtuous disposed youths as live about the City, as also for the honour of our Nation: that such a house should be erected in which they might be regularly taught to practise the aforesaid sciences and qualities."

Another object Sir Francis Kynaston and his coadjutors had in view. They wished to give instruction in languages to gentlemen before they undertook journeys into foreign parts. Moreover, they proposed to take boys from early age and train them throughout their course. Every one admitted was to bring a "testimonial of his arms and gentry" and his coat-armour to be "tricked on a table to be conserved in the *Museum*." The full course was seven years. There was, however, a shorter course of half the time. No student "shall exercise himself at once about more than two particular sciences, arts, or qualities, whereof one shall be intellectual, the other corporal, to avoid confusion; yet, if the capacity of the scholar be extraordinary, this may be dispensed withal, according to the discretion of the Regent and major part of professors."

"Item: No Professor nor Gentleman . . . belonging to the *Museum Minervæ* shall make any comparisons among themselves, but shall strive to excel in humanity and in giving every one his due for the continuance of concord and amity."

The following are the courses of instruction mapped out:—

- "The Regent shall see these performed: Heraldry, Blazon of Coats and Arms, Practical Knowledge of Deeds and Evidences, Principles and Processes of Common Law, Knowledge of Antiquities, Coins, Medals, Husbandry.
- "The Doctor of Philosophy and Physic shall read and profess these: Physiology, Anatomy, or any other parts of Physic.
- "The Professor of Astronomy shall teach these: Astronomy, Optics, Navigation, Cosmography.
- "The Professor of Geometry shall teach these: Arithmetic, Analytical Algebra, Geometry, Fortification, Architecture.
- "The Professor of Music shall teach these: Skill in Singing and Music, to play upon Organ, Lute, Viol, &c.
- "The Professor of Languages shall teach these: Hebrew, Greek, Latin, Italian, French, Spanish, High Dutch.
- "The Professor of Defence shall teach these: Skill at all Weapons and Wrestling.
- "Also Riding shall be taught, Dancing and Behaviour, Painting, Sculpture, Writing."

Emphasis is laid upon the teaching of these subjects by "demonstration and experiment as much as lieth" in the subjects. It is

* "Constitutions of the *Museum Minervæ*," 1636.

pointed out that frequently learned men, at their death, have written nothing, and their excellencies die with them. In this college each professor is required every New Year's Day to produce some "rarity" in writing, or otherwise, concerning his own profession. The Regent is to see that each of them is rewarded for his contribution according to his deserts. Assistants are to be appointed to the professors. The Professor of Physic and his assistants are to note the effects of experiments, chiefly for medicinal use, and to state "how and in what manner experiment was made and how it failed, that men may not afterwards spend their precious time and means in vain, and that the licentious abuses of impostors hereafter may be detected." Vacancies on the staff are to be filled up by balloting. The voters are the professors and the seven-year students who have passed through the course. Canvassing is forbidden. Professors' salaries are to be paid monthly.

"If any professor find any grievance any way, either in his place or maintenance: he shall propound it to the Regent and rest of the Professors, and they shall redress it as brotherly and charitably, as if themselves were aggrieved, according as the nature of the matter shall permit, being collated with the state of the *Museum*."

There are a very large number of directions in the "Constitutions," but already I have quoted sufficiently to show that this is a remarkable document, and that Sir Francis Kynaston was an educational enthusiast of greater significance than his obscurity of fame would lead one to imagine. I add one more of his suggestions:—

"The Regent* is to remember, as he shall see opportunity from time to time, both publicly and privately to excite the Noblemen and Gentlemen to virtuous and heroic minds by the example of the most renowned, but especially to set before their eyes the images of the Worthies † of our own nation, and of their own Ancestors, in their several families: so that having taken impression in the *Museum* from the best ideas, the whole kingdom of inferior people, in those several counties where they shall be distributed to live, and shine, may find example, help, reason and happiness in and being under them."

Such was the spirit in which this college for gentlemen was thought out. Kynaston's ideas may seem limited to us in the light of the later democratization of education; but they are magnanimous as far as they go, and, personally, Kynaston's zeal and enthusiasm are pure and disinterested. Unfortunately, it proved impracticable. Kynaston, therefore, has been lost in the crowd of noble visionaries.

On December 11, 1635, King Charles I., "as of free gift," sent £100 to the *Museum Minervæ*. On February 27, 1636, "Corona Minervæ," a masque, was performed at the *Museum* before Charles, the Duke of York, and the Princess Mary. But even the royal patronage failed to secure success to the institution. The first and only professors were Edward May, Michael Mason, Thomas Hunt, Nicolas Phiske, John Spiedel, and Walter Salter. Sir Francis Kynaston was born 1587, graduated both at Oxford and at Cambridge, and was one of James I.'s knights. Anthony à Wood says he was "more given to the superficial parts of harmony, poetry, and oratory (wherein he excelled) than to logic and philosophy." He died in 1642.

II. SIR BALTHAZAR GERBIER.

In 1648, a very different man, Sir Balthazar Gerbier, took up the idea of Kynaston, and ran a private encyclopædic academy at Bethnal Green. In the course of the years 1648-49, he issued prospectuses (June 28, 1648; and, in 1649, July 18, August 4, October 31; there may be others), all differing in minor points. With that of July 18, 1649, there is in existence a letter addressed by Gerbier: "Mr. Thomasson, at the Rose and Crown, in Paul Church Yard, is invited on Thursday in the afternoon three of the clock to be present at the opening of the Academy at Bethnal Green, and to bring some notable friend along. There will be a good company and a hearty reception.—Balthazar Gerbier."

The "to bring some notable friend along" discloses the nature of Gerbier's educational zeal. He is a prince of puffers.

The following is the prospectus of June 28, 1648, in full:—

"[June 28, 1648.]

"To all Fathers of Noble Families, and lovers of Vertue.

"Be it known that Sir Balthazar Gerbier, Knight, erects an Academy, wherein forraigne Languages, Sciences and all Noble exercises shall be taught, viz., French, Italian, Spanish, German, and Low Dutch, both Ancient and Modern Histories, joyntly with the Constitution and government of the most Famous Empires and States of the world. Besides, the true experimental Natural Philosophy. As also, what is most necessary and most noble of the Mathematicks, to wit, Arithmetick, the true method of Keeping Bookes of Account, by double parties, as is practised in Italy and other parts of Europe, Geometry, Geography, Cosmography, Perspective, and Architecture, as well for

* He was himself to be the first Regent.

† How much this feeling was shared may be judged by the numerous biographies and collections of biographies of the period, culminating in the delightful "Worthies of England," by Thomas Fuller, 1662.

building as for magnificent shows and secret motions of Scenes, and the like. But, above all, what is most excellent of practical Mathematics, whatsoever belongeth to Fortification, besieging and defending of places, Fireworks, Ordering of Battalia, and Marches of Armes, Musick, playing of all sorts of Instruments, Dancing, Fencing, riding the great Horse, together with the new manner of fighting on Horse-backe. And if there be any lovers of Vertue, who have an inclination to Drawing, Painting, Limning and Carving, either for their curiosity, or to attain unto a greater excellency in severall of the forementioned Sciences (viz., Arithmetick, Fortifications, &c.), they may have them as exactly taught as any of the other Sciences, and by a short method, which shall give them a full insight in the Theoretical part of the said Sciences and Exercises at the self same time that they shall be taught in the Forraigne Languages, whereunto shall serve severall Treatises* held forth by the said Sir Balthazar in the Forraigne Languages aforesaid, the English tongue being joynd thereunto, together with divers excellent Tables of very great use for facilitating the matter, and helping the memory; which Treatises shall be continually at Mistresse Allen's shop at the signe of the Crown in Pope's Head Alley, neere the Old Exchange, London; so that all lovers of these Languages, Sciences, and Exercises, may be pleased to addresse themselves to the said Sir Balthazar's house, at Bednall Green, beyond White Chappell, where Gentlemen, and the sonnes of all such lovers of vertue are received and accommodated to their and their parents' entire satisfaction, being a place most pleasant, healthfull, and fit for the studious, that are disposed to apply themselves, as aforesaid, and there to improve themselves in such a short and convenient time, as that they shall be the sooner enabled to travell as Gentlemen, who conversing with persons of repute and worth, will leave a noble esteem of themselves in forraigne parts, when strangers shall find them to be well verst in Languages, Sciences, and perfect in all noble Qualities; and that they shall not owe to the said strangers, the merit of their education. Besides the other more weighty considerations which conscience and loyalty to our own native Countrey obligeth all parents to preferre, and especially in these evill times, when it proves a generall misfortune that a number of young Gentlemen abroad, are drawn into evill company, whence they heare and learn nothing but meere corruption both of manners and language, besides destructive Principles to their native Countrey, and to their Religion, it being also considerable, that the sending of young Gentlemen to any of the Forraigne Academies (where they shall learn no more qualities than now they may get at home, nor altogether so many) as it is incomparably more expensive, so it exposeth them to many dangers and inconveniences.

"And although the principall scope of the Academie is for the education of young Gentlemen, yet those of more mature Age, may find in it wherewith abundantly to satisfie any laudable curiosity in any kind whatsoever, whether onely for enriching the minde, or for honorable profit."

The time-table of Sir Balthazar's Academy is forthcoming.† "As Aurora is said to be a friend to the Muses," students begin their studies, "the Monday morning with Arithmetic, the key and entrance of Mathematics."

"Study at nine of the clock the languages, until eleven; and then break up for their recreation, and at noon lend their ear to a public reader, who shall entertain them with histories fit for that hour, and being risen from table apply themselves to Sir Balthazar Gerbier (or his Deputy) to hear the exposition of such particulars as shall have been read unto them; which done for one half hour (besides another half hour for their recreation) return about two of the clock to study until four of the clock, the elements of Euclid; until six, Geometry and Music.

"Tuesday Morning: Cosmography, Geography, and Languages; in the afternoon, Fortification, Arithmetic, Fencing, and Vaulting.

"Wednesday Morning: Architecture, Perspective and Language.

"Thursday Morning: Drawing and Language; in the afternoon Painting, Limning [i.e., Drawing], and Music.

"Friday Morning: Natural experimental Philosophy, History, and Language; in the afternoon, Carving, Dancing, Fencing, Vaulting.

"Saturday Morning: Scenes, Fireworks, Marches of Armies, they having been at the riding of the great horse; in summer, early in the morning before the heat of the day. The afternoon studies are to last until six of the clock in summer, and in winter until five.

"The Wednesday afternoon, they are to recreate themselves; as also the Saturday afternoon, especially for preparing to the Sabbath; they shall have a fit vacation in the four seasons of the year."

The rules for the conduct of the institution are, to some extent, clearly modelled on those of the Musæum Minervæ. The admirable provision of the earlier institution that only two subjects should be studied at a time, the one intellectual and the other corporal, is by Gerbier changed to: "It shall be in the pleasure of every scholar in this Academy, to select the prosecution of any [of the lectures] in particular, according

to his genius, or affection, and accordingly lessen, or increase his charge."

Whitelocke* says: "Sir Balthazar Gerbier set up his Academy in Whitefriars† for the teaching of all manner of Arts and Sciences." He significantly adds: "A good design if the conduct and success had been answerable."

Kynaston had begun his college with six professors, whose names are given. Gerbier begins his, professedly, with lecturers to assist; but these, if they existed, were always in the background. His Academy was essentially one-maned. He had no permanent constitution. Its arrangements altered to suit circumstances. Its head was always looking out for "notable" persons. On December 21, 1649, Sir Balthazar issues the notice: "If any lady or virtuous matron will attend his lectures, they will give notice, that they may be better accommodated according to their quality."‡ It was the "quality" he wanted to get at. But, notwithstanding, Sir Balthazar is to be thus credited as the first to encourage the idea of attendance at college lectures of women together with men. At least, I know of no earlier suggestion of this sort.

The following lectures given by Sir Balthazar Gerbier himself are extant:—

1. "The Interpreter of the Academie for Forrain Languages and all noble Sciences and Exercises. . . . The First Part, English and French," 1648. 2. "The Second Part, which includes an account of Military Architecture and Fortifications," 1648. 3. "On Navigation," 1649. 4. "On Cosmography," 1649. 6. Second lecture on "Cosmography," 1649. 7. First lecture on "Geography," 1649. 8. First lecture on "Military Architecture," 1649. 9. "On Justice." 10. "On the Art of Well-Speaking."

The lectures may be dismissed as too sterile for serious treatment. The "Interpreter" gives French and English side by side. The "Art of Well-Speaking" dilates on conversation between the lower animals. Eloquence, he states, is "a gift proceeding from the Holy Ghost, neither from Nature nor from Art." He adds, however: "I do not deny but that a good disposition and the strength of study must contribute thereunto; but that Eloquence or that Science is merely vain that hath not the glory of God for its aim and His gift for a principle." Such a passage serves to support Mr. Bass Mullinger's view that Sir Balthazar wished to profit from a reluctance on the part of Puritans to go to the Universities. It is interesting to note that Sir Balthazar Gerbier was plausible enough to induce Mr. Samuel Hartlib, of Duke's Place, Holborn, the most public-spirited educationist of the day, to act as a reference for him.

With Gerbier, the whole affair was an "expedient"; with Kynaston, "no by-private ends" were sought. But the one, as clearly as the other, shows that encyclopædism, so to say, as an educational aim, was making itself felt. It is important to notice this, because it cannot be said that by 1635 Comenius's influence had won so much support to his views. The fact is that the idea of encyclopædism in education was winning its way in England quite independently and long before the time of Comenius. It had shown itself in the truly English method of practical effort towards realization of encyclopædic colleges; for the attempts of Kynaston and Gerbier were not the first.

The true sources of these are not to be sought for in the theoretical writings of Comenius, or even in Lord Bacon—though he incidentally strengthened the idea. Kynaston and Gerbier are an educational succession from Sir George Buck and Sir Humphrey Gilbert. About 1572 § Sir Humphrey Gilbert wrote his "Queene Elizabethes Achaedemy," in which he required orations to be given in English. The subjects of study are to be Philosophy, Politics, Military Art, Mathematics, Fortifications, Riding, Eubattelings, Cosmography, Astronomy, Navigation, Maps, Physic, Chirurgery, Civil Law, Divinity, French, Italian, Spanish, Defence, Dancing, Vaulting, Music, Heraldry. "Whereas," says Gilbert, "in the Universities men study only school learnings, in this Academy they shall study matters of action meet for present practice, both of peace and war."||

In 1615, Sir George Buck wrote his "Third University of England. Or a Treatise of the Foundations of all the Colledges, ancient Schooles of Priviledge and of Houses of Learning and liberal Arts, within and about the most famous Cittie of London." This appeared as a supplement to John Howe's edition of Stow's "Annales" (1615). In it Sir George Buck gives a "catalogue or table of all the Arts, and Sciences read and taught in this University of London." The following is the list:—Theology, Grammar, Rhetorick, Poetry, Arithmetic, Logic,

* "Memorials of English Affairs" (for 1649), page 441.

† Gerbier removed the Academy from Bethnal Green to Whitefriars for the winter months.

‡ Quoted by Lysons in the "Environs of London," Vol. II., page 31, where will be found most interesting quotations from newspapers as to Gerbier's academy.

§ See article in "Dictionary of National Biography" on Sir Humphrey Gilbert," Vol. XXI., page 329.

|| Cf. Milton's "I call therefore a complete and generous education that which fits a man to perform justly, skilfully, and magnanimously all the offices, both private and public, of peace and war."

* I.e., treatises.

† From the prospectus of August 4, 1649. Brit. Mus., E 1377 (2).

Philosophy, Common Law, Law of Conscience, Civil Law, Canon Law, Physic, Chirurgery, Astronomy, Geometry, Music, Mathematics, Hydrography, Geography, Navigation, Languages, Cosmography, Calligraphy, Brachygraphy, Steganography, Art Gladiatory, Riding, Art Military, Pyrotechny, Artillery, Swimming, Dancing, Painting, Heraldry, Revels, Art Memorative, and others.

After giving his account of the teaching of these subjects in the various educational institutions of London, Sir George Buck says: "Who can deny that London is not only the third University of England, but also to be preferred before many other Universities in Europe, or any other part of the world known?"

Thus, then, the broadening of education was, in England, no mere theory. The effort to accomplish it can be traced, in 1572, to Sir Humphrey Gilbert; in 1615 it was present to the mind of Sir George Buck; in 1635 it takes shape in Sir Francis Kynaston's *Musæum Minervæ*; in 1648 Sir Balthazar Gerbier takes advantage of the spirit which he feels to be abroad in its favour to run his Bethnal Green Academy. All these movements, it is to be noted, are for the benefit of noblemen or the gentry.

NOTE.—At Sir Balthazar Gerbier's Academy, the terms for teaching all these arts and sciences were £6 per month, of which £3 was charged for teaching to ride the great horse. Gentlemen were boarded at £3 per month. No gentleman of age bound to engage to board for more than one month; those of sixteen or eighteen years old for a quarter of a year. (Lysons' "Environ of London," Vol. II., page 30, quoting from "The Perfect Diurnal," February 11, 1650.)

FOSTER WATSON.

CHATS ON CHILD STUDY.

I.—CURIOSITY.

If any headway is to be made in child study, we must pay less attention to the extraordinary and more to the ordinary child. Of course, until there was a science to be ministered to by careful observation of fact, it was only the unusual, the surprising, and the quaint which was worth repeating. Thus we have such misleading statements as: "Children are so curious," "There is no deceiving a child," gaining currency and seriously affecting psychological inquiry. Clearly these generalizations are based on the numerous instances recorded for our delight, and they tend to give the impression that children are more inquisitive and have a greater insight into character than grown-up people. Now it is astounding how very lacking in curiosity the average child is—his well known, trouble-producing, never-ending "why?" is generally a mere appeal for you to go on talking, no matter what; in fact, the more abstruse your language the better he is pleased. When he really does want to know, the flimsiest of reasons will satisfy him. A child's credulity is indeed pathetic, and there is grim truth in Prof. Bain's oft quoted cynical observation that children's curiosity is only fit for affording amusing situations for our comic literature. The desire to see what is in an unopened parcel is very different from that temper of mind which Locke regards as the instrument of all learning. A young teacher frequently relies on the latter to carry through an object lesson, and finds she can only get the former. "What has she got in that other box?" is far more in the children's minds than "I wonder what part of the world this fruit comes from."

We have, then, the subtle problem: How to check a child's useless inquisitiveness, and, at the same time, to fan the spark of intellectual curiosity. As for the first, we can do much by showing that we consider it neither straightforward nor manly to pry into other people's concerns, openly expressing a little horror whenever we hear of any one peeping into drawers, reading postcards, and so on. It is well to feel the horror, but better still to express it in words, for it is almost amusing, if it were not so serious, to note how children love to ape (I use the word advisedly) the feelings of the grown-up. Gradually these sentiments become a part of their moral furniture. What else does being "well bred" mean than living with and imitating people with a fine sense of honour? As Richter says: "Let a child hear his father complain that he has got to do a thing because he promised to." This transparency of the parental mind will do more to check little faults than a great deal of moralizing.

As for the other aspect of the problem, our work is simply a case of fanning the spark and putting on fuel. Give the children plenty of material to think about, plenty of things to analyze (in other words, to pull to pieces), and to every demand for a reason or further information give as simple and direct an answer as possible. If none is possible, tell them so plainly, and never put them off with an untruth. The remark from an adult: "I really do not quite know myself" amply satisfies a child, and, in a dilemma, is always safe and usually true enough. It is often a good plan, when confronted with a sensible question, to suggest that it cannot be answered off-hand, but would take a term's work to make clear, and, better still, to follow up this suggestion with the recommendation of a good book on the subject, or a place to be visited—anything, indeed, that is likely to stimulate to effort and research.

M. V. H.

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FORECASTS AND COMMENTS.

October 1, 1899.

THE distribution of diplomas, certificates, and Fixtures. prizes awarded at the various examinations of the College of Preceptors during the past six months will take place at the College on Thursday, October 26, at 3 p.m. The chair will be taken by the Bishop of London.

THE annual distribution of medals and prizes obtained by the students of the Royal College of Science will take place in the lecture theatre of the Victoria and Albert Museum on Thursday, October 5, when Prof. A. W. Rücker, F.R.S., will deliver an address.

At University College, London, in the faculty of Medicine Dr. G. F. Blacker will deliver his introductory lecture on October 2. Prof. J. Arthur Platt delivers his introductory lecture in the faculties of Arts, Law, and Science on the following day; Prof. Petrie begins his course on Egyptian History on October 5; Prof. Roger Smith delivers his introductory lecture on Architecture on October 9; Prof. Chadwick delivers his introductory lecture on Municipal Engineering on October 11; the session of the Indian School begins on October 17; Prof. Schechter delivers a public lecture on "Some Rabbinical Parallels to the New Testament" on October 19; and Prof. A. J. Butler delivers his first lecture on Dante's "Il Convito" on October 25. The half term of University College School begins on October 30.

BEDFORD COLLEGE, LONDON, opens on Thursday, October 5. Students attend on Wednesday, October 4, between 2 and 4 p.m. to interview the Principal and lecturers. The inaugural address for the session 1899-1900 will be given on Tuesday, October 10, at 4.30 p.m., by A. W. Ward, Litt.D.; subject: "Some Suggestions of the Renaissance."

At Gresham College Mr. E. Symes Thompson will lecture on Physic from October 3 to 6; Mr. Wagstaff on Geometry, October 10 to 13; Mr. Blakesley on Law, October 17 to 20; Sir Frederick Bridge on Music, October 24 to 27; Mr. Nixon on Rhetoric, October 31 to November 3; the Rev. H. E. J. Bevan on Divinity, November 6 to 10; and the Rev. E. Ledger on Astronomy, November 14 to 17.

PARTICULARS are given in the *London Technical Education Gazette* of forty-five courses arranged for the ensuing term by the London Society for the Extension of University Teaching.

MR. CHARLES FRY announces his sixth series of costume recitals of Shakespeare's plays, with incidental music, on Saturday afternoons, October 7, 14, and 21.

THE next competition for Junior London County Scholarships will be held on October 21 and November 11. There will be about 160 minor scholarships for boys and 115 for girls.

EXAMINATIONS for Magdalen College, Oxford, demysips and exhibitions will be held in History and Natural Science on October 10, and in Classics (in association with New College and Christ Church) on October 31.

ST. JOHN'S COLLEGE, Oxford, will proceed to the election of an Open Classical Scholar (foundation of William Lambe) on Wednesday, October 11. The examination will begin on Tuesday, October 3. Candidates must be under 20 years of age on the day of election, and the elected scholar will be expected to commence residence in Michaelmas term.

* * *

At the Church Congress, in October, papers will be read by Sir Hubert Parry on the Essentials of Church Music; by Sir George Martin on the Training of Choir Masters; and by Professor Villiers Stanford on the Choice of Church Music. The London Church Choir Association and the Gregorian Association, consisting of over two thousand members, will give musical illustrations. The organists and representatives of choirs in all the churches in the diocese of London are invited. In Westminster Abbey the Bishop of Richmond will give an address on English Church Music of the sixteenth, seventeenth, eighteenth, and nineteenth centuries, and the Abbey choir will sing the appropriate examples. In the Great Hall of the Church House, the Dean of St. Davids will speak on Church Music in Wales, and the Welsh choral societies in London will sing the selections. Before each meeting of the Church Congress in the Royal Albert Hall, throughout the Congress week, the leading church organists in London will give organ recitals.

* * *

MR. A. J. BALFOUR will preside at a special festival dinner in aid of King's College, London, at the Whitehall Rooms, on November 28.

* * *

Education Gossip. TECHNICOLOGY—we do not say technology, for there is a distinction between the words—fights hard, as it ought to do, for recognition in the Universities. We hear no more of the German suggestion of "Doctor Rerum Technicarum." Why not, for ourselves, "Doctor of TechnicoLOGY"? The contracted symbol in either case—"D.R.T." or "D.T."—is not peculiarly attractive.

* * *

OWING to the increase in the work of the Scottish Education Department, presided over by Sir Henry Craik, it has been found necessary, besides taking the old premises opposite known as Grindlay's Bank, to build an additional wing on the Downing Street side of Dover House, and on a portion of the garden which faces the Horse Guards Parade.

* * *

THE ancient Bluecoat School at Westminster, founded by William Greene in 1688, is being subjected to the process of rebuilding. Its old-fashioned windows have been replaced by others of modern design, but the statue of a Bluecoat boy over the doorway of the north front and a painting of one of the scholars remain untouched. The *Daily Telegraph* reminds us that the school was recently sold to the local vestry on the condition that it should not be demolished until the expiration of twenty-five years. In addition to the Bluecoat School there were also Blackcoat and Greencoat institutions in Westminster, and there is the Greycoat School for Girls.

* * *

It is understood that Mr. Horace Plunkett, M.P. for the Southern Division of the County of Dublin, will be the first Vice-President of the newly created Department of Agricultural and Technical Instruction in Ireland.

* * *

MORE examinations! The Sanitary Institute announces a series of examinations for school teachers—which should be very serviceable—in practical hygiene.

* * *

THE County Councils are certainly emulating the School Boards by moving a little in advance of legislation in the encouragement, and even in the creation, of secondary schools. £1,500 has been offered by the Kesteven County Council towards the establishment of a college for secondary education at Sleaford. The Sleaford Tradesmen's Association have raised

£540, and the governors of Carres Grammar School £650, leaving £1,100 to complete the sum required.

* * *

FOR the purpose of founding scholarships in the City of London School for Girls, Blackfriars, the Grocers' Company have granted thirty guineas, the Merchant Taylors' Company ten guineas, and the Leathersellers' Company ten guineas. Other City companies have the matter under consideration, and have expressed their desire to help the school in the way suggested.

* * *

WE are glad to note that Mr. R. P. Paranjpye, the Indian Senior Wrangler, has been awarded a special scholarship of £200 by the Secretary of State, partly as a recognition of his remarkable and distinguished success, and partly to enable him to take the M.A. degree.

* * *

A MEETING of the committee of the University College Colston Society was held recently, at which the Bishop of Hereford was appointed president for the year, and Mr. J. W. Arrowsmith hon. secretary. It is expected that Professor Bryce, who is eminently qualified to speak on University matters, will be the chief speaker at the first dinner of the society at Bristol in December.

* * *

MR. OWEN JONES, who lost his life on the Alps early in September, was only thirty-two years of age. He graduated B.Sc. at London with First Class Honours in Physics, and had been since 1892 a science master at the City of London School. Mr. Pollard writes of him as "one of the most successful and most enthusiastic of the school's masters." Mr. Jones had interests beyond the school. He was a devotee of many forms of sport, but mountaineering was his hobby. He wrote a book on "Rock Climbing in Cumberland," and a little handbook on Welsh hill climbing. He was a member of the Alpine Club, and he was contemplating a climbing tour in the Himalayas in 1900.

* * *

THE United States Education Department are endeavouring to put an end to the traffic in bogus musical and other degrees. Only a few weeks ago letters were sent to musicians in England from a bogus American University offering the degree of Doctor of Music for a reduced fee of £10. The Washington Education Bureau thereupon appointed a Commission formed of representative men from the real American Universities, and their report recommends immediate legislation on the subject.

* * *

AN anonymous donor has offered, through the Rev. John Watson, D.D. ("Ian Maclaren"), £1,000 towards the Westminster Presbyterian College at Cambridge, provided that the balance of £8,000 is raised before the opening of the new college at Cambridge on October 17. The sum of £9,000 is needed to open the college free of debt.

* * *

A STAINED-GLASS window, in memory of the late Dr. Lake, who for many years was Dean of Durham, has been placed in the north transept of Durham cathedral. It represents scenes in the life of St. Nicholas, and completes the series in St. Gregory's Chapel.

* * *

THE sympathy of all English teachers must go out at the present time to their fellow-teachers in the South African Republic. Good teaching is one of the things which war makes impossible. Education, it is to be hoped, may some day make war impossible. The Dutch teachers have memorialized certain of the English educational bodies, including the National Union of Teachers, beseeching them to exert every influence with the Government in favour of peace with the Boers. May their best hopes be realized!

MR. WALLACE M. LINDSAY, M.A. of Jesus College, Oxford, has been appointed Professor of Latin at St. Andrews University. The new Professor was educated at the Edinburgh Academy, and at the Universities of Glasgow and Oxford, where he carried off almost every classical distinction open to him. On completing his course at Oxford, he was elected to an open fellowship at Jesus College, and afterwards went for two sessions to Leipsic University, where he studied Latin under Prof. Ribbeck. Since 1883 he has been acting as classical tutor at Oxford, and has acted as examiner for several scholarships. He has published several works on Latin philology, the most important being "The Latin Language." In January 1898, we noticed Mr. Lindsay's scholarly "Handbook of Latin Inscriptions."

THE REV. THOMAS NICOL, D.D., has been appointed by the Crown Professor of Divinity and Biblical Criticism in the University of Aberdeen, in succession to Prof. David Johnston. Dr. Nicol has a wide reputation as a Biblical critic, and the honorary degree of D.D. was conferred on him by the University of Edinburgh in recognition of his theological learning. He is joint translator of Beck's "Pastorallehren des Neuen Testaments"; he contributed largely to Prof. Charteris's well known work on "Canonicity," and, in addition to numerous contributions to periodicals, he is the author of a work entitled "Recent Explorations in Bible Lands," which has passed through several editions.

MR. FRANK OAKLEY SOLOMON, who has been appointed Principal of Dauntsey's Agricultural School, Wilts, has, during the past seven years, occupied the post of Senior Agricultural Lecturer in the University of Durham College of Science, Newcastle-on-Tyne, and has also been Lecturer in Agriculture for the county of Durham. Mr. Solomon is a member of the Royal Agricultural Society of England.

THE REV. J. F. CROSS, B.A. Cambridge, M.A. Toronto, has been appointed Professor of Mathematics at St. John's University, Winnipeg. Mr. Cross, who is twenty-seven years of age, has had a remarkable career. From an elementary school at Seacombe he won a scholarship at Wallasey Grammar School, where he took honours in a local examination. Leaving school early, he spent a couple of years in a Liverpool office, then emigrated to Canada, where, while engaged in business, he graduated at Toronto. He returned to England, entered at Cambridge, and took the sixteenth place in the Mathematical Tripos in 1898.

THERE is a vacancy at Bangor University College for a temporary Assistant-Lecturer in Philosophy.

AMONGST the candidates for the Chair of Natural Philosophy in the University of Glasgow are Mr. C. T. R. Wilson, Mr. J. A. M'Clelland, and Mr. G. F. C. Searle, all demonstrators in the Cavendish Laboratory, Cambridge; Mr. John Sealy Townsend, Cambridge; Mr. George W. Walker, Cambridge; Prof. Andrew Gray, University College, North Wales; Prof. J. C. Beattie, Cape Town; and Mr. Cargill Gilston Knott, Edinburgh University. The following are candidates for the Chair of History in the University of Glasgow:—Prof. John Knox Laughton, London; Mr. Ernest Barker, Oxford; Mr. D. J. Medley, Oxford; Mr. C. S. Fearenside, Cambridge; Mr. Ronald W. Heaton, Cambridge; Mr. H. E. Maldon, Cambridge; Prof. James Mackinnon, St. Andrews; Prof. T. F. Tout, Owens College, Manchester; Mr. C. Sanford Terry, Aberdeen; Mr. T. S. Rogers, London; Mr. E. J. Matthew, late Professor of History and Literature in the University of New Zealand; and the Rev. J. King Hewison, Rothesay.

MR. A. R. WALLER, late Headmaster of the training schools

at St. Mark's, Chelsea, has been appointed Headmaster of the Red Coat Schools, the old Church day schools of Stepney.

MR. J. S. SMART, M.A. St. Andrews, formerly Lecturer in English Literature at the McGill University, Montreal, has been appointed senior assistant-master in the Ayr Academy.

MISS HILDA DIANA OAKELEY, formerly of Somerville College, Oxford, has been appointed Warden of the Royal Victoria College, Montreal. This College has been endowed as a constituent college of McGill University by Lord Strathcona and Mount Royal, High Commissioner for Canada and Chancellor of the University. Miss Oakeley is a daughter of Sir H. E. Oakeley, late Chief Inspector of Training Colleges.

THERE are vacancies in the Chair of Medicine at Queen's College, Belfast, by the death of Dr. Cumming; in the Headmastership of Colchester Grammar School by the resignation of the Rev. J. Thomas, accompanied, we note, by the resignation of the assistant-masters (!?); and in the Headmastership of Bishop's Stortford Nonconformist Grammar School by the resignation of the Rev. R. Alliott.

MISS BEATRICE C. MULLINER, M.A., late assistant-mistress at Cheltenham College, has been appointed Headmistress of the new proprietary High School for Girls at Sherborne.

DR. R. GARNETT told the members of the Library Association at the Manchester Annual Conference that he should rejoice if a copy of the printed catalogue of the British Museum could be placed in every public library, and that every citizen could thus have an opportunity of learning what books were contained in our great national collection. Many persons did not realize that the books in the Museum were the property of every man, woman, and child in the country. To fulfil that wish would be no easy matter. They would never, he was afraid, find a Chancellor of the Exchequer agreeing to provide the necessary funds—and he really could not blame him for not doing so—unless the country were to speak out on the subject.

THE American Mathematical Society, in co-operation with several Universities and colleges, has determined on the publication of a quarterly volume of *Transactions*, at the same time maintaining its *Bulletin*. The editors are Prof. E. H. Moore, of Chicago; Prof. E. W. Brown, of Haverford College; and Prof. T. S. Fiske, of Columbia.

"A. M." (Mrs. Meynell) had an article the other day in the *Pall Mall Gazette* on Victor Hugo and his language. She is enthusiastic for the poems of Hugo; and it seems to us that she is rather acutely discriminative on the genius of the French language:—

What has been written above must be the proof that, if I have a prejudice, it is for French, and that for me magic and the caprice of destiny are on that side. But there are disabilities; and it is not metrical liberty, or the chance medley of masculine and feminine endings, or the ignoring of the *e* mute, or rhymes that are but the suggestion of a jingle, or any other of these new liberties, that can make this language sufficient. It lacks the second part, the other side, the splendour of alternative. It has the strangest blanks. It cannot so much as call an author shallow, nor a teacup, nor a sea. It has to use the worse than languid *peu* to make a negative; for want of the great particle *un* that, in our English, summons in order that it may banish, and keeps the word present to hear sentence and rejection, showing the word "unloved" to be no less than archangel ruined. As it has no alternative of derivation, French has none of time; no place apart for poems and prayers, but everything is at the disposal of the daily grocer and the trade-circular. The French of commerce, merely exaggerated, has tempted poets to make that ready eloquence resound, when the lyric could do no more for lack of strings.

It is noteworthy that the class list of the Final Honour School of English Language and Literature at Oxford contained two Second Classes and two Thirds gained by undergraduates, but ten Firsts, one Second, and four Thirds gained by women students. It would seem that this school is almost exclusively a women's school. Only three women obtained Firsts in all the other schools put together.

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We hear that Mr. Gwenogfryn Evans has made good progress in cataloguing the ancient Welsh manuscripts preserved at Peniarth. Amongst the manuscripts are the "Black Book of Carmarthen," which dates from 1180, and the "Book of Taliesin" (about 1275). The "Black Book of Chirk" ("Llyfr Du o'r Waen") is the oldest copy in Welsh of Howel Dda's laws, a valuable manuscript of the year 1200; another, but a briefer, copy of the same book, in Latin, is of earlier date, being of the last quarter of the twelfth century. The "White Book of Rhydderch" contains the oldest copy of the "Mabinogion." There is also a "Holy Grail," a fourteenth-century translation based on the French.

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A NEW volume by Sir Joshua Fitch, under the title of "Educational Aims and Methods," is announced by the Cambridge University Press. Its predecessor, "Lectures on Teaching," delivered in the University of Cambridge under the auspices of the Teachers' Training Syndicate, has had a large circulation in Great Britain, America, and the Colonies, and has been translated into Spanish and into one of the vernacular languages of India. That book dealt in succession with the principal subjects of ordinary school instruction, and sought to elucidate the principles on which all successful teaching depends. The forthcoming volume is more miscellaneous in character, and consists of lectures and addresses given in Cambridge, or before the Teachers' Guild and other bodies of teachers in England and in America. Its general aim is to direct attention to various aspects of educational theory and of practical work; and it includes several monographs on the lives of distinguished and representative teachers.

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THE new list of the Clarendon Press includes "Homer, Odyssey XIII.-XXIV.," edited by D. B. Monro, M.A.; "Thucydides," translated by the late Prof. Jowett, cheaper and revised edition; "An Elementary Greek Grammar," by J. Barrow Allen, M.A.; "Nova Anthologia Oxoniensis," translations into Greek and Latin Verse, edited by A. D. Godley, M.A. The following texts are in the press, and others are in preparation:—"Æschylus," by A. Sidgwick; "Apollonius Rhodius," by R. C. Seaton; "Aristophanes," by W. M. Geldart and F. W. Hall; "Cæsar," by R. L. A. Du Pontet; "Cicero," by A. C. Clark, S. G. Owen, W. Y. Fausset, and A. S. Wilkins; "Horace," by E. C. Wickham; "Juvenal" and "Persius," by S. G. Owen; "Lucretius," by Cyril Bailey; "Propertius," by J. S. Phillimore. In English Literature the Clarendon Press announces "A Translation into Modern English of King Alfred's O.E. Version of Boethius," by W. J. Sedgefield, M.A.; "The Canon of Chaucer," by W. W. Skeat, Litt.D., D.C.L., Ph.D.; Dryden's "Critical Essays," edited by W. P. Ker, M.A.; "Plays and Poems of Robert Greene," edited by J. Churton Collins, M.A.; "Milton's Poetical Works," edited by E. C. Beeching, M.A.; and "A New English Dictionary, founded mainly on the materials collected by the Philological Society," and edited by Dr. Murray: portions of G, by Henry Bradley, M.A., and of I by James A. H. Murray, M.A., LL.D. In history, the Press will publish "Italy and her Invaders," by Thomas Hodgkin, D.C.L., Vols. VII. and VIII., A.D. 744-814 (completing the work): Book VII., "Frankish Invasions"; Book VIII., "The Frankish Empire," with maps and illustrations.

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A CHEAP edition, in sixpenny weekly parts, is about to be issued of Messrs. Cassell's "Gazetteer of Great Britain and Ireland." The work is very fully illustrated from authentic

photographs, and will contain sixty maps in colours. The first part will be ready on October 4.

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As a means of furthering the course of common sense in arithmetic, Mr. T. B. Ellery, F.R.G.S., has published a discussion on the Metric System suitable for a mock Town Council debate for school and college entertainments in which senior scholars can take part. Specimen copies may be had from Mr. Ellery, Arthington House, Luton.

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MADAME ELODIE L. MIJATOVICH, wife of 'his Excellency the Servian Minister to the Court of St. James, is the author of a series of Servian folk-lore stories, which will be published in one volume by the Columbus Company.

A VISIT TO NÄÄS.

So much has been written about the Sloyd system by those who have themselves taken the course at Nääs, and who are, therefore, much better able to judge of its merits and applicability to the school curriculum than a three days' visitor, a mere bird of passage, that I shall limit my observations to the externals of life at Nääs.

Physiologists are well aware that an immense elevation in the ascent of human reason was effected by the division of labour between the hands and feet, when the former took to handling and the latter to walking as their respective allotment of work. Moreover, as Prof. Marshall and others have demonstrated, the use of the hand has had a wonderful effect upon the development of the brain. All the way our race has trodden is written there; and they who know, men who have traced—or, perhaps, one should say, who are learning to trace—the subtle connexion between muscle and brain, declare that the health of the latter depends upon a due co-ordination of the parts. It has been shown that the defective intellect can be improved by use of the hand. Mr. T. G. Rooper, one of H.M. inspectors of schools, has summed up the whole matter: "More book learning has ceased to suffice; children must be sent out into the world with a trained hand."

It is to attain this end that numbers of teachers of all nationalities repair to Nääs every year. Four courses, each lasting six weeks, are usually held, two in winter and two in summer. The dates are approximately: January 10 to February 20, May 31 to July 13, August 2 to September 12, November 7 to December 18. Besides these, two games courses were held at Nääs during the summer of 1899, one in July and one in August, lasting about a month each. The importance of games is becoming more and more recognized, as one might expect in an age so devoted to amusement as ours. Two special teachers were engaged for this work. Herr August Bruhn worked through a list of seventy-seven games; Herr Julius Hammarlund did more, for his list numbered ninety-eight.

Nääs is beautifully situated on one of Sweden's innumerable lakes, the Säfvelängen. It is only a few miles from Floda, a station twenty-seven kilometres from Gothenburg. It has also direct water communication with that city, the largest in Sweden after Stockholm. The oldest part of Nääs was formerly a royal hunting lodge, which Herr August Abrahamson purchased many years ago, and to which the Swedish Government fell heir on his death last year. The director of the Sloyd courses is Herr Otto Salomon, the nephew of the founder of the Sloyd system, who retains this post during his lifetime, having held it since 1872. Unhappily Herr Salomon has had very poor health for the last year or two, suffering much from overwork and strain.

What strikes a stranger about Nääs is the comparatively large number of houses connected with the work. It is very far from being what architects term a single act of conception, consisting of a large number of unrelated buildings. Chief among them is the Seminarium, where lectures are delivered, students draw, and where there is a large collection of, perhaps, 2,300 wooden models made by students at the end of their course. The Seminarium was built in 1880. Adjoining it is Vänhem, or "friends' home"—a very suitable name, since here all the meals are served. An irreverent lady styled it the *matsal* (meat room), a name common in Sweden for a restaurant. At Vänhem there is also a large common room, with piano, verandah, books, papers, writing materials for the use of students. Two other buildings have excellent workshops, one for the use of the English-speaking contingent, the other for the Swedes. Amongst other notable buildings—all of wood, following the fashion of the country—are Björkenääs (the residence of Herr Salomon), Jacobstorp, Babel, Lilla Nääs, Lyckebo, houses in which men are usually lodged. Ladies live entirely at Mellan Nääs, conveniently within reach of Vänhem and the Seminarium. At Källnääs, besides Sloyd workshops, is an excellent gymnasium, in which dances are frequently held. Beyond the houses

mentioned are two pleasant villas by the side of the hunting lodge. When there is a large contingent of students, the steward, the gardener, and numbers of other dependants let their rooms to those who require them.

The price of a course at Nääs is very moderate. The tuition is given free, Herr Abrahamson's endowment providing it. Students are fed for six weeks at one krone (1s. 1½d.) per day. Coffee after dinner, table napkin, and beer are extras. The food is, of course, quite plain and plainly served. A room or bed can be got for fifteen to twenty kröner for the six weeks' course, so that the total cost of the course, after arrival in Sweden, is not more than £3. 15s.

The hours of the meals are curious according to English ideas: breakfast at 7.30; a simple lunch, 12.30; dinner, 5.15; supper, 8.

The hours for work are 8 to 12 and 1.30 to 5; on several evenings lectures have to be attended. At 10 and 3 work is struck, and all hands devote themselves for ten minutes to Ling's Swedish gymnastics. In former days, Herr Salomon himself exercised the students, but, since his health has been impaired, a young Swedish lady replaces him. The lady's stature was somewhat small, and it was interesting to notice how she reviewed her troops, some of them men six feet high, with the martial vigour and energy of a general, uttering the word of command in no uncertain voice. Ling is compulsory in the elementary schools of Sweden, and much used in colleges and similar institutions. The Swedes submitted to drill with a grace born of long custom; but it was hinted that some of the Englishmen considered drill under a woman as a most curious innovation, and I should not be surprised to learn that some considered the supremacy and dignity of their sex threatened. But, British-like, as the others drilled, they drilled, abiding by the laws of Nääs.

The students are divided into two corps: the Swedes and the English-speaking people. The Swedes seemed very mixed socially, many people being of quite humble rank. The English-speaking contingent was curiously composed. On the occasion of my visit there were no English ladies—a rare occurrence. But there were eight-and-twenty Englishmen, several Americans, a few American ladies, a negro from Carolina, a German lady speaking English, a young Egyptian, who had just completed his training at Isleworth College, and who was going to take up elementary-school work in Cairo, and a Roumanian, much cut off from everybody else, as, though he spoke several languages, only his French placed him in communication with his fellows. Amongst the Englishmen were several elementary-school teachers, a Scottish inspector of schools, a number of manual instructors under the London County Council, and a master in Winchester College. I could not help admiring the devotion of the students; the majority were teachers, and yet gave up a well earned holiday in order to acquire or improve their manual skill, working eight hours daily. Several confessed that they suffered from fatigue at first; but, presently, the fresh air, simple life, and pleasant companionship caused the feeling to pass away and health to improve.

I learned that Miss Hughes, late of Cambridge, Dr. Reichel, the Principal of University College, Bangor, Miss Lord, Miss Walker, of Edinburgh Training College, and many other prominent educationists, had taken the course at Nääs, much as the aristocracy of wealth or leisure take the waters at a fashionable *bad*. I found that on the occasion of my visit there were seven different nationalities represented. When I mentioned this as a surprising fact to Herr Salomon, he quenched my admiration by saying that during one course there had been seventeen; in all, thirty-two nationalities have been represented at Nääs since 1872. The flags of all these nations are kept at Nääs, and I shall mention presently a curious use to which they are put.

At Nääs there is a series of fifty models, graduated in difficulty, which the student has to work through. Hands vary as much as brains, and I found several who had returned a third time to attack the series. On the other hand, there was a phenomenon who had reached the forty-fourth model, and who would certainly reach the fiftieth by the end of the course. I was not surprised to find that he was a carpenter by trade. It is considered satisfactory when a student reaches, say, the thirty-fourth model in a six weeks' course.

I found men and women working side by side, often at the same bench, as each bench accommodates two. I asked Herr Salomon during a talk we had together whether it was quite wise to bring women into competition with men, and whether a six-hour day at the bench were not enough for them. He said that he thought six hours enough, and was wishful that their day should not be longer, but that it was difficult to restrain them. Women are required to bring a medical certificate that they are strong enough for the work, and, as a rule, their health improves with the work. When first Sloyd was begun, the course lasted a year, and the Director found excellent results accrue. But very few, except specialists in manual work, can give so much time, and the aim of the founder was not to train specialists, but to win recognition for manual work at the hands of the general teacher. All persons who have opportunities of teaching or introducing the system have a preference over others when applicants are numerous. As a rule, English students are recommended by the Sloyd Association of Great Britain, the Handwork Union, or some such body.

Herr Salomon's indifferent health compels him to seek assistance from the best of his students for some of the work of the courses; but,

even now, he lectures twice daily—once to the Swedish corps and once to the English. He very frequently apologizes for his bad English, but, all the same, his suggestive remarks are followed with deep interest. If he is hard up for a word, he has a way of looking to students to help him out, which necessitates close attention on their part. Before beginning his lecture he calls on a student to deliver a summary of the last one, and this task was very well done in the three lectures to which I listened.

Life at Nääs is free and pleasant. One evening we witnessed an enjoyable dance in the gymnasium, some of the Swedish ladies being dressed in the picturesque costumes of the different provinces. The English do not always enjoy a reputation for sociability, but the contrary is the case at Nääs. A young Swedish lady informed us that the ladies received far more attention from English gentlemen, such as picnics, boating parties, social evenings, than from any other nationality. Probably this is due to the fact that the English party were of a somewhat higher social rank.

I have said little about the Swedes, as, unless they happened to know English, the bridge of communication was a somewhat narrow plank. The Swedes are undoubtedly a fine people, physically and morally. Great wealth and squalid poverty seem to be unknown; the social gulf between the classes does not exist to the same extent as in Britain. One has the feeling of being amongst an honourable, well educated, intelligent people. Even if grace and polish are not always conspicuous, there are solid qualities which count for much; and it is the realization of this fact that makes life pleasant at Nääs, for socially the students vary much. I fear there cannot be many institutions in Britain where people of such different social rank could meet together and work in amity for so long a time.

Before students leave they must each make a model for the Seminarium, and these become heirlooms and objects of interest for ever to all their successors. The model must fulfil five conditions, two of which are that it must be useful and æsthetic. The English-speaking section were selecting their models on the occasion of my visit, many of them much distracted to find an original idea. A limited time was set after the drawing of the model was sent in to the authorities, and during that time the model had to be dug out of a piece of wood. The certificate a student is awarded partly depends upon his final model, and great anxiety is displayed to reach the highest point of perfection. Think, too, that it is then hung on the wall as a monument to one's genius or clumsiness for all time; a number is put on it, and the worker's name and intention are duly entered in a huge volume. There was held a judgment of some half-score finished models in the large lecture-room the evening before we left. Herr Salomon sat on a throne, all the model students before him with their achievements in their hands; to his left was Herr Jonasson, with L, T, and other squares, rulers, and similar paraphernalia of the trade. He has the reputation of being a champion fault-finder. The maximum mark for utility, æstheticism, &c., is five for each. The student was called on to explain the purpose of his model. Here was a plain board for pasting photos on, here a small rack for post-cards, a stand for pies, a patent ruler with notches for finger and thumb, a card-tray, a book stand, and similar articles. Herr Salomon is a mild and just man, and distributed the maximum mark most lavishly. When it came to Herr Jonasson to determine the quality of the work, even an outsider could not help quaking, and students held their breath; his eyes, nose, hands all seemed to make light of the model. The student was asked to state the intended measurements; woe be to him if estimate and achievement did not correspond. If a right angle was not so, two sides did not correspond, if the measurement varied but a millimètre, Herr Jonasson's eagle eye detected it: the wicked instrument, which he flung on the table with a triumphant bang, proved it beyond doubt. One unhappy student averred that his model was true according to the square he used. He was bidden fetch it, and, after a lengthy absence, during which the idea that he was crooking the square could not but occur to the most unsuspecting mind, it was shown that his own square made less for "truth" than even Herr Jonasson's. Ultimately all the awards were made, and the breathing of students once more became normal.

The morning of our departure the young Egyptian gentleman to whom I have already referred left Nääs for London, to prepare for his departure to Cairo. At Nääs, though the eighty-seventh course has been reached, and probably thousands of persons have passed through the mill, an effort is made to give cohesion to the work, and this is partly achieved by the maintenance of time-honoured customs and the observance of a species of ritual connected with certain events. Thus, when students depart, the ceremony is always the same, and we watched it with interest. All those of the students' section assemble at the Seminarium and form themselves into a procession, a guard of honour for the departing guest. In this particular case the Swedish flag was waving in the breeze, the crescent represented Turkey's suzerainty, and the Union Jack stood for England. The English visitors were marshalled close to it, and thus shared in the great procession. Swedish songs were sung; and when the small launch appeared at the tiny landing stage, "He's a jolly good fellow," "Auld Lang Syne," "Home, sweet home" followed in succession. Then, after a parting handshake with Herr Salomon and his devoted wife, the launch steamed up the lake to Floda Station. C. S. B.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held on September 16. Present: Dr. Wormell, Vice-President, in the chair; Mr. Barlet, Mr. Bidlake, Rev. A. W. Boulden, Mr. Butler, Mr. Chettle, Mr. Eve, Rev. Dr. Hiron, Miss Jebb, Mr. Leatham, Mr. Milne, Mr. Pinches, Mr. Rushbrooke, Mr. Rule, Rev. Dr. Scott, Mr. Sergeant, and Rev. J. Stewart.

The minutes of the last meeting were read and confirmed. The Secretary reported that the Bishop of London had consented to preside at the public distribution of Diplomas, Prizes, and Certificates to the successful candidates at the last Midsummer Examination of teachers and pupils, to take place on October 26.

Diplomas were granted to the following, who had completed their subjects at the last Midsummer Examination of teachers: *Licentiate-ship*—P. H. Johnson, E. F. W. Mondy, C. H. J. Youens; *Associateship*—G. F. Piggott, Miss T. M. Pike.

The Report of the Examination Committee was adopted. The Report of the Finance Committee was adopted. The following persons were elected members of the College:—Mr. A. P. Starbuck, B.A. Lond., St. John's College, Green Lanes, N. Mr. J. A. Harrison, 4 Kyverdale Road, Stoke Newington, N.

The following books have been presented to the Library since the last meeting of the Council:—

- By the AUTHORS.—Bevan's *Plan for the Production of an Archaeological Map of England and Wales*; Spiers' *Short French Historical Grammar, Practical French Primer, and French Vocabulary for Repetition*.
- By E. ARSOLD.—The Companion Ranger Series of Reading Books, Vols. I.-III.; Arnold's Geographical Handbooks, Nos. I., III., and V.
- By G. BELL & SONS.—Baker's *Elementary Dynamics*; Earl's *Cornelius Nepos (Epaminondas, Hannibal, Cato)*; Liddell's *Caesar's Gallic War, Book II.*; Walters' *Livy, Book IX., 1-19*; Williams' *Aesop's Fables for Young Readers*.
- By A. & C. BLACK.—Black's *Sea-Dog Readers—The Age of Drake, and the Age of Blake*; Black's *Historical Latin Readers—The Foreign Empire*; Fowler's *Essay Writing: Herbertson's Man and His Work*.
- By BLACKIE & SON.—Abbott and Key's *Progressive Lessons in Science*; Blackie's *Continuous Readers (3 vols.)*; Ely's *Songs of Béranger*; Le François' *Carnoy's Les Deux Bossus*.
- By C. J. CLAY & SONS.—Cambridge Higher Local Examination Papers, June, 1899.
- By W. B. CRIVE.—Matriculation Directory, June, 1899; Alleroff and Mills' *Caesar's Gallic War, Book IV.*; Briggs and Bryan's *Preceptors' Trigonometry*; Stout's *Manual of Psychology, Vol. II.*
- By HACHETTE & Co.—Blouët's *Dumas' La Tulipe Noire*.
- By MACMILLAN & Co.—Berthon's *Specimens of Modern French Verse*; Hall and Stevens' *Elementary Course of Mathematics*; Marchant's *Thucydides Athenian Disaster in Sicily*; Smith and Bryant's *Euclid, Books III. and IV.*; Todhunter and Loney's *Elements of Euclid*.
- By OLIVER & BOYD.—Le Harivel's *Elementary French Grammar*; Pressland and Tweedie's *Elementary Trigonometry, Part I.*; Riddell's *Practical Plane and Solid Geometry*.
- By SIR ISAAC PITMAN & SONS.—Remington *Typewriter Manual*.
- By MOSSER, RIVINGTON.—Benbow's *First Exercises in French Prose*; Duhamel's *First Steps in French Reading and Composition*; Highton's *Practical Quantitative Analysis*; Hort's *Euripides Hercules Furens, and Livy, Book II.*; Morgan's *Elementary Hydrostatics*; Oman's *Elementary History of Greece*; Rivington's *Books of the Bible—II. Samuel, Judges, and Amos*; Rivington's *Oxford Church Text-Books—The Hebrew Prophets, Early Christian Doctrine, and the Thirty-nine Articles (Vol. I., Articles I.-VIII.)*; Robinson's *Mathematical Examination Papers for Navy Classes*.
- By the UNIVERSITY EXAMINATION POSTAL INSTITUTION.—Guide to the Cambridge Higher Local Examination; Cambridge Higher Local German Papers, December, 1893, June, 1898; Cambridge Higher Local French, German, and Arithmetic Papers, December, 1893, with Answers; Rowe's *Synopsis of English Literature, 1688-1760*.
- By the VOLTA BUREAU, WASHINGTON.—Papers relating to the Education of the Deaf.
- By WHITTAKER & Co.—The School Calendar, 1899-1900; Programme of Technological Examinations of the City and Guilds of London Institute.
- Calendars of Edinburgh University, 1899-1900; Glasgow University, 1899-1900; St. Andrews University, 1899-1900; Bedford College for Women, 1899; Queen's College, Cork, 1899-1900.
- N.U.T. Report for 1899.
- Roll of the Graduates of the University of Glasgow, 1727-1897.

COLLEGE OF PRECEPTORS.

CERTIFICATE EXAMINATION.

JUNE, 1899.

List of the successful candidates at the Colonial Centres—Batticaloa, British Guiana, Buenos Aires, and Colombo.

N.B.—The small italic letters denote that the candidate to whose name they are attached was distinguished in the following subjects respectively:—

- d* = Drawing, *gr* = German,
- e* = English, *sp* = Spanish,
- f* = French.

The small figures 1 and 2 prefixed to names in the Second and Third Class Lists denote that the candidates were entered for the First and Second Classes respectively.

BOYS.

Lee, E. F.	FIRST CLASS.—PASS DIVISION. City College, Colombo.
Wijesinha, J. Pereira, C. A.	SECOND CLASS.—1ST DIVISION. City College, Colombo. Private tuition.
Christian, E. W. De Silva, M. S. Abeyasooriye, S. C. D. Kretser, D. T. Fernandez, S. A. Honiball, W. E. H.	SECOND CLASS.—2ND DIVISION. City College, Colombo. " " " " " " Private tuition. " " " " " "

Peries, S. H. F. Setukavalar, R. N. Banham, R. V. N. Wright, F. E.	SECOND CLASS.—3RD DIVISION. City College, Colombo. Private tuition. Barker Memorial S., Lomas de Zamora, Buenos Aires. " " " " "
Gardom, J. D. f. Gibson, H. B.	THIRD CLASS.—1ST DIVISION. Barker Memorial S., Lomas de Zamora, Buenos Aires. " " " " "
Cadmus, E. O. f. gr. Wigg, J. M. Chappell, H. S. sp. Musson, E. M. Romer, F. W. Bridger, G. T.	THIRD CLASS.—2ND DIVISION. Barker Memorial S., Lomas de Zamora, Buenos Aires. "
Wannigasooriye, D. A. Sinnatamb, S.	THIRD CLASS.—3RD DIVISION. Private tuition. City College, Colombo.

GIRLS.

Cook, E. J. Rodger, E. H. d.	SECOND CLASS.—1ST DIVISION. Barker Memorial S., Lomas de Zamora, Buenos Aires. " " " " "
Gardom, E. B.	SECOND CLASS.—2ND DIVISION. Barker Memorial S., Lomas de Zamora, Buenos Aires.
Setukavalar, E. C. Wright, L. A.	THIRD CLASS.—1ST DIVISION. Private tuition. Barker Memorial S., Lomas de Zamora, Buenos Aires.
Benson, C. M. f. Benson, M. A.	THIRD CLASS.—2ND DIVISION. Barker Memorial S., Lomas de Zamora, Buenos Aires. " " " " "

JUNIOR FORMS EXAMINATION.

BOYS.

Benson, H. C. Bridger, F. G. Dodds, J. C. Gnanasekaram, S. Hirst, P. N. Rodger, H. H. Strong, J.	Barker Memorial S., Lomas de Zamora, Buenos Aires. " " " " " " " " " " City College, Colombo. Barker Memorial S., Lomas de Zamora, Buenos Aires. " " " " " " " " " "
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GIRLS.

Buchanan, S. Cassels, N. Christoffels, R. Crozier, W. De Silva, E. St. John, E. I.	Barker Memorial S., Lomas de Zamora, Buenos Aires. " " " " " Private tuition. " " " " " " " " " " Barker Memorial S., Lomas de Zamora, Buenos Aires.
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COLLEGE OF PRECEPTORS.

PROFESSIONAL PRELIMINARY EXAMINATION—PASS LIST.

SEPTEMBER, 1899.

The Supplementary Examination by the College of Preceptors for Certificates recognized by the General Medical Council, the Incorporated Law Society, the Royal College of Veterinary Surgeons, the Pharmaceutical Society of Great Britain, the Education Department, and other bodies, was held on the 5th, 6th, and 7th of September, in London, and at four other local centres, viz., Birmingham, Bristol, Leeds, and Liverpool. The following candidates obtained Certificates:—

FIRST CLASS.

Pass Division.

Birtwhistle, F. P. H.	Higson, W. D.	Tochatti, J.
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SECOND CLASS.

First Division.

Bennett, R. Biggs, G. N. Coutts, D. K. Dauthwaite, H. S. Green, G. F. O.	Haddock, J. Hambling, C. B. Jackson, H. H. G. Kilby, T. A. Parry, O. B.	Prentis, J. E. Sunderson, A. F. Stacci, A. R. Stocks, R. W. Templer, G. W.
--	---	--

Second Divisio.

Barragry, R. Beckett, C. S. Collinson, G. W. Dennis, M. F. B. Dickson, W. L. Dismorr, C. J. S. Douglas, G. A. Foran, W. R.	Gent, P. W. Holbrooke, C. D. M. James, A. M. A. Leyshon, T. St. L. Nicholson, H. Puxley, C. Rawsthorne, F. Reade, A. G. L.	Robinson, G. C. F. Sadler, R. D. Taylor, H. V. Tucker, L. F. White, A. D. Williams, T. L. Wotton, E.
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Third Division.

Anderson, A. C.	Gayton, W. J. G.	Jones, E. C.
Balls, L. C. W.	Gordon, S. O.	Jotham, G. F.
Bullock, F. W.	Grammer, F.	Maglione, R. G.
Calthrop, E. S.	Horton, J. J.	Millar, A. S.
Colenso, J. E.	Jackson, J. E.	Pearson, J. S.
Costobadie, V. A. P.	James, R. R.	Shirvell, E. A.
Crowthier, W. R. D.	Jenkins, T. J.	South, F. M. W.
Elliott, J. E.		

The following qualified for Registration as Medical Students, but did not pass in all the subjects required for a Second Class Certificate:—

Mann, H.	Salisbury, H. K.	Walker, W. H.
Nuttall, E.	Schiele, O. A.	Whitaker, A. G.
Peacock, H. M.		

REVIEWS.

A PSYCHOLOGIST ON SOCIALISM.

The Psychology of Socialism. By Gustave Le Bon.
(T. Fisher Unwin.)

We noticed not very long ago M. Le Bon's volume on "The Psychology of Peoples," in which the author traced and illustrated the influence of character on the evolution of nations. It is but a step from this inquiry to that which he pursues in his new book—an inquiry into the conflict between the ancient hereditary ideas, on which the life of nations and societies have been built up, with certain new ideas, more or less cosmopolitan, born of the new conditions which have been created by the evolution of modern science and industry. Admitting the right of the greater number, of the less fortunate "masses," to ameliorate their condition, is it possible for existing institutions to bring about such an amelioration, or is the real destiny of the masses practically decided by necessities entirely independent of the institutions which have been created by the will (or the evolution) of our fathers and forefathers?

M. Le Bon is not a wild socialist. Perhaps we may define his position not unfairly by saying that he believes it to be quite possible that socialistic theories and methods may virtually replace old-fashioned institutions, but in that case he does not expect that socialism will long retain the supremacy. In other words, the world—or shall we say two or three European nations—have to look forward to a revolution and a counter-revolution: first a descent to a tyrannous socialist supremacy, which will try for a generation or so to make us all equal by a sort of hydraulic pressure from "the State," and then a natural reaction which will bring us back to a modified form of the same old-fashioned institutions. The author seems to regard this prospect with almost complete detachment. His aim is to study socialism from the point of view of the psychologist. The reader will find him all the more easy to follow, and pleasant as a guide, because he is no mere advocate of a cause, but a studious and fairly impartial inquirer.

No apostle has ever doubted of the future of his faith, and the socialists are persuaded of the approaching triumph of theirs. Such a victory implies, of necessity, the destruction of the present society, and its reconstruction on other bases. To the disciples of the new dogmas nothing appears more simple. It is evident that a society may be disorganized by violence, just as a building, laboriously constructed, may be in an hour destroyed by fire. But does our modern knowledge of the evolution of things allow us to admit that man is able to refashion, according to his liking, a society that has been so destroyed? So soon as we penetrate a little into the mechanism of civilizations we quickly discover that a society, with its institutions, its beliefs, and its arts, represents a tissue of ideas, sentiments, customs, and modes of thought determined by heredity, the cohesion of which constitutes its strength. No society is firmly held together unless this moral heritage is solidly established, and established, not in codes, but in the natures of men; the one declines when the other crumbles, and when this moral heritage is finally disintegrated the society is doomed to disappear.

Such a conception has never influenced the writers and the peoples of the Latin States. Persuaded, as they are, that the necessities of nature will efface themselves before their ideal of levelment, regularity, and justice, they believe it sufficient to imagine enlightened constitutions, and laws founded on reason, in order to refashion the world. They are still possessed by the illusions of the heroic epoch of the Revolution, when philosophers and legislators held it certain that a society was an artificial thing, which benevolent dictators could rebuild in entirety.

That passage indicates M. Le Bon's general attitude towards his subject. He holds that the Latin idea is unpractical and un-

tenable; but it is not to be disdained, for it supplies the motives of a distinctive influence which is greatly to be feared, because it is very considerable. Also, we may add on our own part, the Latin idea has not been an absolute failure in the past. In more than a few countries revolutions followed by written constitutions have fairly stood the test of time. Even the great French Revolution is in a manner justified by its result. The manner of a revolution may be that of an unchained tiger, but it may make for peace and justice none the less.

In a few of his middle chapters, M. Le Bon seems to fix his mind less on the psychology of socialism than on certain features of existing institutions, as where he deals with the psychology of the Latin peoples, the Latin conception of the State, and "the Latin concepts of Education and Religion."

The Latin concept of education is the consequence of the Latin concept of the State. Since the State ought to direct everything, it ought to direct education; and, since the State ought to think and act for the citizen, it must take care to imbue his mind with the sentiment of obedience, respect for all the hierarchies, and severely to repress all signs of initiative and independence. The pupil should limit himself to learning by heart the manuals informing him of the decisions of political, religious, philosophic, and scientific authority on all imaginable questions. This was the old ideal of the Jesuits, and it was skilfully completed by Napoleon. The University, as it was created by this great despot, is a most excellent example of the methods to be employed in order to enslave the intelligence, weaken the character, and transform the Latin youth into slaves or rebels.

It is evident that M. Le Bon has written a very readable book. He is at times hasty in his generalizations, and anything but convincing in his argument. He lugs in "the modern Greeks" to show how they have been sterilized and ruined by adopting the Latin concepts; then, quite gratuitously, he puts in a note to show that "the present population" consists almost entirely of Slavs, the ancient Greek type immortalized in sculpture having totally disappeared; next, he says that there are plenty of pure Greeks in the islands; and he continues by giving a list of the general characteristics of the nation which any impartial observer will recognize as belonging far more to a classical than to a Slav type. But no one could be expected wholly to agree with a book which covers so much ground, and is so disquisitive in its method. The main thing is that M. Le Bon is interesting throughout.

THE GAY SCIENCE.

A History of Literary Criticism in the Renaissance, with special reference to the Influence of Italy in the Formation and Development of Modern Classicism. By Joel Elias Spingarn.
(Columbia University Press; Macmillan.)

No one could have a more pleasant and inviting theme than Mr. Spingarn has chosen for himself. The gay science of criticism took a new departure in the sixteenth century, and, in our modern sense, originated in that century. Of course men are critical wherever they are classical. In the golden age of Greece and Rome they weighed books and styles; no one could be more critical than Aristotle, for instance, or Cicero, for another instance. When the members of an intellectual school had begun to write on good models and with definite ideas, they naturally began to compare one achievement with another, declared their likings and dislikings, and then, either for fear or for favour, or from some amiable desire to justify their own opinions, they proceeded to give reasons for their preferences. That was the process of criticism in the classical and post-classical ages; and it was renewed all over again in the ages of Renaissance. Mr. Spingarn holds himself chiefly to the sixteenth century, but he divides his book into three sections, in which he considers successively the features of Italian criticism from Dante to Tasso, of French criticism from Du Bellay to Boileau, and of English criticism from Ascham to Milton; and from them he seeks, in a sufficiently practical manner, to trace the development of critical rules and theories in the debased or late classical literature of the seventeenth and eighteenth centuries. We say "sufficiently practical" in view of what the writer himself has sought to accomplish. He is not elaborate over a wide field, but he is clear and concise within his limits. The essay was written in partial fulfilment of the requirements for the degree of Doctor of Philosophy at Columbia; and we have pointed out more than once that many an excellent book has built itself up on the basis of an academic theme. It is so, we think, with Mr. Spingarn's treatise on the origins of modern literary criticism.

As in duty bound, the author devotes special care to the history of Italian criticism in the sixteenth century, which has received

less attention than it deserved. The Italian Renaissance as a whole, in art, philosophy, science, and creative literature, has been amply studied and richly illustrated—no period more amply and richly—but there has been a certain deficiency in the estimates of the neo-classical literary criticism of the peninsula:—

The growth of classicism in Renaissance criticism was due to three causes: humanism, or the imitation of the classics; Aristotelianism, or the influence of Aristotle's "Poetics"; and rationalism, or the authority of the reason, the result of the modern spirit in the arts and sciences. These three causes are at the bottom of Italian classicism, as well as of French classicism during the seventeenth century. . . . In Vida's "Ars Poetica" there are abundant evidences of the rhetorical and especially the puristic tendencies of modern classicism. The mechanical conception of poetic expression, in which imagination, sensibility, and passion are subjected [subordinated] to the elaborate and intricate precepts of art, is everywhere found in Vida's poem.

Vida, we may remark, is influenced by Horace, as our own Pope was influenced by Vida. The tricks and standards of each are familiar: long preparation for the work of construction and composition, even to the extent of private armonies of phrases and images for use as required—a sort of Roget's dictionary and Sala's commonplace-book, concocted *à propos* of nothing, to be served up *à propos* of something—the heedful exclusion of impulse and morbid subjectivity; and so on, through a hundred or a thousand more or less irritating rules. Vida

impresses upon the poet the necessity of euphemistic expressions in introducing the subject of his poem: for example, the name of Ulysses should not be mentioned, but he should be referred to as one "who has seen many men and many cities," who "suffered shipwreck on the return from Troy," and the like. . . . A little later, in Daniello, we find similar puristic tendencies. He requires the severe separation of *genres*, decorum and propriety of characterization, and the exclusion of everything disagreeable from the stage. In Partenio's "Della Imitazione Poetica" (1560) the poet is expressly forbidden the employment of the ordinary words in daily use, and elegance of form is especially demanded. Partenio regards form as of superior importance to subject or idea; for those who hear or read poetry care more for beauty of diction than for character, or even thought.

From the classical and the late classical to the *paulo-post* and *multo-post* classical there is a lapse of many years, but no great length of stride. Is not Young Oxford in some danger from the Paterization of its prose, the *sui-festidium* of expression, the taboo of the obvious, and so forth? Mr. Spingarn raises some interesting points, and carries his readers into many inviting trains of thought. His little volume will be serviceable to the literary student, and it is a very creditable piece of work.

DR. STOUT'S "PSYCHOLOGY."

"University Tutorial Series."—*A Manual of Psychology*. Vol. II.

By G. F. Stout, M.A. Camb. and Oxon., LL.D. Aberd. (Clive.)

"A man will become angry," says Dr. Stout in his exposition of Emotions, "if you fail to understand his argument or if you unfavourably criticize his book." This, we have reason to believe, is most true. But we hasten to reassure Dr. Stout: we do not propose to make him angry. For it is impossible to misunderstand his argument without self-condemnation, or to pass an unfavourable criticism on a book that is carefully compiled by an experienced teacher out of fullness of knowledge and reflection. By the malevolence of fortune, indeed, we are impelled to remark on a criticism of Dr. Stout's in the very same paragraph as the sentence above quoted. He questions Dr. Bain's statement that anger "contains an impulse knowingly to inflict suffering upon another sentient being, and a positive gratification in the fact of suffering inflicted." We are not so sure that the being need be sentient; we have observed a man let out viciously at a non-sentient object that had offended him. But Dr. Stout takes a different objection. He thinks Dr. Bain's statement "would only apply to a somewhat developed stage of ideational consciousness; and, even then, it would not cover such cases as St. Paul's righteous anger with the foolish Galatians." Might not Dr. Bain hold that his general statement is right, even as applied to St. Paul's righteous anger, the elimination of the impulse and the gratification being due to other considerations which come in to modify the anger in the particular case? St. Paul's anger at the foolish folk does not seem to be a pure example of the emotion. However, it is only in subordinate and incidental points of this sort that Dr. Stout appears to lay himself open to occasional adverse remarks. The book is a piece of careful and solid workmanship, and a real boon to students; and it must prove a valuable basis for more advanced study.

The first and rather smaller division of the volume treats of perception—first, and at some length, of the distinctive characteristics, and then of the principal categories of perceptual consciousness. The other and larger division expounds the ideational and conceptual process, including the ideal construction of the world and of the self (with a very interesting treatment of the breaking-up of the total self into a number of "partial selves," if such an expression is not open to question), and the important problems of belief and the will. The handling is always abreast of the most recent inquiry, German and American psychologists being very frequently cited. It must not be supposed, however, that Dr. Stout has contented himself with the execution of a mere piece of patchwork. He takes up his own point of view, and applies a very frank and fair criticism to the views of the authorities he cites. Thus, indirectly, he impresses on students the important lesson of reading critically, with blue pencil in hand, the works that bear even the highest names in the history of psychology. This is entirely as it should be, and Dr. Stout will not, presumably, object to the reasonable application of the blue pencil to his own work—except, perhaps, in his capacity of examiner, when there is opportunity for reprisals. In any case, the two volumes form one of the very best handbooks for students in the "University Tutorial Series."

A COLONY BUILDER.

"Builders of Greater Britain." Edited by H. F. Wilson, M.A.—*Admiral Phillip: the Founding of New South Wales*. By Louis Becke and Walter Jeffery. (T. Fisher Unwin.)

It was in 1786 that Arthur Phillip, "an obscure naval captain," was sent out to establish a settlement in New South Wales, and he returned to England in 1792. The story of these six years is told in a sufficiently interesting fashion by Mr. Louis Becke and Mr. Walter Jeffery; and it may be said, to begin with, that the actual personal details of Phillip's life are somewhat sparse and inadequate. The authors frankly tell us as much in their preface, and they believe it may be taken for granted that, beyond what personal detail is given in this volume and its appendices, there is little to be found about him. The premier colony of Australia has for some time been searching for materials for a biography of her first governor, but with scanty results. The fact is that Phillip was not a distinguished man apart from the subsequent distinction of the colony. The original notion of Englishmen in respect of the settlement in the South Pacific was that the island might be a very good place for convicts; and Government did not need a very able or brilliant man to go out and make a small and tentative beginning. Phillip had apparently been a captain in the Portuguese service, but it is not known why he was selected to go to the Antipodes. In any case, there is enough evidence to show that he had plenty of grit in him, and that the choice was a fortunate one. He had not been in Australia many months before he declared, in a letter to the Government, that the settlement he was founding—or perhaps he thought of the island-continent as a whole—would be "the most valuable acquisition Great Britain ever made."

The narrative is very readable, for the authors have pressed every available anecdote into their service, and they give us some very amusing accounts of the early settlement days. Phillip took out with him in the "first fleet" 550 male convicts and 150 female, with 200 marines and the crews of eleven ships. They had not got far out to sea when it was found that the major of marines had forgotten his musket-balls. The deficiency was made good at Rio de Janeiro, where the fleet touched on its appointed course from Teneriffe to the Cape of Good Hope.

The seamen of one of the transports clubbed together and handed their metal spoons to a coiner among the prisoners. The fellow turned the spoons into good imitations of the silver dollars of the Brazils, and the sailors tried to pass the counterfeit money. At the first attempt the fraud was detected, and the sailors, to save themselves, confessed. Their grog was stopped, and the coiner was flogged.

The voyage occupied eight months and one week, the zigzag course having stretched it to a length of about fifteen thousand miles. The "second fleet" had a different fortune from that of the first. An eye-witness of the landing at Port Jackson wrote:

Oh! if you had but seen the shocking sight of the poor creatures that came out in the three ships, it would make your heart bleed. They were almost dead. Very few could stand, and they were obliged to sling them like goods and hoist them out of the ships, they were so feeble, and they died ten or twelve a day when first landed. There died in the three ships alone on the way out 347 men and women.

The account of Phillip's governorship of four years is full of interesting detail, and may be read with pleasure apart from its usefulness as a contribution to colonial history.

OVER-STUDY.

The Physical Nature of the Child, and how to Study it. By Stuart H. Rowe, Ph.D. (London and New York: Macmillan.)

Surely the schoolmasters' millennium is at hand. The crooked places of pedagogy are at last to be made straight, and, after reading this book, wayfaring schoolmasters, though fools, shall not err therein. Such is our first reflection after reading Mr. Rowe's carefully written work, in which he sets forth the whole duty of a schoolmaster towards the child in his physical as distinguished from his moral and intellectual nature. Throughout he lays stress on the importance of the study of the individual child's physical characteristics—the red-letter child, not the impersonal child with the big "C." Schoolmasters are, too frequently, prone to assume that all their pupils are normal, and no one can doubt the importance of a knowledge of simple means of detecting the more common physical defects in children, such as defects of sight and hearing, and of fatigue and nervous disorders. Mr. Rowe's book, however, is a counsel of perfection. Half the term would be taken up in finding out all the physical idiosyncrasies of the boys, if all the suggestions of this book were followed. Even the functions of a schoolmaster are limited; something ought to be left for parents, if only for the purpose of preserving a sense of paternal duty in the race.

Without suggesting that schoolmasters should attempt to reach the ideals here described, the book, however, will repay perusal as a means of quickening their powers of marking any serious abnormalities in the physical condition of their pupils. The chapter on Fatigue is practical and wise, and the results given of scientific investigation into the right relation of the different subjects of the school curriculum to periods of greater or less mental activity in the pupil are valuable, especially as they conform to practical experience. That on Nervousness is too slight, and we cannot approve the author's general suggestion that the nervousness of the individual should be met at the moment it is discovered, and that he should be given some diverting exercise apart from his class. It is, we think, far better to identify him with his surroundings, using another boy as a medium of communication, and not to isolate him before his fellows. The chapter on Growth and Adolescence is well worth the attention of parents; but the countenance given to the co-education of the sexes during the adolescent period will never, we hope, find approval in this country. The similar treatment of girls and boys during this period and afterwards is, to girls, a positive cruelty, of which, to express the view of an individual reviewer, there is too much, even in England. How it can be tolerated in America, where they pride themselves upon a superior adaptive lucidity in educational matters, is, to us, an incomprehensible puzzle.

The last chapter, with its string of namby-pamby cossetting test questions for parents to answer, would not do for English fathers. They suggest that the end of hygiene is the "muzzling, cockering, and dandling" of the child, which the common sense of mankind, as well as Montaigne, has disapproved. "Does he wear an overcoat even when the cold is not extreme? Does he sleep dreamlessly?" are a type of the rest. As we have shown, there is better sense in the book than this; but it is not the sense of proportion. A useful bibliography of the subject is appended.

GENERAL NOTICES.

CLASSICS.

Poems of Catullus, edited by Hugh Macnaghten and A. B. Ramsay (Duckworth), is a new school edition of the tenderest of Roman poets. The editors rightly say that in the only school edition some poems, or parts of poems, are unnecessarily omitted. The notes are brief, but they are of remarkably good quality, full of fine scholarship, yet not overloaded with learning. The book is most attractive. Not less so is a little companion volume, entitled *The Story of Catullus*, by Mr. Macnaghten (Duckworth). The author, a master of his subject, has drawn a living portrait of the poet as seen in his works. The prose descriptions and criticisms are interwoven with metrical translations of the poems, some more, some less, successful than others. It must suffice to give one specimen, the version of the poem that Catullus adapted from Sappho:—

"He is the peer of gods for me,
Victor of gods, if that may be,
Who, face to face, at whiles on thee
May gaze and hear

Thy laughter sweet: ah! Lesbia thence
(Unhappy me!) fails every sense,
Fails voice and art, for evidence
That thou art near.

My tongue is numb: the fever flies
From limb to limb: sounds tinkling rise
Within my brain: on both my eyes
The night falls sheer."

Mr. Macnaghten has ably performed a difficult task, which has been to him a labour of love.

Cæsar, Gallic War, Book II., by A. C. Liddell (Bell); *Livy, Book IX.*, c. 1-19, by W. C. F. Walters (Bell); and *Nepos, Epaminondas, Hannibal, Cato*, by H. L. Earl (Bell), may be taken together, as they are the first volumes of a series that marks in some respect a new departure. The volumes are profusely illustrated, and some, at least, of the illustrations are much better than the pictures usually supplied in school-books. Most of them seem to be from authentic sources; but in one or two cases the artist has allowed his imagination to run riot. Mr. Earl's book is the weakest in this respect. The modifications introduced into some well known pictures are judicious; in a few cases they might be carried further, with advantage. The books are excellently printed and bound, and the price (1s. 6d.) is remarkably low. There is a good introduction, a sufficient, but not overwhelming, number of notes; a very useful table of constructions, and a vocabulary. Mr. Liddell's introduction contains a valuable section on the Roman army; Mr. Earl's notes have some good historical parallels that ought to interest pupils, but his vocabulary is marred by one or two misprints that should have been corrected. Mr. Walters has added a list of technical terms that will be of use to masters who want the book for examination purposes. In short, the editors know their business, and the publishers have seconded their efforts in a most spirited fashion. The series is sure to receive a welcome. The books certainly contain at least as much as can be expected; but, perhaps, the addition of a few exercises based on the text might be possible.

Lower Greek Prose, by K. P. Wilson (Blackwood), is a companion volume to the same author's book on "Latin Prose." He begins with rules, vocabularies, and exercises on the simple sentence (pages 1-82). These are followed by rules and exercises on compound sentences (pages 83-153), a closely printed list of "sentences" illustrating Greek constructions (pages 154-164), and a few rules for accentuation. Lastly, we have seventy continuous pieces for translation into Greek, with introductory notes, and a general, but not exhaustive, English-Greek vocabulary. The book is well done; but we cannot help thinking that Mr. Wilson has tried to cover too much ground. His manual is designed to occupy the place of three ordinary books on Greek composition—say, "Arnold" and the two "Sidgwick's"; and the result is that, though the volume contains a vast mass of material, there is not enough practice in the application of each separate rule. It seems to us that the makers of these compendious books on composition go too fast for the learner, and are likely to bewilder him. Depend upon it, the only sound method—the only method that ensures that what is learned will not be instantly forgotten—is contained in the maxim: "Repeat, repeat, without ceasing." Another evil which results from Mr. Wilson's plan is that too much grammar has to be given at once, especially in the earlier stages. The number of words and rules set down at a time is sure to dishearten the beginner.

Livy, Book II., edited by A. F. Hort (Rivingtons), belongs to the now familiar series of "Middle Form Classics." Mr. Hort's object is to supply the minimum amount of assistance, and to leave most of the explanation to the master. The notes contain grammar and translation. The book presupposes a very capable teacher. Therefore it is not for every one. There is no vocabulary.

Virgil, Georgic III., and *Virgil, Æneid XII.* (Macmillan), are two additions by Mr. T. E. Page to the "Elementary Classics." Both contain a vocabulary. We have so frequently praised Mr. Page's work in this column that it is unnecessary to say much of the excellent volumes before us. The notes are by no means confined to what is elementary. Mr. Page writes, we suspect, as much for the master as for the pupil; and, inasmuch as the junior pupil does not readily read notes, there is no doubt much to be said for this method. Mr. Page and Mr. Hort represent absolutely opposite theories on editing for middle forms.

Virgil, Æneid VI. (Clive), appears in a second edition. Besides the usual complement of notes, there is a capital appendix with lists of Greek nouns, archaisms, grammatical peculiarities, metrical irregularities, and so on. Altogether a volume to be recommended.

SCIENCE.

Exercises in Practical Physics for Schools of Science. Part I.

By R. A. Gregory and A. T. Simmons. (Macmillan.)

The opening words of this volume—"you are provided with a foot-rule"—are typical of its thoroughly practical character, and

remind us by contrast of our own school-days, when we were provided only with pencil and paper, and had to supply such trifles as a weight sliding down an inclined plane out of our own imagination. Then we performed mathematical tricks on things we did not understand. Now, pressures, centres of gravity, and the like, are made real to the pupil, and nowhere more fully so than in this little book, or, to be more correct, in the practical work for which it gives clear instructions without the dangerous anticipation of results. It includes measurements of length, area and volume, of mass and density, time and angle, velocity, momentum and force, the "mechanical powers," and the simpler phenomena connected with heat. Under this last head we note with some surprise the use of the inaccurate term "radiation of heat," where "loss of heat by radiation" would have been better; but, as the subject of light is not touched, the point is not very important. The printer is responsible for a few letters dropped out, and an injury to Fig. 47 which rather spoils its effect; otherwise the get-up is as good as usual with its publishers.

An Elementary Course in Practical Physics. By F. Castle. (Nelson.)

The practical course here set out covers a wider ground than is covered by Messrs. Gregory and Simmons, embracing elementary work in sound, light, and electricity, in addition to mensuration and elementary mechanics. Mr. Castle is also thoroughly practical in his methods, though he shows a survival of old-fashioned ideas by the introductory chapter, with its dissertation (fortunately very brief) on matter, extension, impenetrability, and the rest of those wonderful abstractions without a verbal knowledge—we will not say an understanding—of which it was supposed that no boy could measure the length of a piece of string. If these are wanted, they would find their most fitting place in the final chapter, only to be read by those who have gained a concrete knowledge of the properties of matter by methodical practical work. For a book of this size the scheme of work is too ambitious, and the teacher using it will do well to supplement the text by additional experiments; at least, in the earlier part.

Manual of Human Physiology. By L. Hill. (Arnold.)

In this book of 480 pages the author has endeavoured to cover as much of his subject as is of general human interest, and to start from the very beginning. Accordingly, after a somewhat rhetorical introduction, we find a few chapters on general elementary science, giving notions of energy and work, chemical combinations, &c., as clearly as in so short a space can well be done: a number of common facts being appealed to and simple experiments suggested, in illustration. Then we are introduced to the great generalizations on vegetable and animal life, and bacteria. Finally, we are taken through the structure and functions of the various systems of the human body. Prof. Hill knows well how to make his subject interesting without being inaccurate, and how to drive an abstract fact home by an illustration from everyday experience. His method is, on the whole, more suitable for adults than for school-children, who have less experience to be appealed to, though they are quicker at observation of new things. It will serve a useful purpose, either as an advanced text-book for schools and colleges or as a general work for the intelligent adult who has not studied the subject in his youth.

MODERN LANGUAGES.

First Steps in French Reading and Composition. By J. Duhamel, M. ès A. (Rivingtons.)

The preface to this book contains some very sensible remarks: for instance, on the importance of teaching the pronunciation and of giving essentials to the beginner, letting exceptions take care of themselves. It is unfortunate that M. Duhamel did not see his way to a more thorough breach with grammatical traditions; he might, at least, have carried into practice what is now a recognized principle—viz., that rules should follow, not precede, the examples, and that the pupils should be led to discover as much as possible for themselves. The first thirteen lessons are solely devoted to pronunciation; and, indeed, it is not lost sight of throughout the book. Even the most advanced "reformer" would not agree to the exclusive study of the pronunciation of words apart from their meaning. For about three weeks (under favourable circumstances) the children are expected to read French, without understanding it; nor is the French simple. We take an example at random: "Les autres huiles de colza, d'œillette, de lin sont employées dans l'industrie ou en médecine." The second part, which deals with the parts of speech, is well arranged. The third part gives grammar, "translations and idioms," and does not materially differ from the second. There is also an elementary syntax. While appreciating the skill shown in many matters of detail, we cannot help regretting that we have here another "compromise." It is better than most first courses which fall under this heading, and will, no doubt, be used by many teachers.

About, Le Roi des Montagnes. Edited by E. Weekley. (Macmillan.)

Those who believe that French school-texts should not merely amuse, but also give some idea of French life and ways, will view with regret the appearance of another edition of this much too popular book. It is farce, rather than humour, that we have here; there is little refinement in About's art. That Prof. Weekley has supplied brief and good notes need hardly be mentioned. Some of the notes, it is

true, are not well expressed, or not full enough: e.g., the notes on page 3, line 19; page 11, line 23; page 80, line 11. The book appears in Mr. Siepmann's series, and we have the usual appendices. Such sentences as "I must have done my work before I go"; "Is it not more than eight o'clock?"; "Such is the vitality of our institution that no other has stood this crisis better," are not in the kind of English which it will profit a boy to translate. The fourth appendix deals with the formation of adjectives; it is well put together.

A Primer of Historical French Grammar. By E. Weekley, M.A. (Blackie.)

A convenient manual, containing much information in small compass. It has been compiled primarily for the use of candidates taking French at the London B.A. Examination; and Prof. Weekley may be trusted to know how much that means, and to put it before his readers in a clear and concise form. There is very little to cavil at: the term *enclôsed* (§ 27) is unsatisfactory; in § 56 the term *euphonic* might be dropped with advantage; in § 190, note, read *lez* (not *les*). The section on metre is useful and correct, as far as it goes.

Specimens of Modern French Verse. Edited by H. E. Berthou. (Macmillan.)

It was a happy thought to issue an anthology of nineteenth-century French verse; and it is clear that its execution was a labour of love for Mr. Berthou. The introductory remarks on the structure of French verse contain much that is valuable, and not a little that is debatable. But is there any department of literary study about which there is less agreement than the metric? The poets who contribute lyrics are divided into two sections, roughly corresponding with the halves of the century. The selection has been made with care; it was in many cases no easy task. The notes are useful, and the short biographies welcome. The book deserves to be widely read.

Leitfaden für den ersten Unterricht im Italienischen. Von S. Alge. (St. Gallen: Fehr-sche Buchhandlung.)

This is one of a series of manuals of which those concerned with French and German have recently appeared in English dress. They seek to exhibit a method by which each language may be acquired, without the assistance of the mother tongue of the learner, under the instruction of a competent teacher. After 153 pages of reading matter come twenty-two pages of "Grammatica," as an appendix, containing all the more important parts of Italian accidence, to be learnt inductively. Under the "Verbo," the conversational form of the first person of the *imperfetto indicativo* is wisely given, in lieu of the literary form, which may be confounded with that of the first person when the personal pronoun is omitted, as usually in Italian. We approve also the adoption of the form in *-sco* for the *presente indicativo* of the third conjugation. This book may be recommended to English students of Italian.

Moderne Handelsbriefe, in genauer Wiedergabe der Originale. Teil I., *Französische Briefe*; Teil II., *Englische Briefe*; Teil III., *Spanische Briefe*; Teil IV., *Italienische Briefe.* (Cologne: Paul Neubner.)

This series of manuals provides students of commercial correspondence with facsimiles of about a hundred letters in each volume, showing different styles of handwriting, which will be exceedingly useful to teachers of commercial French, Spanish, or Italian in our own commercial schools or continuation classes, for the study of foreign languages. The English part will similarly aid the teaching of commercial German, when used with the separate "Ausführliches Kommentar für die Hand des Lehrers" and Levy's "Facsimile German Letters" (Hachette). Another such teacher's companion is provided with the French part. There is a manifest advantage in working upon letters which have actually passed in the course of business and familiarizing oneself with styles of handwriting other than those customary in the student's own country. The information given in the commentary on the English letters is generally up to date. Would it not, however, be better in any second edition to say (page 14) that "type-writer" is a name now confined to the machine, and that the operator is spoken of as "typist"? Every teacher of one of these languages as used commercially should obtain a copy of the part devoted to the language concerned.

Schilling's Spanish Grammar. Translated and edited by Frederick Zagel. (Francis Hodgson.)

The increased attention which is given in these days to the study of Spanish, especially for commercial objects, has naturally produced a crop of new grammars and reading-books. Mr. Zagel considers—and we think, rightly considers—that Schilling's Grammar, which is very popular in France, Italy, and Germany, is likely to secure favour in English-speaking countries. In Germany, where it was first published, "Schilling" is in its twelfth edition. As the translator says, "el buen paño en el arca se vende"—a good thing needs no puff. We recommend this volume as complete in its grammatical forms, with ample exercises, vocabularies, and illustrative sentences.

MATHEMATICS.

Practical Plane and Solid Geometry. By James Riddel, Headmaster of the Art School, Heriot-Watt College. (Oliver & Boyd.)
An elementary course of plane and solid geometry including, in

addition to the usual practical constructions of plane figures, the beginnings of descriptive geometry, or the representations of planes and lines in space by their traces and projections on two planes of reference. This part of the work is unusually clear and complete.

Elementary Dynamics. By W. M. Baker, M.A. (G. Bell & Sons.)

This is a careful and accurately prepared text-book for Woolwich and Sandhurst candidates and others who have taken Euclid, algebra, and trigonometry. The best parts are those on Harmonic Motion, Impulse and Collision, and Initial Actions.

Commercial Arithmetic. By W. Woodburn. (W. & R. Chambers.)

This book begins with "Long Tots and Cross Tots," and proceeds in succession with Practice, Percentages, Commission, Discount, Averages, Interest, and Exchanges. It is limited to the subjects of the Evening Continuation Code, and does not therefore deal with Compound Interest, and is incomplete in its treatment of Proportion and other aspects of numbers. Under "Duodecimals" we read that "the linear foot is divided into *primes, seconds, thirds, and so on.*" For commercial purposes the foot is divided into inches and either eighths or twelfths. The chapter on Duodecimals is an exercise on multiplication in the duodecimal scale of notation, but is scarcely commercial arithmetic.

Advanced Arithmetic. By William W. Spier. (Ginn & Co.)

If any one wishes to measure the advantages of a decimal system of coinage, he should compare the ease and simplicity of this book on "Advanced Arithmetic" with the tedious complexity of English books treating of the same subjects. The diagrams for illustrating points of theory, and especially the rules of mensuration, are excellent; but occasionally the psychology is vague, as the following typical sentence shows:—"The perceptions necessary to make permanent possessions of the things perceived are not repetitions of words, but ideas, and to get the thought again and again before the pupil is possible only by arousing the mind to activity."

MISCELLANEOUS.

A Plea for the Production of an Archaeological Map and Index for England and Wales, County by County. By the Rev. J. O. Bevan, M.A., F.S.A. (Published by the Author.)

Mr. Bevan has himself compiled an archaeological map of Herefordshire, which is well known and appreciated by all who study the antiquities of that royal shire. His plea for the undertaking of a similar work in every county is well grounded, and will find many sympathizers. He admits that the preparation of the complete map and index would be a very difficult task, but it is one which ought to be achieved in the interests of history, and, if it is not systematically taken in hand, it will never be completed.

The Excelsior Atlas of Europe. (Bacon.)

This is a handy little atlas of twenty-eight coloured maps, including four physical and four historical. The printing is remarkably clear.

A Dissected Model of a Direct Current Dynamo. By Arnold Philip, B.Sc. Lond. (Philip & Son.)

This is a very ingenious and practical flat-model, accompanied by a full description of the various parts of a "direct" dynamo, and an explanation of their mode of action. It is intended for electrical engineering students, and will be interesting also to any intelligent reader with a taste for mechanism.

Pitman's Business Book-keeping Transactions. (Pitman & Sons.)

This shilling packet of natural-sized forms for sundry business transactions—book-keeping, retail trading, banking, &c.—is calculated to be serviceable to a great variety of people, and especially to young men and boys who are entering a cashier's or accountant's office.

St. Paul the Master-BUILDER. By Walter Lock, D.D. (Methuen.)

The Warden of Keble has here collected a series of lectures to clergy, delivered at St. Asaph in the summer of 1897. Their subjects are—"The Missionary," "The Ecclesiastical Statesman," "The Ethical Teacher—Justification by Faith," and "The Moral Law." They are treated in a practical and sensible style, and the book was well worth printing.

(1) *First Guide to Office Work.* (2) *First Guide to Commercial Correspondence.* By J. Austin Jenkins, B.A. (Longmans.)

These handy little books are the pioneers of a series of "First Guides" in commercial education, edited by the Registrar of the University College of Cardiff. They are intended for boys who are to go into business, or who have just entered on a business career. The plan is excellent, and it has been well worked out, though we note a little looseness here and there. Why are "chromograph" and "hektograph" defined as "kinds of ink used for multiplying on gelatine copies of circulars"? The "graph" is the general appliance, not a kind of ink.

Ten Shillings a Head per Week for House Books. By Mrs. C. S. Peel. (Constable.)

Mrs. Peel's clumsy title covers a serviceable book of directions, hints, and recipes for householders who are expected to feed a family of six or more persons on an average of ten shillings a week. We recommend

it to every young housekeeper or young woman who means to marry on a moderate income.

"The Children's Study."—*Canada.* By J. R. McIlwraith. (Fisher Unwin.)

A plain and readable account of the history of Canada, from its discovery to its present national development. The work has been very well done by a competent hand.

Ready-made Romance: Reminiscences of Youthful Adventure. By Ascott R. Hope. (A. & G. Black.)

Mr. Hope provides for young readers, "if there be any such nowadays," and for the general reader, a collection of very interesting narratives of adventure, mainly based on autobiographies, and with youngsters for heroes. It is a capital gift-book for boys.

The Spy in the School: a Tale of Two Chums. By Andrew Home. (Chambers.)

A spirited story of school life and adventure. There is also a good deal of adventure which is met with out of school, and the villain of the piece is a grown man—in fact, one of the masters. These features may or may not be attractive; we mention them for the sake of such as they may concern.

Masterman Ready: or, The Wreck of the Pacific. By Captain Marryat. (Macmillan.)

Marryat wrote this story expressly for young people. It is an old favourite, and many will be glad to have it reprinted in good type, with illustrations. It is exciting, amusing, and harmless.

"Blackie's Continuous Readers."—(1) *A Chapter of Adventures.* By G. A. Henty. (2) *Girl Neighbours.* By Sarah Tytler. (Blackie.)

These volumes are published in the plain inexpensive form suitable for school readers, with a few explanatory notes appended. We think they would serve a better purpose in the usual gift-book form, for they are not solid enough for use in school, where distinct literary merit is a *sine qua non*. It is questionable, too, whether a continuous story is ever good for reading in class, the interest in the tale leading to haste and carelessness, and impatience of correction, while sufficient variety in style can never be attained. "Girl Neighbours" is a quiet domestic story of the friendship of two girls, who represent the old-fashioned and the modern types of maiden. It is certain that the latter, at least, would skim through the tale in an hour or two, and would hardly care for a course of lessons devoted to reading it aloud. While the ideas and events recorded are adapted to younger girls, the diction is often above their heads—a fault which matters little in a gift-book, but is serious in a reader. "A Chapter of Adventures" is well suited to a boy who has a passion for the sea. The pages are stiff with nautical terms. The *minutiae* of sailing a fishing boat, though fascinating to the enthusiast, would, however, prove somewhat tedious to an average class. The chapters referring to the bombardment of Alexandria are interesting, but very much in contrast with the florid imagination of the fictional and larger portion of the book.

French History for Schools. By Katharine Stephen. With Coloured Maps. (Macmillan.)

The Vice-Principal of Newnham republishes a little book written for children eighteen years ago, and takes the opportunity of expanding it, to suit the requirements of somewhat older readers. It is a simple, introductory narrative, proceeding reign by reign, and may be commended as an adequate and fairly accurate text-book for boys and girls who can make time for the study of French history. Miss Stephen works down to the revolution of 1848, adds a page on Napoleon III., and abruptly says: "We have now followed the history of France from the time of Julius Cæsar to the present time (1898)." This is a little off-hand. So is the casual legend at the end of the book: "Remarkable People. (Too many to mention.)"

WE HAVE ALSO RECEIVED the following publications and new editions:—

The Code of Regulations for Evening Continuation Schools (1890-1900). By Thomas Edmund Heller, LL.D. (Bemrose & Sons.)

Object Addresses: The Children's Sunday. By the Rev. A. Hampden Lee. (Oliphant, Anderson, & Ferrier.)

Bacon. *The New Atlantis.* Edited by A. T. Flux. (Macmillan.)

"Chambers's Commercial Handbooks."—*Commercial Correspondence and Office Routine, First Year's Course.* (Chambers.)

"Continuous Readers."—*A Humble Heroine.* By L. E. Tiddeman. (Same publishers.)

"Pitman's Commercial Series."—*Office Routine for Boys and Girls, First Stage, Illustrated* (Sir Isaac Pitman). *Primer of Book-keeping, First Stage, Day School Code, specific subject* (same publishers). *Office Routine Copy Book, No. 1.* (same publishers). *Book-keeping Simplified, Part I.* (same publishers).—These are all useful booklets, which will serve the purpose of many beginners as well as more elaborate volumes.

English for Evening Schools, by James Dickinson. (Macdougall's Educational Co.)

"Bell's Books for Young Readers."—*Æsop's Fables* (G. Bell & Sons).—A little illustrated quarto, for which there should be a demand.

Lessons in Domestic Science, Part III., by Ethel R. Lush (Macmillan)—much to the point, and very clearly set forth.

"The Masterpiece Library."—*Kenilworth*. "The Penny Poets."—*Poems for the Schoolroom and Scholar*. "Books for the Bairns."—*The Seven Champions of Christendom; Eyes and no Eyes*. (Review of Reviews Office.)

Rhymes of Road, Rail, and River. By E. Derry. (Bristol: Arrow-smith.)

Philips' "Handy" *Technical and Evening Continuation Schools Register (Attendance, Residence, Fees)*. By R. Procter Wright. (Philip & Son.)

Excelsior Drawing Books, Familiar Folks (Bacon)—containing twenty-four outline reductions of the figures in Bacon's "Pictures of Familiar Folks."

CORRESPONDENCE.

FRENCH AND ENGLISH.

To the Editor of the Educational Times.

SIR,—In his remarks upon my "Primer" and "French Vocabularies" (page 333), your critic says that the former is "full of tips and neat rules," and that the method of committing vocabularies to memory "may be justified in the case of pupils whose only aim is to pass an examination in the shortest possible time." And he adds: "That, however, is obviously not to learn a language in the true sense of the word, but comes under the head of cramming."

A more unfair criticism upon the "Primer" I could not have seen. There are no tips in the book. "Tip" always implies a tricky way of gaining some advantage—an underhand means undiscovered by the honest worker who is not "in the know," and suggests the quack or the gambler. If clear conjugations and clear rules can be called tips, I plead guilty; but surely no one familiar with the English language would use the word in this sense. But the familiarity of your critic with the English tongue is a point upon which certain doubts may be entertained, as I shall show presently.

As to the "Vocabularies," what is meant by *cramming*? Perhaps your critic has his own ideas on the word; perhaps they are akin to those he owns on the word "tip" and the value of the phrase "so long," to which we are coming. If "cramming" means the getting up of small points that pay, and neglecting important points that do not pay, in examinations, or the forcing indigested and indigestible food, "cramming" is injurious to the cause of education. But I have never heard of a method by which a candidate can be "crammed" for a translation into French prose, or for his irregular verbs, past participles, &c.; and, after many efforts, we have succeeded in getting a "Prose" set in the London Matriculation; and, in all my experience, I have never seen a French examination set, either by colleagues or by myself, in any University or school south of the Tweed, in which "cram" and "cramming" could pay. If, however, by "cramming" is meant compressing the necessary *pabulum*, often made incomprehensible by its exaggerated completeness, into its essential and all-important outlines, making the best use of every minute of the short hours doled out to one's pupils, or getting one's pupils to give their maximum of attention and work, then "cramming" is the ideal that every teacher should set before his eyes. But it is no use hagglng over words. "Cramming" has nowadays a depreciative meaning, and, as such, it is strongly objectionable. We know that for some the passing of an examination is an aim; but the true aim is to make the examination a test of useful knowledge, and it is unseemly to run down examinations or the efforts of those who assist pupils in passing them, and dub them with a word that smacks of underhand, tricky, and uneducational methods.

Moreover, I maintain that to learn a language you must learn a vocabulary, so that your critic's "obviously" is *de trop*. Of course, the best way is to learn passages by heart; but you need the converse test, and you need a book in which the equivalents are set in columns. If texts were published in two one-word columns, down which one could run and test one's knowledge of the equivalent in the other language, the purpose would be served. But one who learns a language must be constantly testing his knowledge of equivalents in order that they should come in handy when he wishes to write or speak. This is not a new method; it is recognized and adopted by all who wish their pupils to make rapid progress, and not dawdle away their year, knowing as much at the end as at the beginning, having advanced no more than a squirrel revolving in its cage.

Now I come to a second point, a very difficult one—that of pronunciation. Of course, pronunciation varies. You can say "ee-ther" or "i-ther"; but there are limits. If you pronounce *cart* like "cat" drawn out, as they do in Norfolk, you stamp yourself as a provincial.

In the "Primer" and "Vocabularies" I give certain rules of pro-

nunciation that I have found of great practical use, the chief of which is that on the *a* or *o*, long or short. The pronunciation of French is, after the rudiments have been mastered, most easy, save for those two vowels which English people always mispronounce. They say *Notre Dame* as if it were spelled *Nôtre Dâine* (probably out of modesty), *plaque* as if the *a* was long, &c.; and, on the other hand, we always say *papier-mâché* as if the *a* was short. This is pure "cussedness," for we, like the Germans, always make the *a*'s and *o*'s long. This being the only real and constant difficulty in the pronunciation of French, I laid a special stress on the point.

Now it is disappointing to see your critic misleading your readers by stating that "the difference in quality between the *a* in *patte* and that in *pas* is not mentioned" (review on the "Primer"). On page 67 I say: "Rule: The *a* and *o* are generally short"; and among the exceptions: "III. *a* is long when it is the last vowel in a word—e.g., *bas*, *jabats* (pronounced *a-bâ*)." On the second line of the page the word *patte* itself is one of the two instances of *a*!

Will you allow me to contradict the other statements on pronunciation, lest they should be taken as correct by the many who read—and believe in the statements of—the *Educational Times*? As I have now the honour of belonging to the College, I feel a particular interest in our work.

1. I maintain *mauvais* pronounced *mö-vê*; the *au* is not long, as it generally is (*au*, *eau*, *chevaux*, &c.).

2. *Automne* and *auberge* should not, as your critic suggests, be placed as exceptions; they are pronounced *ô-tôn*, *ô-berge* only in Marseilles or Italian Switzerland, where *trône* is pronounced *trôn* and *Rhône* *Rôn*.

3. Finally, "in many places" in the "Vocabularies" "the mark to show the length of a vowel is in the wrong place. Thus, the *a* is not long in *parler*, *estomac*, *article*, *barbe*, and many others here printed with *â*."

I maintain that the *a* is long in these words. Of course, it is not as long as in *âge*, *cage*, &c. But in a short, simple, practical book such as the "Vocabularies" are intended to be, I did not go in for minute subdivisions, but chose the two great divisions of "*â* as in *patte*, *masse*," and of "*a* as in *pâte*, *nation*" (page 2). It will be seen that *parler*, &c., were correctly marked.

The other statements are as wrong: "The *o* is long in *port*." The two instances of *ô* given on page 2 are *la rose* and *le flot*. Could any one compare those *ô*'s?

But our friend the critic does not go in for subtleties in distinction, for I see in his *critique* on "La Grammaire" (page 333) "I'll see you again soon" is not a particularly happy rendering of *à bientôt*, for which our nearest equivalent is "So long!" How innocent! The last time I heard "So long!" was in a "variety song," and the words were used by a playful young man in coster clothes to a fascinating damsel at a barrow selling whelks!—Believe me, dear Sir, yours obediently,

VICTOR SPIERS.

ST. GABRIEL'S COLLEGE.

To the Editor of the Educational Times.

SIR,—I shall be grateful if you will give me the opportunity to make it known to your readers that St. Gabriel's Training College for Women Teachers in Elementary Schools begins its work with thirty-two students, the utmost number that can be accommodated in its temporary home. But, as our new buildings, with their much larger accommodation, are to be ready for occupation next year, we are prepared to elect some forty resident students, and an equal number of day students, for admission to the college in September, 1900.

Candidates who wish to sit for admission to St. Gabriel's at the Queen's Scholarship Examination this December must send in their applications before October 1. Those who have qualified, or intend to qualify, for admission by passing one of the University examinations now accepted by the Education Department in lieu of the Queen's Scholarship Examination may apply for admission at any time up to March 25, 1900. But it would be more convenient to us, and safer for them, that they should communicate with us in good time as to their intention. The college prospectus and all necessary forms can be obtained from the Secretary, c.o. Merritt Fox, Esq., 37 St. George's Square, S.W.

We are especially anxious to press upon girls who are just now leaving high schools and colleges the great opportunity for usefulness and the good opening for professional work which elementary teaching offers to them, and the increased facilities for entering the profession which are provided by recent regulations of the Education Department. The crying scarcity of qualified elementary teachers, the national importance of the work, the especial value in it of gifts of culture and refinement and wide education, seem to me to make an almost irresistible appeal to educated young women who still have their field of work to choose, and who want to do good service in their generation. I shall be glad to give information and advice to any such intending candidates, either by letter or personally, if they will call upon me any Monday afternoon between two and five o'clock.

M. E. BISHOP,

Principal of St. Gabriel's College.

MATHEMATICS.

13993. (C. E. HILLYER, M.A.)—AD, BE, CF are the altitudes, H the orthocentre, and I the incentre of a triangle ABC. Prove that the three chords of intersection of the circles AID, BIE, CIE with the incircle meet in the mid-point of IH.

Solution by Professor A. Droz-FARNY and LIONEL E. REAY, B.A.

On sait que
(OH)² = R² - 8R² cos A cos B cos C
= 9R² + 2r² + 8Rr - 2p²,

donc
4R² cos A cos B cos C
= p² - 4R² - r² - 4Rr... (i.),

et
(IH)² = 4R² + 4Rr + 3r² - p².. (ii).

Soit M le point milieu de IH, et représentons par L le second point de coupe de IH avec la circonférence AID. La puissance P de M par rapport au cercle inscrit sera

P = (r + IM)(r - IM)
= r² - 1/4 (IH)².

La puissance P' de M par rapport au cercle AID sera

P' = 1/2 IH (1/2 IH + HL)
= 1/4 (IH)² + 1/2 (IH . HL)
= 1/4 (IH)² + 1/2 (AH . HD) = 1/4 (IH)² + 2R² cos A cos B cos C.

Or, en vertu des formules (i.) et (ii.),

P = P' = 1/4 (p² + r² - 4R² - 4Rr).

La corde d'intersection du cercle inscrit et du cercle AID passe donc par M.

[The rest in Volume.]

14119. (Rev. W. ALLEN WHITWORTH, M.A.)—If out of m cards numbered 1, 2, 3, ..., m we draw n cards at random, the expectation of the lowest drawn is (m+1)/(n+1) and the expectation of the highest is n(m+1)/(n+1).

[COROLLARY.—If n numbers be named at random, the expectation of the highest is n times the expectation of the lowest.]

Solution by H. W. CURJEL, M.A.

The chance that x is the highest number is

(Cn - r-1 Cn) / m Cn;

therefore the expectation of the highest number is

{m Cn - m-1 Cn - m-2 Cn - ... - n Cn} / m Cn
= {(m+1) m Cn - 1 - n+1 - (n+1)(n+2) / 2! - ... - (n+1)(n+2)...m / (m-n)!} / m Cn
= {(m+1) m Cn - m+1 Cn+1} / m Cn
= m+1 - (m+1)/(m+1) = {n(m+1)} / (n+1).

The chance that x is the highest number clearly equals the chance that m+1-x is the lowest; therefore expectation of the lowest is

m+1 - {n(m+1)} / (n+1) = (m+1)/(n+1).

Hence, if the numbers must be all different, the expectation of the highest number is n times the expectation of the lowest, whatever m may be.

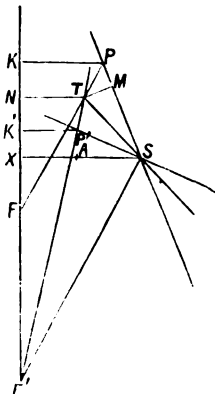
5505. (CHRISTINE LADD.)—If, from two points on the directrix, which subtend a constant angle at the focus, tangents to a conic be drawn, they will intersect on another conic having the same focus and directrix.

Solution by Rev. J. CULLEN.

Let FP and F'P' be two tangents intersecting in T. Draw TM and TN at right angles to SP and FK. Then FS and F'S are at right angles to SP and SP'. Hence angle PSP' = angle FSEF' = constant. Also TS bisects angle PSP', therefore angle TSM = constant; so that SM/ST is given. Also

SM : TN :: SA : SX;

therefore ST = kTN, which proves the proposition.



14105. (Professor CHARRON, F.R.S.)—If u = x² + ax + b, and we put

for shortness the symbol DuD = ω, then

D^n u^n D^n = ω(ω-1.2)(ω-2.3)...{ω-(n-1)n}.

Solution by Rev. J. CULLEN.

It is clearly only necessary to show that

D^n u^n D^n v = D^{n-1} u^{n-1} D^{n-1} {1uD - (n-1)n} v.

where v is any function of x. Now

D^n u^n D^n v = D^{n-1}. D^n u^n v = D^{n-1} {nu^{n-1} Du. D^n v + u^n D^{n+1} v};

also

D^{n-1} u^{n-1} D^{n-1} {DuD - (n-1)n} v = D^{n-1} {u^{n-1} D^n u D v - (n-1)n D^{n-1} v};
= D^{n-1} {u^n D^{n+1} v + nu^{n-1} Du. D^n v + 1/2 (n-1) nu^{n-1} D^2 u D^{n-1} v - (n-1)n D^{n-1} v}
but D^2 u = 2;

therefore, &c.

5276. (Professor EVANS, M.A.)—ABC is a plane triangle, and OA, OB, OC are lines making equal angles with one another. Find the least integral values of BC, CA, AB that will make OA, OB, OC integral.

Solution by the PROPOSER.

Let ABC be the triangle; a, b, c its sides, CO = x, BO = y, AO = z.

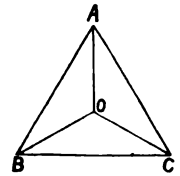
Then a² = x² + xy + y², b² = x² + xz + z², c² = y² + yz + z².

Solving these equations, we get

x = (a² + b² - c² ± 1/2 {12a²b² - 3(a² + b² - c²)²}¹/²)¹/² / [2(a² + b² + c²) ± 2 {12a²b² - 3(a² + b² - c²)²}¹/²]¹/²
y = (a² + c² - b² ± 1/2 {12a²b² - 3(a² + b² - c²)²}¹/²)¹/² / [2(a² + b² + c²) ± 2 {12a²b² - 3(a² + b² - c²)²}¹/²]¹/²
z = (b² + c² - a² ± 1/2 {12a²b² - 3(a² + b² - c²)²}¹/²)¹/² / [2(a² + b² + c²) ± 2 {12a²b² - 3(a² + b² - c²)²}¹/²]¹/²

Let c = (1+n)b, a = (1-n)b; and then, since a² + b² > c², 2-2n+n² > 1+2n+n² or n < 1/2.

Take n = 2/5, and, using the upper sign, we get x = 1/2 * 2/5 b, y = 3/2 * 2/5 b, z = 3/2 * 2/5 b, a = 3/2 * 2/5 b, b = 2/2 * 2/5 b, c = 4/2 * 2/5 b. When b = 455, we have a = 399, b = 455, c = 511, x = 195, y = 264, z = 325.



14004. (ROBERT W. D. CHRISTIE.)—Let N, an integer, consist of p units when p is a prime > 3. Prove (1) N is of form pq + 1; (2) every factor of N is of like form; (3) the sum of the digits of one factor = pv.

Ex. gr. 1111111111 = 21649 x 513239 = (px + 1)(py + 1) and 2 + 1 + 6 + 4 + 9 = 11 x 2.

Show incidentally that the factors of q in (1) can be written down at sight.

Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.

Here N = (10^p - 1) / (10 - 1), and properties (1) and (2), that N = pq + 1 and that every factor of N = pq + 1, have been proved by EULER (see Comment. Arithmet., Petrop., 1849, Vol. i., Mem. vii., Art. 38.) Property (3) is not true in general of the prime factors; e.g.,

(10¹³ - 1) + (10 - 1) = 53.79.265,371,653;

and none of these three prime factors has the sum of digits equal to a multiple of 13. Similarly, it is not true of any prime factor of

(10²⁹ - 1) + (10 - 1).

Lastly, q = 1/p (N - 1) = 1/p (10^p - 1 - 1) = (10^p - 10) / (10 - 1)p = 10 (10^p - 1) / (10 - 1)p, where p = 1/2 (p - 1),

whereby several factors of q are evident [one of (10^p - 1) contains p].

[The PROPOSER remarks as follows:—“The SOLVER says: ‘Property (3) is not true in general of the prime factors, e.g.,

(10¹³ - 1) + (10 - 1) = 53 x 79 x 265,371,653.’

This property was not predicated of the prime factors; but it is in general true nevertheless; e.g.,

111 = 37 x 3 where 1 + 1 + 1 = 3r,
11111 = 41 x 271 where 4 + 1 = 2 + 7 + 1 = 5r,
1111111 = 239 x 4649 where 2 + 3 + 9 = 7r,
1111111111 = 21649 + 513239 where 2 + 1 + 6 + 4 + 9 = 11r;

and, finally, 111111111111 = 79 x 14064697609

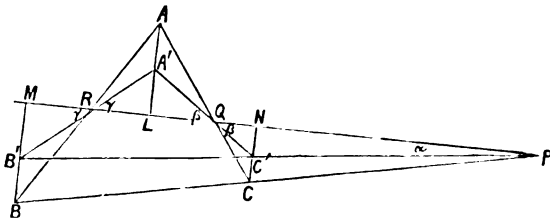
where $1 + 4 + 0 + 6 + 4 + 6 + 9 + 7 + 6 + 0 + 9 = 13r$,
 In exceptional cases where $N = \text{prime}$, then digits of $N = pr$.
 $(10^\omega - 1) \div (10 - 1)$ provides all the factors of q , since
 $N_1 = (10^\omega - 1) \div (10 - 1)$, where ω is some prime of lower order than p ."]

14195. (Professor NEUBERG.)—Soit A'B'C' la projection du triangle ABC sur un plan faisant l'angle ϕ avec le plan ABC. Démontrer que les angles des deux triangles vérifient la relation

$$\cos \phi + \sec \phi = \cot A \cot B' + \cot B \cot C' + \cot C \cot A' + \cot A' \cot B + \cot B' \cot C + \cot C' \cot A.$$

Solution by R. F. DAVIS, M.A.; and F. L. WARD, B.A.

Let ABC be a triangle; PQR a transversal intersecting BC (produced), CA, AB in P, Q, R respectively. Draw AL, BM, CN perpendiculars on PQR; and let A'L : AL = B'M : BM = C'N : CN = $\cos \phi$: 1, so that A'B'C' may be considered the orthogonal projection of ABC.



Obviously the sides of A'B'C' pass through P, Q, R. Denote the angles C'PN, A'QL, B'RM by α, β, γ respectively.

Then $AL^2 - RL \cdot QL = QR \cdot AL \cot \alpha$,
 $AL'^2 - RL \cdot QL = QR \cdot A'L \cot \alpha'$.

Therefore $A'L^2 (\sec^2 \phi - 1) = A'L \cdot QR (\sec \phi \cot \alpha - \cot \alpha')$,
 or $\cot \beta + \cot \gamma = \tan^2 \phi / (\sec \phi \cot \alpha - \cot \alpha')$.

Similarly, $-\cot \gamma + \cot \alpha = \dots$; $-\cot \alpha + \cot \beta = \dots$

Hence $(\sec \phi \cot \alpha - \cot \alpha')^{-1} + \dots + \dots = 0$;

this, when simplified, gives required result, remembering
 $\sum \cot B \cot C = \sum \cot B' \cot C' = 1$.

If $A' = B' = C' = 60^\circ$, we have $\cos \phi + \sec \phi = 2 \cot \omega / \sqrt{3}$, where ω is the BROCARD angle of ABC. This equation is always possible since $\cot \omega > \sqrt{3}$. It is well known that a triangle will be projected into an equilateral triangle when the maximum ellipse inscribed in the first triangle (touching the sides at its middle points) is projected into a circle. Let a, b be the semi-axes of this ellipse; then it can be easily shown that $a^2 + b^2 = (a^2 + b^2 + c^2) / 18 = 2\Delta \cot \omega / 9$, $a\beta = \Delta / 3\sqrt{3}$.

Hence $\cos \phi + \sec \phi = \beta / (a + a/\beta) = 2 \cot \omega / \sqrt{3}$, as before.

This matter has already been discussed (prior to the invasion of the BROCARD geometry) in the *Reprint*, Vol. XXIX., p. 83; Vol. XXXI., pp. 18-21; Vol. XXXVI., p. 64.

14170. (Professor SANJANA, M.A.)—Let Q be the orthocentre of the pedal triangle of ABC; let S, K, T be the circum-, cosine-, and TAYLOR-centres of ABC. Prove that S, K, T, Q are collinear; that T bisects SQ, and that K divides it in the ratio 1 : 1 + 2 cos A cos B cos C.

Solution by R. TUCKER, M.A.

In the Appendix to Vol. xv. of the *Proceedings of the London Mathematical Society* (p. 280, Christmas, 1884), I have shown that the α (trilinear) coordinates of Q (my J) and T (my ω) are respectively

$$-R \cos 2A \cos (B - C) \text{ and } R \{ \cos A - \cos 2A \cos (B - C) \} / 2,$$

and that these points lie on the circum-Brocardal axis. (See also MILNE'S *Companion*, p. 145, and CASEY'S *Sequel*, 5th edition, p. 241.) It is at once seen that T is mid-point of SQ. For the last property, see MILNE (l.c., p. 145, Quest. 6, by Mr. R. F. DAVIS).

14181. (H. MACCOLL, B.A.)—Let A and B be two events which are not mutually independent. Show that, if the dependence of A upon B is equal to the dependence of B upon A, then the chance of A happening is equal to the chance of B happening. *Definitions.*—The fractional symbol a/β (when a and β are statements) denotes the chance that a is true on the assumption that β is true; the symbol a/e denotes simply the chance that a is true, nothing being taken for granted but the data of the problem. The symbol $\delta a/\beta$ denotes $a/\beta - a/e$, and is called the dependence of a upon β , or of the event A, asserted by a , upon the event B, asserted by β .

Solution by the PROPOSER.

Let the letter z as exponent convert any expression ϕ affected by it into a statement which asserts that ϕ is zero. Thus, $(x - y)^z$ asserts that $x = y$.

The colon symbol (:) is short for the word implies. Let $a = \frac{A}{\epsilon}$, and let $b = \frac{B}{\epsilon}$. We have to prove

$$\left(\delta \frac{A}{B} - \delta \frac{B}{A} \right)^z : (a - b)^z.$$

Assuming the easily proved formulae $\frac{A}{B} = \frac{a}{b} \cdot \frac{B}{A}$ and $\delta \frac{A}{B} = \frac{a}{b} \delta \frac{B}{A}$,

we get $\left(\delta \frac{A}{B} - \delta \frac{B}{A} \right)^z : \left(\frac{a}{b} \delta \frac{B}{A} - \delta \frac{B}{A} \right)^z : \left(a \delta \frac{B}{A} - b \delta \frac{B}{A} \right)^z$
 $: \left\{ (a - b) \delta \frac{B}{A} \right\}^z : (a - b)^z.$

for $\delta \frac{B}{A}$ cannot be zero, since, by hypothesis, A and B are not independent. Hence, finally, $\left(\delta \frac{A}{B} - \frac{B}{A} \right)^z : (a - b)^z.$

[The rest in Vol.]

14243. (G. H. HARDY, B.A.)—If p, m are integers, $p > m$, then, if m is odd,

$$\int_0^\pi x \cos px \sin^m x dx = (-1)^{\frac{1}{2}[m+(-1)^m]} \left\{ \frac{m! \pi}{(\rho^2 - 1^2)(\rho^2 - 3^2) \dots (\rho^2 - m^2)} \right\};$$

and, if m is even,

$$\int_0^\pi x \sin px \sin^m x dx = (-1)^{\frac{1}{2}[m+1+(-1)^m]} \left\{ \frac{m! \pi}{\rho \cdot (\rho^2 - 2^2)(\rho^2 - 4^2) \dots (\rho^2 - m^2)} \right\}.$$

Solution by J. H. DINN, B.Sc.

We know that $\int_0^\pi \sin px \sin^m x dx$ vanishes when m is odd, and

$\int_0^\pi \cos px \sin^m x \cos x dx$, when m is even. Let $f(m)$ denote

$$\int_0^\pi x \cos px \sin^m x dx.$$

Then, integrating by parts, we get

$$f(m) = -\frac{1}{p} \int_0^\pi \sin px (\sin^m x + mx \sin^{m-1} x \cos x) dx$$

$$= -\frac{m}{p} \int_0^\pi x \sin^{m-1} x \cos x \sin px dx.$$

Again integrating by parts,

$$f(m) = -\frac{m}{p^2} \int_0^\pi \cos px \{ \sin^{m-1} x \cos x + (m-1) x \sin^{m-2} x - mx \sin^m x \} dx$$

$$= -\frac{m(m-1)}{p^2} f(m-2) + \frac{m^2}{p^2} f(m);$$

therefore $f(m) = -\frac{m(m-1)}{p^2 - m^2} f(m-2)$

$$= (-1)^{\frac{1}{2}(m-1)} \frac{m(m-1) \dots 2}{(\rho^2 - m^2) \{ \rho^2 - (m-2)^2 \} \dots (\rho^2 - 3^2)} f(1).$$

[The rest in Volume.]

14168. (The late Professor WOLSTENHOLME, D.Sc.)—Given a quadric ($u = 0$) and two fixed points O, O', S, S' denote the plane sections of u by the polar planes of O, O'; prove that, if any straight line through O meet the quadric in points P, P', the two cones whose vertices are P, P' and base the plane section S' will intersect in a second plane section whose locus is the quadric ($v = 0$) containing S, S', and such that O is the pole of S', and O' the pole of S. No also, if QQ' be any chord of u passing through O', the locus of the second plane of intersection of the cones whose vertices are Q, Q' and base S is the same quadric.

Solution by Rev. J. CULLEN.

Let $u \equiv Ax^2 + By^2 + Cz^2 - 1 = 0$, O (x', y', z'), O' (x'', y'', z''), P (α, β, γ) and P' (α', β', γ'). Then

$$S \equiv \Sigma Ax'x' - 1 = 0, \quad S' \equiv \Sigma Ax''x'' - 1 = 0.$$

Also u and S' may be written in the forms

$$u = \Sigma A(x - \alpha)^2 + 2\Sigma A(x - \alpha)\alpha = 0, \quad S' \equiv \Sigma A(x - \alpha)x'' + \Sigma A\alpha x'' - 1 = 0.$$

Therefore the cone having P for the vertex and S' for the base is

$$\Sigma A(x - \alpha)^2 (\Sigma Ax'' - 1) - 2\Sigma A(x - \alpha)x'' \Sigma A(x - \alpha)\alpha = 0,$$

or

$$u (\Sigma Ax'' - 1) - 2S' (\Sigma A\alpha x - 1) = 0 \dots \dots \dots (1).$$

In like manner the cone having P' for the vertex and the same base is

$$u (\Sigma A\alpha'x' - 1) - 2S' (\Sigma A\alpha'x' - 1) = 0 \dots \dots \dots (2);$$

whence we easily find the second plane of intersection to be

$$(\Sigma Ax'x'' - 1)(\Sigma A\alpha x - 1) - S (\Sigma A\alpha x'' - 1) = 0 \dots \dots \dots (3).$$

Therefore from (1) and (3), we have $v = uk - 2SS' = 0$, where $k = 0$ is the condition that O (or O') should lie on S' (or S).

Hence v clearly contains S and S', and, forming the polar plane in the ordinary manner, we see that O is the pole of S', and O' that of S.

[The rest in Volume.]

QUESTIONS FOR SOLUTION.

14333. (Professor G. B. MATHEWS, M.A.)—The six quantities a, b, c, f, g, h are given. Writing, as usual, A, B, C, F, G, H for the minors of the determinant

$$\begin{vmatrix} a & h & g \\ h & b & f \\ g & f & c \end{vmatrix},$$

it is required to find all the values of $a', b', c', f', g', h', \alpha, \beta, \gamma, \delta$ which satisfy

$$\begin{aligned} Aa' + Hh' + Gg' &= \alpha^2, & Hh' + Bb' + Ff' &= 2\alpha\gamma, & Gg' + Ff' + Cc' &= \gamma^2, \\ Ah' + Hh' + Gg' &= \alpha\beta, & Hh' + Bb' + Ff' &= \alpha\delta + \beta\gamma, & Gg' + Ff' + Cc' &= \gamma\delta, \\ Ag' + Hh' + Gg' &= \beta^2, & Hh' + Bb' + Ff' &= 2\beta\delta, & Gg' + Ff' + Cc' &= \delta^2, \end{aligned}$$

$$\alpha\delta - \beta\gamma = 1;$$

and, in particular, to discuss the condition that the solution may be indeterminate.

14334. (Professor NEUBERG.)—Enveloppe des paraboles qui ont même foyer F et dont le sommet parcourt une droite. Construire le point de contact de l'une des paraboles avec son enveloppe.

14335. (Professor E. J. NANSON.)—The congruence determined by $x = f + lr, y = g + mr, z = h + nr$, where f, g, h, l, m, n are functions of p, q and l, m, n are direction cosines, is orthogonal if

$$\frac{\partial(f, l)}{\partial(p, q)} + \frac{\partial(g, m)}{\partial(p, q)} + \frac{\partial(h, n)}{\partial(p, q)} = 0.$$

14336. (Professor COCHEZ.)—Lieu des points d'où l'on peut mener à la parabole trois normales dont l'une est bissectrice de l'angle des deux autres.

14337. (Professor S. SIMCOM, M.A.)—Draw the stream lines for liquid flowing in the direction of OY past the cylinder whose right section is $2x\{(x^2 + y^2)^2 - a^2(x^2 - 3y^2)\} = 3\sqrt{3}a\{(x^2 + y^2)^2 - 2a^2(x^2 - y^2) + a^4\}$ on the side of the curve remote from the nodal portion.

14338. (Professor SANJANA, M.A.)—In Quest. 14110 denote $(2e-1)a^2 + b^2 + c^2$ by a_1 ; take b_1, c_1 similarly; call e the ratio of the TUCKER circle, and let $\lambda = (1-e)\tan\omega$. Then prove that (1) the equation of the TUCKER circle (whose ratio is e) $XX'YY'ZZ'$ is

$\beta\gamma/bc + \gamma\alpha/ca + \alpha\beta/ab - (\alpha/a + \beta/b + \gamma/c)(1-e)\tan\omega + (1-e)^2 \tan^2\omega = 0$, or $(\alpha - a\lambda)(\beta - b\lambda)(\gamma - c\lambda) = \alpha\beta\gamma$; (2) the envelope of this circle, as its ratio varies, is $\alpha^2/a^2 + \beta^2/b^2 + \gamma^2/c^2 - 2\alpha\beta/ab - 2\beta\gamma/bc - 2\gamma\alpha/ca = 0$, or $\sqrt{(\alpha/a) + \sqrt{(\beta/b) + \sqrt{(\gamma/c)}} = 0$, the BROCARD ellipse; (3) the radical axis of two TUCKER circles of ratios f and g is $\alpha/a + \beta/b + \gamma/c = (2-f-g)\tan\omega$, so that the radical axis of the TUCKER circle e with itself is $\alpha/a + \beta/b + \gamma/c = 2\lambda$, which is also its chord of double contact with the envelope; (4) the radical axis of the TUCKER circle e and the circumcircle is $\alpha/a + \beta/b + \gamma/c = \lambda$, and the chord of contact of the circumcircle with the BROCARD ellipse is the LEMOINE line; (5) if $f+g = \text{constant} = 1+e$, the varying TUCKER circles f and g have a fixed radical axis, which is the radical axis of the circumcircle and the fixed TUCKER circle whose ratio is e ; (6) if $f+g = 2\sin^2\omega$, the varying TUCKER circles f and g are of equal area; (7) the polar of the symmedian point with regard to the circle e is $\alpha/a + \beta/b + \gamma/c = (4e-1)/(2e)\lambda$, and, if $fg = \frac{1}{4}$, the varying TUCKER circles f and g have the same polar for this point; (8) the radical centre of the circles round AYZ, ABC , and the TUCKER circle, lies on BC , the radical axis of the first two being $\beta^2/b_1 + \gamma^2/c_1 = 0$; so also for $BZ'X, CX'Y$; and these three radical centres, on BC, CA, AB respectively, are situated on the line $(\alpha a_1)/a + (\beta b_1)/b + (\gamma c_1)/c = 0$; and (9) the radical centre of the circles round $AYZ, BZ'X, CX'Y$ is the point $\alpha/(b_1c_1 \cos A) = \beta/(c_1a_1 \cos B) = \gamma/(a_1b_1 \cos C)$, which lies on the curve

$\beta\gamma \sin 2A \sin(B-C) + \gamma\alpha \sin 2B \sin(C-A) + \alpha\beta \sin 2C \sin(A-B) = 0$, that circum-hyperbola of ABC which is the isogonal transformation of EULER'S line. [The last result has been obtained by Rev. J. CULLEN in Quest. 13921.]

14339. (Professor U. C. GHOSH.)—A particle of mass m is suspended by a fine inelastic string of length a , fastened to a fixed point A. It is attached to another string which passes through a small ring at O (whose perpendicular distance from the vertical through A is b), and carries a mass m' at the other end. Prove that, if the particle m is let go when it is vertically below A, (1) its velocity, when the string to which it is attached has described an angle θ , is

$$\left\{ \frac{2g[m'(b - (b^2 + 4a^2 \sin^2 \frac{1}{2}\theta - 2ab \sin \theta)^{\frac{1}{2}}) - ma(1 - \cos \theta)]}{m + \frac{m'(a \sin \theta - b \cos \theta)^2}{b^2 + 4a^2 \sin^2 \frac{1}{2}\theta - 2ab \sin \theta}} \right\}^{\frac{1}{2}};$$

(2) just at the instant when particle m' crosses the line AO, m' has no velocity, and that of m is

$$(2g)^{\frac{1}{2}} \left[\frac{m'}{m} \{b + a - (a^2 + b^2)\} - a \{1 - a/(a^2 + b^2)\} \right];$$

(3) if v and v' be the velocities of particles m and m' at any instant,

$$v' = \frac{a \sin \theta - b \cos \theta}{(b^2 + 4a^2 \sin^2 \frac{1}{2}\theta - 2ab \sin \theta)^{\frac{1}{2}}} v.$$

14340. (D. BIDDLE.)—All cubic equations of form $x^3 + qx + r = 0$, where q is a minus quantity, are capable of transformation into

$y^3 - ay - a = 0$, by taking $y = (q/r)x$. CARDAN'S method solves such when $a < 6\frac{1}{2}$. Show that it is only needful to find a method of solving those in which a lies between $6\frac{1}{2}$ and $13\frac{1}{2}$ to enable us to solve all.

14341. (J. A. THIRD, M.A.)—K is a conic circumscribed to the triangle of reference and passing through the centroid; K' is another conic passing through the mid-points of the sides and touching K at the centroid; P is the centre of a conic which touches the sides at points which connect with the opposite vertices through a point on K; Q is the point of concurrence of lines drawn from the vertices to meet the opposite sides at points where these sides are touched by a conic whose centre lies on K'. Show that PQ touches K and K' at the centroid.

14342. (R. F. DAVIS, M.A.)—Let ABC be a triangle; and BY, CZ perpendiculars upon the internal bisector of the vertical angle A. Draw any straight line QR parallel to the base BC, meeting CA, AB in Q, R respectively. Join QZ, RY meeting in P. It is required to show that the circumcircle of the variable triangle PQR touches the incircle of the triangle ABC, and also the excircle opposite to A. [This most interesting property is due to Mr. C. E. M'VICHER, M.A., and includes, as a particular case, FEUERBACH'S theorem.]

14343. (W. C. STANHAM, B.A.)—A', B', C' being respectively the images, by reflection, of the angular points of a triangle ABC with respect to the opposite sides, x the area of ABC, a_1 the area of A'B'C', $4m$ the sum of the squares of the sides of A'B'C', and $16n^2$ the product of these squares, show that x is given by the equation

$$16x^3(16x^2 - 2a_1x - a_1^2)^2 = (8mx^2 - 4ma_1x + m^2)(24m^2x^3 + 4ma_1x^2 - 5n^2x - n^3a_1),$$

and that, when x is known, A, B, C can be completely determined.

14344. (J. J. BARNVILLE, B.A.)—Having $u_{n-1} + u_{n+1} = 4u_n$, prove

that

$$\begin{aligned} \frac{1}{1+1} + \frac{1}{3+1} + \frac{1}{11+1} + \frac{1}{41+1} + \dots &= \frac{\sqrt{3}}{2}, \\ \frac{1}{1+3} + \frac{1}{3+3} + \frac{1}{11+3} + \frac{1}{41+3} + \dots &= \frac{3\sqrt{3}}{10}, \\ \frac{1}{1+11} + \frac{1}{3+11} + \frac{1}{11+11} + \frac{1}{41+11} + \dots &= \frac{5\sqrt{3}}{38}, \\ \frac{1}{2+\sqrt{6}} + \frac{1}{4+\sqrt{6}} + \frac{1}{14+\sqrt{6}} + \dots &= \frac{\sqrt{2-1}}{\sqrt{3-1}}, \\ \frac{1}{1+2} - \frac{1}{2+2} + \frac{1}{7+2} - \frac{1}{26+2} + \dots &= \frac{1}{6}, \\ \frac{1}{1+1} - \frac{1}{5-1} + \frac{1}{19+1} - \frac{1}{91-1} + \dots &= \frac{1}{2\sqrt{3}}. \end{aligned}$$

14345. (ROBERT W. D. CHRISTIE.)—In FERMAT'S theorem $x^{p-1} - 1 = pq$ when p is prime, prove that the value of q in terms of p

$$\text{when } x = 2 \text{ is } q \equiv \left\{ 2^{p-3} - \frac{p-3}{2!} \cdot 2^{p-5} + \frac{p-4}{3!} \cdot 2^{p-7} - \dots \right\},$$

and generalize the theorem for all values of x .

14346. (I. ARNOLD.)—A cone of marble, the axis of which is 20 feet and the base diameter 6 feet, stands on the edge of its base, the axis making an angle of 60° with the horizon. What power acting vertically at the top of the cone will sustain it? What will be the direction and intensity of the least force that will keep it in equilibrium, and what inclined position will the cone be in when the sustaining force is a minimum?

14347. (R. KNOWLER.)—Normals to a parabola at P and Q meet in R. Prove that, when R is on the curve, (1) the sum of the ordinates of the poles of PQ, PR, and QR is zero; (2) if PR meets the axis in M, and O is the point on PR through which pass all chords which subtend a right angle at P, the diameter through the mid-point of RQ bisects OM.

14348. (JAMES S. LAWSON.)—Show how to construct a square which shall have two adjacent sides passing through two given points, and the intersection of the diagonals at a third given point. Show that there are generally two solutions.

14349. (SALUTATION.)—A rectangular card lies concealed between the pages of a book, but is so placed that three of its corners are on the inner, outer, and lower edges of the book respectively. The inner corner being used as a fixed centre, the outer corner is wheeled round until it again coincides with the outer edge of the book, when the fourth corner is found on the upper edge. The pages being a by b inches, and the distance between the two positions of the outer corner of the card being $2c$ inches, find the dimensions of the card, and state the necessary limits of the values given.

14350. (Professor N. BHATTACHARYYA.)—If a quadrilateral that is complete can be circumscribed about a circle, prove that the line of collinearity of the middle points of the diagonals passes through the centre of the circle.

14351. (Rev. T. MITCHESON, B.A.)—Show that the sums of the series $\sum \sin n\beta$ and $\sum \cos n\beta$, when carried to $\frac{1}{2}(n-2)$ terms, are equal, n being even and $n\beta = \pi$.

14352. (J. GILBERT SMYLY, M.A.)—(a) A hyperbola H of fixed eccentricity e passes through three given points A, B, C ; through A, B, C are drawn two parabolas having their axes parallel to the asymptotes of H : prove that the locus of the fourth point of intersection of the parabolas is a trinodal circular quartic, and find the position of its double focus. (b) If, instead of parabolas, two hyperbolas of given eccentricity e' be drawn passing through A, B, C , and each through one of the points at infinity on H , find the locus of their fourth point of intersection. (c) If A, B, C be three points on a fixed hyperbola H , and two hyperbolas H_1, H_2 of eccentricity e be drawn passing through A, B, C , and each through one of the points at infinity on H , the locus, when e varies, of the fourth point of intersection of H_1, H_2 is a rectangular hyperbola whose asymptotes are parallel to the bisectors of the angles between the asymptotes of H .

14353. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Find a sum of successive odd cubes (all > 1) equal to a square. [This is a continuation of Quest. 14133; the latter part of the PROPOSER'S solution of Quest. 14133 (*Educational Times* of Aug. 1, 1899, p. 335), restricting the possible solutions to series of cubes starting from 1^3 , was erroneous.]

14354. (H. W. CURJEL, M.A.)—If the ordinate of a point P on an ellipse cuts the auxiliary circle in Q , the distance of the focus S from the tangent at $Q = SP$.

14355. (Rev. J. CULLEN.)—Find forms of ϕ and ψ such that $(\sin^2 \theta d\theta)^n \phi(m, \theta) = \phi(m+n, \theta)$, $(\cos^2 \theta d\theta)^{2n} \psi(m, \theta) = \psi(m+2n, \theta)$.

14356. (R. ARCHIBALD, M.A.)—Trace, and discuss the quadrature, rectification, curvature, &c., of the curve

$$\theta = \sin^{-1} r/a + \log r/\sqrt{(a^2 - r^2) + a},$$

which, if it roll on the cardioid $r = 2a(1 + \cos \theta)$, always has its pole at a fixed distance a from that of the cardioid.

14357. (Professor LANGHORNE ORCHARD, M.A., B.Sc.)—From the simultaneous equations

$$x - y - n^2 = n + y, \quad 5x - 3n^4 - 2n^2 = 6n^3 - n - 2y,$$

express x and y each as a series.

14358. (H. J. WOODALL, A.R.C.S.)—Take a common dinner serviette ring and place it edgewise on the table, stroke the near side from the top downwards with the finger, when the ring will "roll" away and then almost immediately return. Required a mathematical solution. (An explanation in ordinary language is very easy, viz., that the first "roll" is against the friction between the ring and the cloth, and then, when the forward momentum is overcome by that friction, the ring rolls back by reason of the angular momentum.)

14359. (W. H. SALMON, B.A.)—Evaluate

$$\int \frac{d\phi}{\sqrt{(\cos 2\phi) \cos(\phi - \alpha)}}$$

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$$p = (2/\pi) \cos^{-1} \left\{ \frac{1}{2} \sqrt{2(\sqrt{5}-1)} \right\}.$$

6131. (CHRISTINE LADD.)—Determine a square, having given the sides and one diagonal of a trapezium inscribed therein.

6137. (Dr. HART.)—Describe a conic which shall pass through the four vertices of a given parallelogram, and touch a given conic concentric with the parallelogram.

6144. (C. TAYLOR, M.A.)—If a triangle be circumscribed to a pair of confocal ellipses, prove that the confocal hyperbola through any vertex of the triangle passes through the point of contact of its opposite side.

6150. (H. W. HARRIS, S.T.C.D.)—In the *Quarterly Journal of Mathematics*, Vol. I., Prof. CAYLEY has discussed the locus of the vertex of a triangle circumscribing a given conic and whose vertices move on given curves. In the case of the curves being both conics, the locus is of the eighth degree. Show that, in the case of all three curves being parabolas inscribed in the same triangle, the locus will reduce to a conic; and show how this last is related to the other three.

6152. (A. MARTIN, M.A.)—Find the radii of three equal circles inscribed in a given ellipse, each circle touching the other two and the circumference of the ellipse.

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The Educational Times.

Colleges and Endowments.

THE removal of Westminster College from Queen Square, London, to Cambridge, is an event of some interest, not merely confined to the world of theological students. The new college affords residential accommodation for twenty-six University graduates who desire to study theology, and is chiefly intended for the future ministers of the English Presbyterian body. It was formally opened on October 17, and, although it has cost the great sum of £40,000, including site, furnishing, and the laying out of the grounds, it was opened entirely free from debt. This event may be regarded in two aspects. It induces the reflection that Universities now fully perform their proper function, and open their gates to the sects. It would be a task of some difficulty to find a college of ancient date which has not elaborate provisions for securing its benefits to all comers, and particularly to poor scholars. Indeed, in some colleges "the gentleman commoner" was an afterthought introduced to effect an improvement in the college finances. In the matter of affiliation to the older Universities, of sharing in their culture, their privileges, and the advantages of association with men of high aims, devoted to special and varied fields of work, the English sects show a strong contrast with their Roman Catholic brethren in Ireland. The latter demand seclusion and a University all to themselves. It is not difficult to foresee which policy will be most fruitful for the advancement of learning.

The second reflection which presents itself on the opening of New Westminster College is that a fourth of the sum named has been the donation of the twin sisters Mrs. A. S. Lewis and Mrs. Gibson. The former lady, known in literary circles as Miss Agnes Smith before her marriage, is the fortunate discoverer of the "Codex Lewisianus," one of the oldest versions of the Gospels extant in any language. Mrs. Lewis discovered the palimpsest in the Convent of Mount Sinai. The fourth century is the date assigned to it, but some notable authorities believe it to be earlier. It has been suggested in some quarters that at a time when almost every woman's college in the country requires extension, refurnishing, better payment for its staff, and, in some cases, entire rebuilding, the money might have been spent on women's educational institutions. But, at

least, the Council of Westminster College has no cause to complain of the handsome gifts of Mrs. Lewis and Mrs. Gibson.

The state of the women's colleges, with the almost single exception of Holloway, which is not yet full, may be summarized by the dictum, "Let us pull down our barns and build greater." Girton needs £50,000 for extensions, but intends to pare down its needs to £30,000. Newnham, despite its three halls, is quite full, and desires to build. Bedford College moves always with extreme caution, and collects money, or, at least, receives promises, before doing anything. Although it has extended on every side, it could easily do with more money. A large part of the Government subsidy which was recently granted to the college was immediately absorbed in increasing the salaries of a somewhat underpaid staff. The same need of money exists in the women's colleges at Oxford. Alexandra College, Dublin, is at the present moment in all the miseries of rebuilding, whilst its classes and lectures are still proceeding. It wants £7,000. The London School of Medicine for Women is also rebuilding. It opened in July, 1898, a building that cost £10,000. The Handel Street wing, to be opened this month, is to cost £8,000. When the third wing is completed, the whole cost of the operations will be about £30,000. It is not astonishing, therefore, that women are looking about for a Margaret Beaufort to build and endow their institutions. Perhaps, in fairness, they ought to look to the other sex.

NOTES.

THE Church Congress very naturally discussed the religious education question. Those, however, among both clergy and laity, who hoped for definite counsel to assist them towards a solution of the problem must have been disappointed. The hope which we expressed last month, that a spirit of reasonableness would pervade the discussion, has been fulfilled. Mr. Horsfall, to establish the gravity of the subject, maintained, as is now usual, that the increase of crime in France and the United States is attributable to the absence of religious instruction in the schools of those countries; and Mr. Holiday, while fully recognizing the rights of Nonconformists to consideration, strenuously insisted on the necessity of the Church being enabled to give her own teaching fully and fearlessly to her own children. Criticism antagonistic to the present system was plentiful; but, as we anticipated, few practical suggestions were

made. Mr. Bell, of Marlborough, in the paper which we print this month, admits that the Church of England could not hope to be represented directly on the Local Authorities to be hereafter constituted for Secondary Education; but he conceives it possible by some legislative means to prevent such Authorities from taking up a position detrimental to religious education.

PROF. LODGE, who succeeded Prof. Prothero in the Chair of History at Edinburgh University, gave his inaugural lecture on October 17. He complained of the comparative neglect of history in our elementary and secondary schools. The force of the complaint depends on what one understands by a neglect of history. There is no lack of good text-books, and it is sufficient for most boys and girls in elementary and secondary schools to have read their books carefully, with a view to being tested in them. If a student is to specialize in history, he must be taken into a form, or a school, the master of which is an expert in that subject. Prof. Lodge went on to say:

There were two distinct schools or parties, whose aims or methods appeared at first sight to be quite distinct, and who occupied separate and almost hostile camps. The one looked at history from the point of view of the finished product, and sought to use it as a means of education; the other looked at it from the point of view of the raw material and the sources from which history was drawn, its aim being not so much to produce well educated and intelligent men and women as to train students and researchers.

Again, it seems to be a question of specializing. Any subject may be read, or read about, for the sake of an educative effect upon the mind, or it may be studied with greater application with a view to research or teaching, invention or reproduction.

QUEEN'S COLLEGE, BIRMINGHAM, is *in extremis*, but only, perhaps, as the phoenix is *in extremis* when he has lighted his funeral pyre. The Bishop of Worcester held a visitation of the College last Monday, and his decision will be awaited with curiosity. There was a somewhat stormy meeting of the governors on October 17, presided over by the Bishop of Coventry, who seems to have been more outspoken and critical than the majority of his colleagues liked. After formally presenting the year's report, which showed an excess of expenditure over income, in spite of extensive sublettings of the premises, he regretted to say that—

The report contained no encouraging features at all. His own feeling was that the report did not disclose the whole situation. That opinion he expressed at the Council meeting, but he was overruled, and, therefore, he simply presented the report officially as chairman. At the Council meeting he moved a resolution to the effect that there should be a more clear statement on certain points, so as to show exactly how matters stood; but, that proposal having been rejected, it was for the governors and for the public to form their own judgment upon the report. The admissions in successive years were as follows:—1886, 21; 1887, 9; 1888, 11; 1889, 8; 1890, 11; 1891, 11. The bishop's examinations commenced in 1892, and from that time the number of students has been declining.

It is fatally easy to decline from eleven, after persistently declining to eleven. It remains to be seen what will come of the Bishop's visitation.

Most people who think and care about the matter at all are convinced that the education of our country children is somehow or other defective. But a difference of opinion shows itself when it comes to giving

reasons for the present unsatisfactory state of affairs and suggesting remedies. It has been said that the elementary school does little more than give a path of escape from a rural to a town life. Largely owing to inadequacy of the teaching staff, the low percentage of attendance, and the early age of leaving school, the children in our rural areas are beginning life in the world with an absurdly small stock of general knowledge, and with no adequate technical training for their special work as agriculturists. There is the problem of child labour in summer time, and the question of special arrangements to meet this special condition of affairs; and now an Agricultural Education Committee has been formed to deal with the matter on new lines. At its first meeting, held a few days since, there was a helpful discussion on the necessity for training elementary and other teachers in subjects bearing upon agriculture, the desirability of making the elementary branches of natural science compulsory in rural schools, and the steps to be taken to secure the provision of facilities for higher agricultural education by all County Authorities.

WE welcome the formation of this new Committee, and sympathize with its desire to make rural education serve more directly the ends of rural life, and to give the children a more specialized preparation for their future work. It is quite true, as Mr. Macnamara has pointed out, that at the present time our rural schools are suffering so keenly from want of funds that they are shamefully understaffed and inadequately equipped with teaching apparatus. The teachers are already overwhelmed by the amount of work required of them, and one man has often to teach four or five standards at once, or with the aid of a young and unqualified pupil-teacher. The teacher cannot possibly undertake more subjects, nor can the curriculum be further extended. "Our appeal to Sir W. Hart Dyke," says Mr. Macnamara, "is to press upon the Government, as the very first preliminary to any revision of the curriculum of the village school, the absolute necessity to secure for it more money. Without this it will simply be superlative folly to push forward with the *doctrinaire* idea that school gardens and practical agriculture can be made to flourish into prosperous existence by a mere minute of the Committee of Council." We can well understand Mr. Macnamara's solicitude; but he does not seem to perceive that the reasonable demands put forward by Mr. Hobhouse and his friends will help as much as anything else to secure better provision for the rural schools.

THERE is some talk of a preparatory school for the elementary education of candidates for the Wesleyan ministry. At any rate, the *Methodist Times*, commenting on the meeting of a Conference Committee, appointed to consider the state of the Wesleyan Theological Colleges, says that it is impossible to read without distress the curriculum of these colleges.

There was a great deal of sympathy with the suggestion of Dr. Vinter that the difficulty of dealing with the large number of illiterates who enter our ministry would be met if one of the colleges was made a preparatory college. Those whose knowledge is very elementary might be sent there for one year, or even for two years, in order that they might receive the instruction needed to pass a suitable entrance examination for the colleges. Young laymen might be employed to give that elementary education upon which our most accomplished scholars now waste their time.

Our contemporary urges the necessity of giving to Wesleyan ministers "a theological education which will keep the pulpit abreast of the pew." It would certainly seem to be desirable.

ACCORDING to Mr. Alexander Sutherland, in his interesting article in the *Nineteenth Century* for October, there can be no such thing as an excess of genuine education. In spite of recent improvements in education, he maintains there is still too much information, and too little cultivation of the reasoning faculty. The natural result of "fact cramming" is to develop self-assertion in the pupils, "while the education of ideas ought to make them broad-mindedly competent." Our readers have read something like this before, and are prepared to accept the statement. The fault is not so much that of the system as of the dearth of training and of thinking teachers to carry out existing systems in a reasonable manner. The heart of education is the schoolmaster's head; and, if future developments make this sound, evil systems will soon die a natural death. Mr. Sutherland, with much sense, bids us not fear that education will deprive us of our working classes; for, if science is abolishing occupations at the lower end of the scale, she is constantly creating new ones at the upper.

MR. SUTHERLAND says that, as a rule, candidates in examinations spell and write fairly well, but he gives one amusing instance to the contrary:—"Question: 'Why did Henry VIII. divorce Catherine of Aragon?' Answer: 'Because he wanted an air.' Being doubtful of the spelling of the last word, the examinee struck it out and wrote 'hair.' Finding this, too, unsatisfactory, he substituted for it the novel word 'hier'; but, being still very doubtful, struck out the whole sentence, and to be perfectly safe wrote: 'Because he wanted a mail child.'"

IN spite of the long array of Outlanders' grievances contained in Mr. Chamberlain's three-hour speech on Mr Stanhope's amendment to the Address, he made no mention of the education difficulty. It is, however, one whose existence has never been questioned, and, while not affecting the wealthier inhabitants of the Rand, must have been the source of considerable irritation to the English-speaking working classes. In the schools receiving State grants, for which the Outlanders are taxed, no language other than Dutch may be used in classes higher than that which corresponds to the fourth standard in English elementary schools. Having granted the fullest measure of facilities for learning their language to French Canadians in the schools of Quebec, we may well feel some moral indignation at the lack of sympathy shown by the Boer Government in this respect. Perhaps, however, the philosophical view is to regard such a policy as a justifiable effort of self-preservation; although we hope that, when peace again prevails, more reasonable educational arrangements may be made.

SUMMARY.

THE MONTH.

A MEETING of Convocation of London University was held on October 10. Mr. E. H. Busk in the chair. The chief business was the reception and adoption of a report from a Special Committee appointed on June 27 to make representations to, and to confer with, the Commissioners appointed to draft the Statutes of the reconstituted University, in order that the interests of the graduates of the present University should not suffer under the new regulations. Discussion arose on the proposal of the Committee that teaching in the theory and practice of education

should be given in the Faculty of Arts, which was objected to by some graduates as inadequate. A motion referring the discussion of this point back to the Committee was lost, and the recommendation to the Commissioners accordingly reads: "That this subject (the Art or Profession of Teaching) should find its place as a branch of the Faculty of Arts." Some teachers interested in the matter will avail themselves of Section 4 of the Act, by which any fifty graduates of the University may make direct representations to the Commissioners. A proposal to this effect will be found in our correspondence columns.

A MEETING of the Court of Governors of Owens College was held at Manchester on October 4. The report of the Council stated that the adverse balance remaining on the new medical school buildings amounted to £21,978, and that the Council had no funds in hand for reducing it. It was also reported that a hall of residence for women would be opened this session at Ashburne House, Victoria Park, and ten students had already entered. Sir U. Kay-Shuttleworth moved:

That, subject to such limitations and conditions as the Council may from time to time determine, and subject to the Council being able to make satisfactory provision for a separate instruction in such cases as the Council consider necessary, the Court is of opinion that it would be desirable to admit women students to the course of study which would qualify them for medical degrees and practice.

Dr. Ward seconded the resolution, which was carried by 21 votes to 2, the dissentients being Mr. Kenyon, M.P., and Dr. Thorburn.

ON October 5 Lord Reay made his annual statement as Chairman of the London School Board. In the course of his remarks, Lord Reay said:

It had been a cause of great satisfaction to him to see that the work of the Board met with recognition even from those who were rather inclined to look upon School Boards as a necessary evil. It was only in quarters which were innocent of all knowledge of their work that they heard of the evil influence on children of their system of education. The results of the examination in Scriptural Knowledge were a complete answer to those who alleged that they neglected religious instruction, an allegation which was quite as unfounded as the contention that ruffianism in certain districts of London was due to their mode of teaching! Both assertions were calumnies. Prejudices died hard, but the prejudice against Board schools was gradually disappearing.

ON October 9, the Duke of Devonshire opened a new Pupil-Teachers' Centre at Sheffield. Characteristically enough, the Lord President began by saying that he did not know much about the pupil-teacher system, but went on to show that he knew quite sufficient for his purpose. The Duke's remarks on the religious difficulty are worth quoting:—

Hampered as the Education Department was, and as every Department was, by the want of all the financial provision which it would like to receive, the Education Department had an additional difficulty, and that was a religious difficulty, which was in some way closely connected with the financial difficulty, for it was very difficult to give additional assistance to schools without arousing the susceptibilities of one or other of the parties into which educationists were divided. It was very difficult to give further assistance to schools, or to the training of teachers, without rousing the susceptibilities of those who were in favour of denominational and those who were in favour of undenominational teaching; but he believed that this difficulty was certainly one which was not increasing in intensity. It had been said, and he thought truly said, that the religious difficulty was mainly a political difficulty, which did not exist in the schools themselves. He thought it might be added that it certainly did not exist in some of the School Boards, and one of the most satisfactory features which he had seen and heard that day was the spirit in which the School Board had come forward to offer to the schools of all denominations all the advantages of the centre and other training agencies which it provided for the teachers of its own schools.

THE annual meeting of the Metropolitan Board Teachers' Association was held in the Memorial Hall, Farringdon Street, on October 14, Mr. A. A. Thomas presiding. Mr. T. Gautrey submitted the annual report, which showed that six hundred members had been enrolled during the year, making a total membership of 7,601, or between 80 and 90 per cent. of the whole of the eligible certificated teachers. Mr. T. H. Jones, Headmaster of the Duncombe Road Higher-Grade School, was elected President for the ensuing year. In acknowledging his election, he said there appeared to be a desire in some quarters to confine the education of the working-class children to the

narrowest limits possible, and the present attitude of the Science and Art Department with regard to higher-grade schools and schools of science seemed to him of the most reactionary character.

A MEETING was held in the Mayor's Chamber, Newcastle, on October 16, in support of the scheme for completing the building of the Durham University College of Science, which, it is estimated, will cost £50,000. Earl Grey presided, and said that the Newcastle College of Science stood next to Owens College, Manchester, in number of students. The comparison of the cost of work showed that Newcastle averaged £28 per student, as against an average of £51 per student at other colleges in Britain. He appealed to firms on the Tyne, Wear, and Tees to follow the example of Birmingham, in contributing from their profits, and hoped that before the year was out £100,000 would be raised. The following subscriptions were announced in the room:—Lord Armstrong, £1,000; Earl Grey, £500; Alderman Gibson, £1,000; Bell Brothers, £1,000; Messrs. Swan & Hunter, £1,000; Mr. James Hall, £2,000; the Consett Iron Company, £1,000; Mr. Cruddas, M.P., £1,000; smaller subscriptions, £1,000.

A GIFT of £20,000 has been made to the Birmingham University Fund by Mr. Charles Holcroft. This brought up the total to £315,000. Since September 27, the following gentlemen, mostly residents in Birmingham, have doubled their subscriptions, varying between a thousand guineas and five hundred pounds:—The Lord Mayor of Birmingham; the Right Hon. J. Chamberlain, M.P.; Mr. John Corbett; the Right Hon. William Kenrick; Sir J. C. Holder, Bart.; Messrs. Charles Harding, G. H. Johnstone, Henry F. Osler, and J. A. Kenrick.

UNDER the presidency of Sir W. Hart Dyke, M.P., the first general meeting of the Agricultural Education Committee, a body formed in July last to further the work of education in rural districts, was held on October 20, at the Society of Arts. There was a representative attendance, those present including Sir T. Acland, Sir W. Anson, M.P., Prof. H. E. Armstrong, Lord E. Fitzmaurice, M.P., Principal Hall, Mr. T. F. Halsey, M.P., Sir John Hibbert, Mr. Humphreys Owen, M.P., Prof. Jebb, M.P., Col. Lockwood, M.P., Sir J. Lubbock, M.P., and Sir Henry Roscoe. In his opening remarks the Chairman referred to the position already achieved by the Agricultural Committee. Its members were strongly imbued with a sense of the necessity for change in the method of education in rural schools. Of late years vast improvement had been made in the schools in our great industrial centres; but in the country districts little progress had been made. There had been changes in some instances, but these had been in a direction calculated to draw children away from the villages in which they were born, and from the land on which their fathers laboured. Two practical suggestions he had to make: that a change should be made in the curriculum of rural schools, placing agriculture on the list of grant-earning subjects; and that the County Authorities, working under the new Act, should group schools and give practical lessons in agriculture by a peripatetic teacher.

SIR H. ROSCOE moved a resolution declaring that, in the proposed organization of the new Board of Education, due regard should be had to the interests of agricultural education. This was seconded by Col. Lockwood, M.P. In the discussion which ensued some of the difficulties that were likely to be experienced were mentioned, special stress being laid on the financial aspect and the paucity of the supply of duly qualified teachers. A second resolution was proposed by Sir J. E. Dorington, M.P., and supported by Dr. W. Somerville, urging that provision should at once be made at certain of the teachers' training colleges for giving both theoretical and practical instruction in subjects bearing on agriculture and horticulture. Sir John Lubbock was entrusted with a resolution declaring that instruction in the elementary branches of natural science, bearing on agriculture, should be made compulsory in rural elementary schools, and where practical be accompanied by practical work in plots of ground attached to the schools. A final expression of opinion was recorded that County Authorities should be encouraged to provide experimental and school farms, and to contribute, by scholarships and otherwise, to some agricultural college or department of the first rank.

THE annual meeting of the Council of the National Home-

Reading Union was held on October 20, at the offices of the London School Board. Afterwards, in connexion with the Union, a meeting was held of head teachers of public elementary schools and the responsible teachers of evening continuation schools. Lord Reay, who presided, referred to the interest taken in the Home-Reading Union, and said there was no more useful work than that of making a selection of the books which ought to be read. He could assure them that this Union could add to its usefulness by giving advice as to the books we should or should not read. We were told that at present, with stirring events going on, people only read newspapers, and that, in consequence, writers of books were the most unfortunate class of men; but he hoped that, even at present, people could find time to read one or two books. Mr. Michael E. Sadler said the Union did good work, which had behind it a high social purpose, nobly conceived and faithfully pursued. It gave its members a direction in their reading, and formed for them a personal guidance in the course of their studies. It helped all those who were interested in teaching in increasing their knowledge in the right spirit. Mr. J. Lewis A. Paton, Headmaster of University College School, and Sir Joshua Fitch also spoke.

A MEETING was held at Stafford House, on October 19, in furtherance of Lady Warwick's agricultural scheme for women. The Countess expressed her gratification at the support which her project had received, not only in this country, but in the Colonies, in India, and in the United States; and said she was now in correspondence with ladies on the Continent who desired to work upon the lines on which the Association was founded. A resolution was adopted affirming that it was desirable that duly qualified women should have the advantage of full fellowship in scientific and other learned societies, the Royal, the Linnaean, and the Royal Microscopical.

A REPORT has been issued of the work done during the first year, which ended in July last, of the High School of Commerce affiliated to the University of Leipzig, from which it appears that the number of students was 174, of whom 126 were German subjects and 48 foreigners from Austria-Hungary, Russia, Belgium, Switzerland, Bulgaria, France, Roumania, Great Britain, Italy, Holland, Norway and Sweden, Greece, and Servia. As many as 23 of the students took the course provided for the instruction of intending teachers of commercial science. There were sixteen University professors and lecturers and nine other teachers. The winter session of 1899-1900 began on October 16, for which courses have been provided under five heads:—A. University lectures in Economic Theory, and Economics of Trade and Industry in particular; Practical Economics, Finance, Statistics, and Sociology; History of Trade; Commercial Law, Law of Bills, International Law, and Maritime Law; Law of Insurance; Economic Geography; Chemical Technology; History of the German idea of Unity and Development of Nationality; Chinese and Japanese Languages; Industrial Hygiene; School Hygiene; History of German Literature, and Interpretation of Bürger, Goethe, Schiller, and History of English Literature. B. Practical Drill at the Commercial Institute; Bookkeeping, Correspondence, and Counting-house Work, and Commercial Arithmetic. C. Commercial Teachers' Seminary: Lectures, Discussions, Criticism of Lessons given by Students. D. Language courses: Correspondence in French, English, Italian, Russian, and Spanish, with special drill in French and English Conversation. E. Dexterity: Shorthand (alternative systems) and Type-writing. The libraries of the University and the Chamber of Commerce are placed at the students' command.

UNDER an ordinance of the Saxon Home Office, bearing date January 13, 1899, the first examinations will take place in the ensuing year. These will be conducted by a Commission, the president of which is a representative of the Home Department. The successful students will be awarded Honours of the First or Second Class, or a Pass. The composition fee for the obligatory subjects will be £2. 10s., and 10s. further for each optional subject. The examinations will be in two categories: A, for ordinary student's diploma; B, for teacher's certificate of efficiency. In either case only such candidates will be admitted as have completed four sessions, i.e., two years' study. The obligatory subjects of the general examination are, the "technical": higher commercial arithmetic, bookkeeping, German commercial correspondence, and counting-house work; and the "theoretical":

economics, finance, and commercial history, commercial and bill law, economic geography. The optional are the other subjects taught in the school (correspondence in foreign languages, technology, &c.) There are to both a written and an oral examination; admission to the oral being made dependent on success in the written examination, and the *viva voce* test, extending to all the obligatory subjects, shall for each candidate occupy not less than forty-five minutes. The obligatory subjects of the teachers' examination comprise all those appointed for the other. The candidates must afford proof of having attended the courses of a practical character, and of their acquaintance with the English and French languages.

THE following letter has been addressed to the Secretary of the Decimal Association by the Education Department:—"My Lords are in full agreement with your Association in desiring that instruction in the principles of the metric system should form a part of the regular course of instruction in all public elementary schools in England and Wales. With this object they have caused a special note to be inserted in Schedule I. of the Code pointing out that the scholars in and above Standard IV. should know these principles, and that lessons leading up to these principles may be usefully given in Standard III.; and they have also called special attention to those provisions of the Code by means of a paragraph (par. 22) in the instructions to inspectors. Their Lordships cannot admit that there is ambiguity in the directions of the Education Department on this subject, as is suggested in your letter now under reply. My Lords note your statement that there is a strong feeling among School Boards throughout the country in favour of the metric system being more thoroughly taught in the public elementary schools, and I am to assure you that the Education Department desire to support any movement, &c., for useful and efficient instruction in the system which it may be found possible to set on foot. The remedy for any present neglect of the provisions of the Code is in the hands of the School Boards and school managers. It is their duty to see that provision is made for teaching the subject in the schools controlled by them.—H. I. POOLEY, Education Department."

UNIVERSITIES.

(From our Correspondents.)

Oxford. A NEW term and a new academic year began with an allocation from the President of Corpus, on his appointment as Vice-Chancellor for the ensuing year. He spoke in Latin—when will the old affectation pass away?—briefly summarized his past five months of office, and, after referring gracefully enough to the two royal visits in the summer term, went on to say, almost in terms of regret, that the period during which he had held office had not been eventful. "None of the more eminent members of the University had died, nor had any office fallen vacant," except the Senior Proctorship which had been recently vacated by the election of Mr. Lindsay to the Chair of Humanity at St. Andrews. No new statutes of any importance had been enacted, except perhaps that on the patronage of University livings, "*quod ad mala quadam levanda destinatum utinam ne plura et graviora inducat.*" On the other hand, new buildings were rising in all directions, "*cui quidem spectaculo jam per multos annos adsuefacti sumus.*" The new library for the reception of scientific works was entirely due to the munificence of the Drapers' Company, nor was the gift burdened with any conditions. Two laboratories, one for pathological, the other for morphological study, were also being built on the Museum site, the latter entirely at the expense of the University, the former aided by a munificent gift of £5,000 from an anonymous benefactor. The University Press had not been idle. Of the books, on the learned side, which had been brought out during his short tenure of office, he might specially mention two new parts of the "New English Dictionary," the second series of "Studies in Dante," by Dr. Edward Moore, "An Introduction to the Fifth Book of Hooker's Ecclesiastical Polity," by the Dean of Christ Church; and, lastly, a Catalogue of the Cyprus Museum, a most laborious work, and likely to be of great service to persons interested in ancient art, the joint production of Mr. J. L. Myers, Tutor of Christ Church, and a learned German, Herr Max Richter.

It is noteworthy that two good Oxford men, tutors of their colleges, were snatched away in beauty's bloom (I merely mean that they were very young for professorships) during the long vacation. Mr. Phillimore, Student and Tutor of Christchurch,

was appointed Professor of Greek at Glasgow. I observe that he has already given his first lecture, and that he is appreciated in a Glasgow paper as "quite a handsome man, with a very pleasant face and a heavy moustache." Mr. Lindsay's departure vacated the Senior Proctorship, and the Principal of Jesus College (Mr. Rhys), with whom rests the right of nominating his successor, has appointed the Rev. W. C. Allsebrook, who took his degree from Jesus College in 1891, and, after clerical work elsewhere, returned to Oxford two years ago to be Chaplain at Christ Church and at Jesus College.

The term at Manchester College was opened by the delivery of a public address by the Rev. W. E. Addis, M.A., the new Professor of Old Testament Literature. The session opens with nine full divinity students and seven special students, including two Indians. There are six undergraduates at Oxford colleges or elsewhere who are preparing to enter Manchester College on taking their degrees. The common residence for the students, in the houses belonging to the College in Holywell, is now open, Mr. Addis also being in residence, as Warden, in the adjoining house.

The series of special Sunday evening sermons for members of the University (especially undergraduates) will be delivered this term at St. Mary's as follows:—October 22, the Bishop of Hereford; 29, the Rev. C. G. Lang, vicar of Portsea and Fellow of All Souls; November 5, the Bishop of Stepney; 12, Canon C. Gore; 19, Canon Scott Holland; 26, the Dean of Lincoln.

The Professor of Human Anatomy has notified that the Welsh Prize (not "a Welsh prize," as the *Gazette* has it!) has been awarded to Hubert M. Turnbull, B.A. Magdalen. The vacant Liddon Studentships have been awarded to Alfred C. Paterson, B.A. Trinity; and Philip A. Micklem, Scholar of Hertford. An additional studentship has been awarded to Kenneth D. Mackenzie, Scholar of Hertford. The Examiners for the Hebrew Scholarships have reported to the Vice-Chancellor that they have elected as follows:—To the Junior Kennicott Scholarship: C. A. B. Brockwell, B.A. Wadham College; to the Pusey and Ellerton Scholarships: G. G. V. J. H. T. Stonehouse, Exhibitioner of Exeter College, and G. H. Vasey, St. John's College. The award of the Senior Kennicott Scholarship will be notified subsequently.

A RECORD entry and record weather—we are **Cambridge.** certainly commencing the new academical year under favourable circumstances. Wars and

rumours of wars do not affect us except in a favourable manner, as would-be officers find the path to glory through the University a convenient and pleasant short cut; and University candidates for the Army, though their stay with us is not prolonged, enliven the University during their passage.

The retiring Vice-Chancellor (Dr. Hill, of Downing) made the customary valedictory speech on resigning office, on September 30. He dealt chiefly with two topics: the growth of the Benefaction Fund; and the increase, both in quality and quantity, of the Medical and Scientific Schools. It is left to Dr. Hill to formulate, for the first time, the statement, now universally admitted as correct, to the effect that pure science has lost little from its association with the applied branches, and that work of first-rate importance in the older subjects of University culture is due to those whose principal aims are the promotion of science in its practical form.

Successful as Dr. Hill has been as our Vice-Chancellor, no notice of his Vice-Chancellorship would be complete without a mention of the fact that he is the first responsible officer of the University to give to the world a clear statement on the relation of athletics to bookwork, and to recognize a difficulty which cannot be ignored. He has spoken with no uncertain sound, and distinguished the invaluable training of the athlete, be the prize ever so small, from the valueless craving after spectacle, the debased instinct which looks for its amusement in seeing work done by others—going home and criticizing—or, worst of all, in the latest practice of looking on athletics as a mere vehicle for gambling. There must be something in the position that great athletes enjoy in any University, and our late Vice-Chancellor has given us reasons to show that a healthy public feeling may sometimes be right.

The scandals attendant upon the present mode of presenting to vacant University livings are in a fair way to become things of the past. A Syndicate has reported in favour of future appointments being made by a Board consisting of the Vice-Chancellor and eight members, four of whom are to be selected by the Council and four by the Special Board for Divinity. This

plan, which will probably be adopted in substance, will prevent the unseemly touting for votes which used to go on in the past, and, it is hoped, will be the means of procuring the best men for the vacant benefices.

The Long Vacation has not seen any great changes in the *personnel* of the University. The new Agricultural Professor is at work, and Dr. Woodhead, the recently appointed Professor of Pathology, is rapidly establishing his position in the Medical School as an energetic worker and a capable leader of men. Friends of Dr. Maitland, the Downing Professor of the Laws of England, will be sorry to hear that through continued ill-health he is unable to lecture this term. Beyond this there are few changes. At Trinity, Dr. Verrall resigns the Tutorship which he has held for ten years, and leaves office with heartfelt regrets from those with whom he has been associated. Mr. Duff, his successor, is already justifying his selection. A difficulty which before long will have to be faced at the smaller colleges is that of the tenure of college offices—a tutor who does not possess the requisite tact or special capacity may ruin the prospects of his college in spite of his learning and devotion to duty. Notorious examples of this suggest themselves readily to any one acquainted with Cambridge life; yet in smaller colleges it is practically impossible to eject a well settled Tutor with anything short of dynamite or an earthquake.

The McGill University, of Montreal, has been affiliated to Cambridge, and we shall shortly, without doubt, receive valued additions to the number of our *bona fide* students from that source.

The war, and the negotiations which preceded it, have possessed a peculiar interest for the younger generation of Cambridge men, inasmuch as three former Seniors in the Law Tripos are intimately connected, personally, or through their near relatives, with recent events. The present writer can, from personal knowledge, affirm that the opinions formed of the two leading characters in South African politics of to-day—Sir A. Milner and Mr. Schreiner—by those who knew their undergraduate career, are amply verified by the course of events and the judgments of a larger public.

THE Degree Lists of the University of Wales for Wales. this year show a continued increase in the number of those following successfully the curriculum of the University. An analysis of these lists gives the following results. Taking first of all the Pass Examination in Arts, we find that, in the Intermediate (or first year stage) in Greek, 20 candidates passed from Aberystwyth, 16 from Bangor, and 20 from Cardiff. At the Ordinary (or second year stage) in that subject, 13 passed from Aberystwyth, 12 from Bangor, and 12 from Cardiff. At the Special (or third year stage), 3 passed from Aberystwyth, and 2 from Bangor. In Latin at the Intermediate Stage, 46 passed from Aberystwyth, 24 from Bangor, 30 from Cardiff. At the Ordinary Stage, 22 passed from Aberystwyth, 13 from Bangor, and 14 from Cardiff. At the Special Stage, 2 passed from Aberystwyth, 2 from Bangor, and 4 from Cardiff.

In English, at the Intermediate Stage, 40 passed from Aberystwyth, 17 from Bangor, and 23 from Cardiff. At the Ordinary Stage, 14 passed from Aberystwyth, 18 from Bangor, and 11 from Cardiff. At the Special Stage, 1 passed from Aberystwyth, 5 from Bangor, and 5 from Cardiff. In Welsh, at the Intermediate Stage, 9 passed from Aberystwyth, 11 from Bangor, and 10 from Cardiff. At the Ordinary Stage, 4 passed from Aberystwyth, 11 from Bangor, and 4 from Cardiff. At the Special Stage, 5 passed from Bangor. In French, at the Intermediate Stage, 29 passed from Aberystwyth, 13 from Bangor, and 12 from Cardiff. At the Ordinary Stage, 12 passed from Aberystwyth, 6 from Bangor, and 7 from Cardiff. At the Special Stage, 1 passed from Aberystwyth, 2 from Bangor, and 2 from Cardiff. In German, at the Intermediate Stage, 2 passed from Aberystwyth. At the Ordinary Stage, 2 passed from Aberystwyth and 1 from Bangor. At the Special Stage, 1 passed from Cardiff. In Hebrew, at the Intermediate Stage, 7 passed from Aberystwyth, 8 from Bangor, and 13 from Cardiff. At the Ordinary Stage, 6 passed from Aberystwyth and 7 from Cardiff. At the Special Stage, 1 passed from Cardiff. In Arabic (Ordinary Stage) 1 passed from Aberystwyth. In History, at the Intermediate Stage, 34 passed from Aberystwyth, 21 from Bangor, and 13 from Cardiff. At the Ordinary Stage, 12 passed from Aberystwyth, 7 from Bangor, and 7 from Cardiff. At the Special Stage, 1 passed from Aberystwyth and 1 from Cardiff.

In Philosophy, at the Ordinary Stage (there being no Inter-

mediate Stage in this subject), 11 passed from Aberystwyth, 19 from Bangor, and 12 from Cardiff. At the Special Stage, 3 passed from Aberystwyth, 4 from Bangor, and 2 from Cardiff. In Elementary Logic (a compulsory subject), 54 passed from Aberystwyth, 37 from Bangor, and 38 from Cardiff. In Education, at the Special Stage, 2 passed from Aberystwyth, 2 from Bangor, and 3 from Cardiff. In Political Science, at the Ordinary Stage, 1 passed from Aberystwyth. In Pure Mathematics, at the Intermediate Stage, 24 passed from Aberystwyth, 8 from Bangor, and 6 from Cardiff. At the Ordinary Stage, 7 passed from Aberystwyth, 6 from Bangor, and 3 from Cardiff. At the Special Stage, 1 passed from Aberystwyth and 1 from Cardiff. In Applied Mathematics (taken for the B.A. degree, at the Ordinary Stage), 1 passed from Aberystwyth, 2 from Bangor, and 2 from Cardiff. In Physics (taken from the B.A. degree), at the Intermediate Stage, 1 passed. In Chemistry (taken for the B.A. degree), at the Intermediate Stage, 1 passed from Bangor and 1 from Aberystwyth.

Turning now to the Honours Examinations for the B.A. degree, we find the following results:—In Greek, First Class Honours were gained by 1 from Aberystwyth and 1 from Bangor; Second Class Honours by 2 from Aberystwyth and 1 from Bangor. In Class III. none. In Latin, First Class Honours were gained by 1 from Aberystwyth and 1 from Bangor; Second Class Honours by 1 from Aberystwyth and 1 from Bangor; Third Class Honours by 1 from Aberystwyth and 1 from Cardiff. In English, First Class Honours were gained by 1 from Aberystwyth; Second Class Honours by 3 from Aberystwyth and 2 from Bangor; Third Class Honours by 1 from Aberystwyth, 1 from Bangor, and 1 from Cardiff. In Welsh there were no First or Second Class Honours; Third Class Honours were gained by 1 from Bangor and 1 from Cardiff. In French there were no First Class Honours; Second Class Honours were gained by 1 from Aberystwyth; Third Class Honours by 1 from Cardiff. In German there were no Honours candidates. In Hebrew, First Class Honours were gained by 2 from Cardiff; there were no Second or Third Class Honours. In History, First Class Honours, 1 from Cardiff; Second Class, none; Third Class, 1 from Aberystwyth. In Philosophy, Class I., none; Class II., 1 from Cardiff; Class III., 2 from Cardiff. In Pure and Applied Mathematics, Class I., 1 candidate from Aberystwyth; Classes II. and III., none.

In the Faculty of Science we find the results of the Pass Examinations as follows:—In Mathematics, at the Intermediate Stage, 16 passed from Aberystwyth, 12 from Bangor, and 21 from Cardiff. In Pure Mathematics, at the Ordinary Stage, 3 passed from Aberystwyth, 8 from Bangor, and 6 from Cardiff. At the Special Stage, 1 passed from Aberystwyth, 4 from Bangor, and 5 from Cardiff. In Applied Mathematics, at the Ordinary Stage, 5 passed from Bangor, and 7 from Cardiff. In Physics, at the Intermediate Stage, 16 passed from Aberystwyth, 13 from Bangor, and 19 from Cardiff. At the Final Stage, 6 passed from Aberystwyth, 9 from Bangor, and 5 from Cardiff. In Chemistry, at the Intermediate Stage, 25 passed from Aberystwyth, 14 from Bangor, and 26 from Cardiff. In Organic Chemistry (Final Stage), 7 passed from Aberystwyth, 5 from Bangor, and 3 from Cardiff. In Inorganic Chemistry (Final Stage), 6 passed from Aberystwyth, 5 from Bangor, and 3 from Cardiff. In Biology, Intermediate Stage, 4 passed from Aberystwyth, 6 from Bangor, and 5 from Cardiff. In Zoology (Final Stage), 1 passed from Cardiff. In Botany (Final Stage), 1 passed from Aberystwyth, 2 from Bangor, and 1 from Cardiff. In Geology (Final Stage), 2 passed from Aberystwyth and 1 from Cardiff. In Philosophy (Ordinary Stage), 1 passed from Bangor and 1 from Cardiff. At the Special Stage, 2 from Cardiff. In Elementary Logic (Compulsory), 17 passed from Aberystwyth, 19 from Bangor, and 26 from Cardiff. In Education (Special Stage), 2 passed from Aberystwyth. In Human Anatomy (Final Stage), 1 passed from Cardiff. In Physiology (Final Stage), 2 passed from Cardiff. In Agricultural Science (Final Stage), 1 passed from Aberystwyth and 1 from Bangor. In Mining, 1 passed from Cardiff. In Mine Surveying, 2 passed from Cardiff. In Engineering Drawing, at the Intermediate Stage, 4 passed from Cardiff. At the Final Stage, 4 passed from Cardiff.

The Honours results are as follows:—In Physics, 1 gained Second Class Honours from Bangor and 1 Third Class from Cardiff. No First Class Honours were awarded. In Chemistry, 1 gained First Class and 1 gained Second Class Honours from Bangor. No Third Class Honours were awarded. In Botany, 1 gained Second Class Honours from Bangor. No First or Third Class Honours were awarded.

The annual Collegiate Meeting of the Court of the University of Wales will be held at Bangor on November 2. The annual degree ceremony will take place in connexion with this meeting. A meeting of the Guild of Graduates of the University will also be held for the purpose of electing the officers of the Guild. This meeting was to have been held last April, but was put off owing to the death of the Warden, the late Mr. T. E. Ellis, on the morning of the meeting.

COLLEGE OF PRECEPTORS.

DISTRIBUTION OF DIPLOMAS, PRIZES, AND CERTIFICATES.

The public distribution of Diplomas, Prizes, and Certificates to the successful candidates at the last Midsummer Examinations took place at the College, Bloomsbury Square, on Thursday, October 26. The chair was occupied by the Right Rev. the LORD BISHOP OF LONDON, who was supported on the platform by Mr. H. W. Eve, Dean of the College; Dr. Wormell, Vice-President; Mr. E. Pinches, Treasurer; Mr. Atkinson, Mr. Bidlake, Rev. J. O. Bevan, Rev. F. Besant, Rev. R. H. A. Bradley, Prof. Buchheim, Mr. Butler, Prof. Church, Mr. Hagreen, Rev. G. Henslow, Rev. Dr. Hiron, Dr. Lawrence, Mr. Millar-Inglis, Mr. Mussou, Mr. Nicholson, Rev. R. O. T. Thorpe, Rev. J. T. Watson, Dr. Weymouth, Mr. Wilson, and others.

The CHAIRMAN, in opening the proceedings, said:—

It will presently be my pleasure to distribute to the successful candidates the prizes which they have gained; but I am told that before doing so it becomes my duty to make a few remarks to those who have to receive them. Of course that is a much more difficult thing than giving them their prizes, because it is a very easy matter to give a lecture to those whom you know, but it is very difficult to offer advice to those whose circumstances and conditions you do not know. Now about education it is always perfectly easy to advise anybody else, but I never find that the advice which you give about education is accepted by the person to whom it is given, and no doubt those to whom I speak will not prove exceptions to that general rule.

Now, there are so many things to be said on the subject of education and teaching that, when I begin to talk about it, I do not know where to leave off. You know, there are some people who say that education is the dulllest of all subjects, and that everything has been said about it that can be said. I do not think it is at all a dull subject, except perhaps to those who are the objects of it, and, I believe, they almost universally at the beginning vote it to be dull. Perhaps I may take that observed fact as the starting-point of my remarks. After all, what have you to do as teachers? I believe very often teachers think they can do more than they really can do—not that in this they are unlike any other class of the community, but they do tend to have that impression. No doubt it is forced upon them, not from their own conviction, but from outside opinion, because I believe they are quite as modest as other people. I mean to say that a parent seems frequently to be willing to hand over his child to you to do whatever you like with him, and he is certainly very ready to put down any defects, either physical or mental, that he should afterwards show, at your door, and to say: "My child might have turned out very different if you had dealt with him in some other way." You have impressed upon you the importance of what you are doing from the outside, and the result of that is—it may be because you have not been properly instructed—to make you think that a teacher can do very much more than he can do.

If I venture to talk about teaching, it is because I have spent a great part of my life in teaching. You know, you only begin to be of use as a teacher when you discover how very little it is that you can do. I believe that is the first and most important part of a teacher's equipment—to know how little he can do. What is it that a teacher can do? He cannot by any means get knowledge into a pupil's head unless the pupil is willing to take it in himself—that is to say, all that the teacher can do really is to show cause why the learner should learn; and the sole secret of the art of teaching is to manage to persuade and to exhort, somehow or other, by all the means in your power, those whom you have to deal with to learn; but the learning has to be their own, and not yours, and you cannot make it any easier to them by any dogmas, mechanical or other. Things which are learnt are valuable just in proportion to the amount of trouble which you have taken to learn them; and, if you suppose you can make learning easy to any one, you make a mistake. Learn-

ing must always be a difficult process, and one that is utterly repugnant to the natural man. You, therefore, as teachers, have to grapple with the natural man by kindly and gently showing good cause why he should learn, and kindly and gently showing good cause why he should cease to be so very natural, and become just a little spiritual sometimes. That is the point of view from which you have really to approach everybody with whom you are engaged in teaching. The work of a teacher, after all, is like that of introducing people in a drawing-room. All you have to do for the child who comes to you to be taught is, to take him kindly by the hand, and say: "Let me introduce you to Dame Knowledge: she is an old lady of grim appearance, but, when you come to know her, you will find she is not such a bad sort." On the mode by which you effect that introduction depends really all the subsequent development of the child. It is a very slight thing which you can do in introducing a child to knowledge, but the way in which you do it greatly affects the whole of that child's subsequent life. It is but little, and yet it is very much. It is so little that we can do; but, because we can do so little, it is so exceedingly important that we should do it rightly.

These remarks are suggested to me because the other day I was reading a very old-fashioned book called "St. Augustine's Confessions," and I was struck by the account that he gives of his own childhood there, in which he uses these very striking words: "We love play," he says, "and for this we were punished by those who were doing the same thing; but the follies of our elders are called business, whereas the business of children is punished by grown men." There is no doubt that the follies of elders are called business; that is quite obvious. You see people looking most occupied nowadays, and, if you ask them what they are doing, they say "business"; but you know that half at least of what they are doing must be folly. Do not suppose that a child's eyes are not just as clear as yours, and a child looks at you who are engaged in teaching him, and tests you not by what you say, but by what you are; and a child is quite ready to say that the follies of grown people are called their business, and that they take upon themselves to chastise children for attending to their business, which is the business of play. It cannot be anything else. The first thing that a young child has to do is to grow; this is his first occupation, and the way in which a child physically develops is by means of play. We call play all that which makes up the process of physical development. That must always be the main occupation of a child, and all your modes of teaching must be subordinate to the observance of that rule and to keeping that before your mind. Then you have to watch your time, and you have to consider how you can best kindle interest in the child, because of course you will never succeed in teaching a child unless you show good cause why he should learn—that is to say, unless you attract and kindle his interest.

Of course, in teaching there are many degrees; but let me tell you this, that the highest degree of teaching is very much the easiest. It is, of course, much easier for a college tutor to give a lecture to a picked lot of men who desire to learn: they are there because they want to learn; they are there because they want to adapt themselves to him; he is master of the situation. But, the lower you go down in teaching, the more demands there are upon the teacher; that is to say, the younger the children are whom you are teaching the harder really is the work you have to do. It is not knowledge that goes to make up the teacher—not an enormous amount of knowledge, though I need not say that has not to be neglected—but it is a sympathy with the nature and the life of those whom he is engaged in teaching. Unless you preserve that sympathy keen, and unless you keep your mind fresh, you cannot teach properly. Although, of course, as life goes on with you, the numbers of generations of those of the same age who pass through your hands tend to become appalling, yet still remember this, that with each new pupil who comes to your class the whole thing is new and fresh, and, if you have to cope with that pupil, your mind will have to be fresh and vigorous also.

No knowledge of method, no stereotyped modes of education, will enable you to go on doing your business as it ought to be done, simply applying mechanical moulds of the same shape and size to the minds of those young children who come under your hand. Every child is really different from every other child; you are constantly dealing with a human life, that is alert at every point, that has its own thoughts and its own interests, and that is ready to welcome you if you can speak in a language that can be understood, but that will not listen to you, however wise you are,

if you speak in a far-off and remote manner which does not carry conviction to its mind.

Let me put it to you again. You have to introduce each child anew to Dame Knowledge, and you have to get each child to see that that acquaintance is a desirable and a valuable acquaintance to make, and any means by which you can do that you have to be constantly ready to use, constantly observing the set of the children's minds and the tendency of their thoughts, constantly looking out for some new way in which you can put things so that they are readily acceptable to them; for, as I have said, a good deal of knowledge is required necessarily, even for the simplest and most rudimentary teaching. The reason of that is that, unless you know a good deal about things, you cannot put them into various shapes, so that a stupid person can be taught one formula and can go on repeating it. It is death and destruction to a teacher if he can only say what he has to say in one shape. The very essence of a teacher is that he should know so much, and so readily and clearly, that he can answer any fair and honest question that is asked about the matter that he is teaching, and answer it in the language and according to the mode of thinking of the person who is asking him. You must be ready to say the same thing in an endless variety of ways, and remember, when you start with a class—if the class is twenty, say—what is the material you have to start with—twenty idle and inattentive children who do not want to learn, and who regard you as their natural enemy. That is the normal condition of childhood, and we do not want it to be otherwise. Do not say it comes from human perversity; because it does not. It is natural, and so far as it is natural it is also right; because, after all, the younger a child is, the more cause has to be shown to the child why he should not be kicking his heels in the field instead of listening to you. It is an outrage on the child that that should be the case, and you have to make good that outrage—you have to show that there is a reason, and a good reason, and a sufficient reason, and that the time spent with you really could be made just as agreeable if the child would only stop every day a little bit and submit to a few regulations as if he were kicking his heels outside. Until you have got that notion into the child's head, and until you have settled the problem, you have not begun your educational career.

You will say that it is very easy for me to give you all this good advice, but that I should do it very badly myself if I had to do it as you have. I agree that that would be so. I can only tell you that my own attempts at teaching young children have been disastrous failures when I had a country parish. I was not alone in that, because both my wife and my curate tried the same, and the result was that we all regarded ourselves as intelligent persons, and took great pains in teaching children things that were quite obvious and ordinary. When they came to be inspected, they all failed in all the things to which we had applied ourselves. That raised the question: Who was to blame for that result? Was it the teachers, was it the children, or was it the inspector? Do you know, I was so conceited that I thought the fault was the inspector's. However, that was quite natural. His business was to examine in a kind of knowledge which I was not trying to give.

The importance of a great deal of your teaching must be that it lies beyond the power of any human recognition at all; that an inspector cannot find it out, and that nobody can; but it must be a secret between the children and you. You got the idea into that child's head; he understood what you meant when you were talking to him, but he cannot produce it to anybody else in the form of an answer to anybody's question. He will tell you what he was thinking about, but he could not tell anybody else, and it is not desirable that he should, because the idea that you have given him will have to take root for some time before it can be expressed in any very definite terms at all. You know how desirable it is that we should express our thoughts. It is, perhaps, more valuable that we should first of all form our thoughts, and it is possible that in teaching we may give such entire attention to the mere process of expressing our thoughts that we should forget entirely the more important thing, the mode by which thoughts are formed. If you can teach a child to think, you have done for him the greatest thing you can do; if you have induced him to think for himself, then you have begun an education which will go on through the whole of that child's life. It will not be counted for much in examinations, and no record will be made of it by the inspector; but it will be a life-long consolation that will grow with his growth, it will form the most important part of his life, it will dominate his character and make him what he ultimately becomes.

The Diplomas, Prizes, and Certificates were then distributed,

upon which the DEAN of the College, in proposing a vote of thanks to the Chairman for his presence there that day, and for his very suggestive words, said he remembered the Bishop when he presided at a lecture delivered by Sir Walter Besant two years ago, saying how in the English people there was always a certain vein of pertinacious stupidity, and he (the Dean) could not help thinking there was just a trace of that feeling in the Chairman's mind that day when he told them at the beginning of his address that they were sure to forget all the good advice he gave them. It would have been noticed that the Chairman's remarks were mainly addressed, not to the boys and girls, who were always ready to take good advice, and who always remembered it, but rather to their teachers and the examiners, who he hoped would not forget his good advice, but who, alas! were very likely to do so. He (the Dean) confessed that when he was a teacher the thing he was most afraid of was being dull, and he thoroughly endorsed the sentiment that the teacher should be in sympathy with the pupil. Their Chairman had multifarious engagements; but wherever there was any good and useful work to be done, or kind and encouraging words to be said, there the Bishop of London was to be found. At this moment their thoughts were naturally with the brave men who were fighting their battles on the other side of the Equator, and the motto of the Royal Artillery, "Ubique," came to his mind as peculiarly appropriate to his Lordship, and he might add its companion motto, "Quo fas et gloria ducunt," with its nobler English equivalent, "The path of duty is the way to glory."

Dr. WORMELL, in seconding the vote of thanks, said he remembered meeting the Chairman at Leicester, and hearing him deliver a sermon to teachers in the old church of St. Martin's. On that occasion he wished that the Bishop might soon be translated nearer home, and his conscience was quite at ease, because he was not aware that the Tenth Commandment forbade one coveting one's neighbour's bishop. As an old teacher, he felt very much indebted to the Chairman for the encouragement and counsel he had given to teachers on all occasions when he had the opportunity. The Chairman commenced by saying that he did not know the circumstances and conditions of those who were to receive the prizes. That was quite true as to the individuals; but, as a teacher, he knew the conditions and circumstances of all young people. He was convinced that the schoolboy's expression that learning was dull work was only a form of speech. The other day he had some essays, as examples in composition, to read, and one of the subjects set was "The Subject of Study that you like best." One boy said that he could not write an essay on the subject of study that he liked best; so perhaps it would be as well if he took another subject, namely, "The Subject of Study that he hated least." On reading this essay, he came to the conclusion that, in spite of the form of speech and the desire to be like a schoolboy, and say how much he hated work, he really enjoyed three or four subjects. What the Bishop had said about his own failure was an encouragement to the teachers of the very young. They had difficulties that older teachers did not have. He thought it would be well for the older teachers if they were compelled to begin their training with the youngest. At the same time, for the encouragement of those who had to deal with the youngest, he would say that he thought some of those who succeeded higher up would not find their path so smooth if they had to do with the little ones. His greatest failure as a teacher was similar to the Bishop's experience. A good many years ago a teacher of infants in a Sunday school, in the back parts of Westminster, was suddenly taken ill, and he was asked to act as a substitute. He should never forget the experience. Twenty or thirty little ones got on his knees and got on his shoulders; they pulled his hair left and right, and some of them kissed him both left and right, and, finally, they took away his necktie and the stud from his shirt. He went away humbled. His humility convinced him that, if he had to teach the very young, he must undergo a very different kind of training from that which he had previously had. Therefore, he hoped what the Bishop had said about his little failure would be an encouragement to those who found it sometimes difficult to deal with the very young.

The vote of thanks having been passed by acclamation, the CHAIRMAN, in reply, said: I do not know that I deserve your thanks for coming here this afternoon. There is no greater pleasure to me, or to anybody else in my position, than to look upon the faces of those who are going forth to teach the young of the coming generation. We all of us know how much depends upon you; we know the older we get how much you can do that we cannot do, and it is a delight to think

that anything we can say in any possible way can help you to do your work. I have only this one other thing to say: "Be true to your vocation as a teacher." I am delighted to think that the sense of vocation in teaching is really growing. A little while ago I should have said that teaching was the line of life in which there was the least sense of vocation. That seems to be the reason why it did not advance so rapidly as it might, but I believe that is breaking down. I was delighted recently to see the letter of a young man who had gone to be a schoolmaster. At the end of his first term he wrote that he was very sorry the term was coming to an end, because he enjoyed his work so much that the notion of parting with it was really a perfect agony. The next term he wrote to say that he had a class of twenty, and that he had succeeded in getting hold of nineteen of them, and he thought he could get the other one in process of time. That came under my observation as a thing that was current and passing. If you can get parents in the least degree interested in what their children have done at school, you have done a great deal.

GENERAL CULTURE.

THE writings of Matthew Arnold have, perhaps, tended to throw some discredit on the general culture which that apostle of sweetness and light advocated so fervently. If there had been any fault in the boys that his father sent up to Oxford, it was a certain air of superiority almost akin to priggishness. Perhaps the same fault has been noticed in those who have worshipped at the shrine of the son. The possession of culture may carry with it a certain feeling of superiority in inferior minds; and the world is most severe on anything that rebukes its own shortcomings. Whatever be the cause, the word "culture" is apt to raise a smile on many faces. But, surely, there is no true reason or this. Culture should be the quality of those who have carefully trained themselves; but in practice it is used in a somewhat more limited sense, and this we propose to adopt. There are the two great entities, "Man" and "Nature"; let science be restricted to the study of the latter, and let culture be kept for those studies that are in any way connected with man.

Now, at the present day, there is a very real danger that the study of man may be neglected, though Sir William Hamilton declared that there is nothing great in the world but man. So many new subjects are asserting their right to a place in the curriculum, that old-established studies have to yield. "The old order changeth, giving place to new." The first step was the giving up of Greek: soon the study of Latin may have to go. The Birmingham Chamber of Commerce advocates its dismissal from commercial schools. [See the *Schoolmaster*, September 16, 1899.] But it is surely wrong that knowledge of the Greeks and Romans should vanish. Nowhere can all the qualities that go to make a good man be so well illustrated as from their histories. A great Englishman once traced much that was good and noble in the character of Englishmen to the lessons they had heard when young on the Greek and Roman heroes. If Latin and Greek must go, cannot they be replaced by what may be called "general culture lessons"? Such lessons would form a useful corrective to the utilitarian and materialistic influences of much science teaching. An advocate for the qualities they would train may be found in "What is Secondary Education?" where Mr. Jennings says: "The mind needs to be trained, as well as the memory stored; and no line of life—least of all that great profession which needs so large a knowledge of men and things as commerce—can dispense with general literary culture" (pages 87-8). What is required may be expressed in Emerson's words—an introduction to the universal mind.

In addition to this general plea, a particular one may be put in for more lessons in universal history. Why should the range of the average person be restricted to his native land? Take such a book as "Men of Might." Among the fourteen names with which it deals are Socrates, Mohammed, St. Bernard, Savonarola, Washington, Wesley, and Damien. A boy who has gathered some notion of just these few great men has been widened and liberalized. The Greeks, the Mohammedans, the Italians, are a little more real than they were before; while the story of Damien's life teaches that other things are worthy of man's ambition beside making a fortune. Even more to the point is the list in Miss Stirling's "Torchbearers of History": Homer, Sophocles, Socrates, Alexander the Great, Regulus, Julius Cæsar, Virgil, Hypatia, King Arthur, Charlemagne, Rollo, The Cid, Cæsar de Lion, Dante, Robert Bruce, Joan of Arc, Columbus, Copernicus, Luther. Here are nineteen names, which can be taken in as many lessons, and will form about two terms' work. Yet how many schools do give such lessons? Think what an illuminating influence they might be made to have. At the same time they would give definiteness to names that are floating vaguely in the mind, so well known as to be almost unknown. Not long ago a lady who would have considered herself well educated, and could speak modern Italian well, spoke of Dante in a tone of astonishment that at once revealed her profound ignorance of him. Yet he is one of the world's greatest classics. Such ignorance ought

to be impossible. Easier lessons of the kind advocated will be found in Miss Gardner's "Friends of the Olden Time." Sir E. Creasy's "Fifteen Decisive Battles" also lends itself very well to this object of taking a boy's mind over the world's history.

If "General Science" has a place in curricula, and even in examinations, why cannot "General History" find a place also? If it found a place in regulations, it would find a place in schools. Only examiners would not have to set papers for the special purpose of finding out what boys did not know.

A word may be put in for general papers, as taking very little time, and tending to rouse boys' minds to take a keen interest in all manner of things. Plenty of questions can be set, to make them "all eyes" with regard to their surroundings and what goes on in them. The following will show what is meant; but stock questions on books, characters, and authors have been left out. The questions have all been actually given:—

1. Explain briefly why England needs to keep a firm hold on Egypt.
2. If you were forced to emigrate, where would you go, and why?
3. Name half-a-dozen living novelists, with some of their works.
4. Name the parts of the world that still require to be explored.
5. Mention a score of notable events in the present reign.
6. Mention some great shipping companies, with their main routes.
7. Name the parts of a bicycle.
8. Put down half-a-dozen reasons (one line each) for and against cycling.
9. Name the countries in the world that are vigorous, and those that are decaying.
10. Quote ten proverbs.
11. Name the qualities that help to make a man successful.
12. If you were made a millionaire, how would you use your money?
13. Name a dozen of Scott's novels.
14. Sketch in a few lines the character of a great general.
15. Name some great engineers, with their most famous works.
16. State what the following are:—A Strike, Arbitration, European Concert, Bribery, Free Trade.
17. Name the chief towns connected by the G.W.R.
18. Define *courage*, *honesty*, *candour*, *uprightness*, and give examples of their display from your reading.
19. Name some wars which you consider righteous, and some which you deem unjustifiable.
20. Picture in a few lines the astonishment of Julius Cæsar if he were brought to life and dropped down in the London of to-day.

SOMERSET BATEMAN.

CHATS ON CHILD-STUDY.

II.—IMAGINATION.

MUCH controversy has arisen round the question as to whether or not children are imaginative, as compared with adults. It is really impossible that they can be so. Whether imagination is regarded from the artistic side, when it mainly depends on richness and variety of experience, or from the scientific side, when it depends on the accuracy of the images formed, it must be admitted that the average child falls below the average adult. We hear of children who will spend hours at a time "making believe" to be shipwrecked sailors, railway porters, characters from the Bible, and what not. If they could imagine the sea or a train correctly, they would not be content with the inadequacies of the carpet and an inverted chair. A boy who has experienced a sea-passage finds such an amusement dull, because his better imagination destroys the illusion of the playthings. Who would care for a broomstick if he had ridden a pony? In short, everything to a child is symbolic—it is exactly as he says, "make believe"; his toys are his slaves and become just what he wishes at the moment. This explains the fact so puzzling to parents, that a grand new toy is very quickly discarded for a plain old one. A doll with real hair, broad smile, eyes that close, and so on, is delightful for a short time; but the child soon finds that it can only be a young lady in a happy mood, its features are too pronounced to be overlooked. Now the old doll, with no hair, no features, no shape to speak of, could make believe to be a man, a baby, a corpse, anything; and, moreover, it has gathered round itself such strong associations and modes of behaviour for these diverse characters that the child cannot endure to lose or exchange it. Granted, then, that children have the power of making any given plain object stand for something more complicated, it in no sense follows that a picture of the latter is formed in their minds: with their well known formula "let's pretend," they manipulate and shuffle their dolls and bricks as free from concrete picturing as a mathematician with his x , y , z . Teachers who have relied on this supposed native power of imagination in children have met with the most absurd results, especially in "object-lessons" where the object is omitted. Poetry read aloud to a child often gives him, by its musical cadence, the same sort of pleasure that it gives a savage, but the images, if any, that are formed are quite foreign to the poet's intention, unless well within the child's experience. "For his sheep he doth a steak" is a stock instance of what dictation reveals.

It will be urged that children's imagination is proved by their constant demand for stories to be told them. Compared with an adult's love of the

newspaper, gossip, history, novels, the child's craving for stories sinks into insignificance. But there is a marked difference in kind, as well as in degree. Children prefer an old story to a new one. Is this not because the old story demands only the use of simple memory, the lowest of intellectual faculties, and the children's faculty, *par excellence*? There are no fresh images to be built up, requiring effort, and the slightest deviation from the first edition on the part of the narrator is usually resented and corrected. The fact that children will picture fairies and impossible birds and beasts as readily as they will actual people and commonplace animals is no mark of good imagination, but simply of fancy, unchecked by experience. In short, what imagination a child possesses is characterized by wildness of fancy and feebleness of true creative power. This weakness is especially marked in the matter of *size*. Owing, doubtless, to the smallness of a child's body, the only standard of measurement he possesses, great difficulty is experienced in picturing rooms, gardens, castles, giants, &c., large enough to meet the requirements of the story. But the teacher should remember that everything in the child's mind is roughly to scale; and, if his castle is tiny, his cottages are correspondingly lilliputian.

I have known a child who has just been told that a gate was "very high, as high as this room," immediately ask if it were as high as "that" (making a gesture to indicate a few inches). He had evidently paid no attention to the teacher's aid to imagination, but at once fitted the big gate into his small canvas, in which a few inches would mean to him a considerable space. A teacher will do well merely to assent and pass on in such a case, or the child's mental picture will be confused. There is a story of a London Board-school child who, at the end of a lesson on the cow, was asked how big she thought it was, and pointed to her thumb for a reply. It is doubtful whether the teacher was at fault. A child's imagination is quite primitive, of course, and can only be developed very slowly. The element of accuracy is best trained by drawing and simple measurements in arithmetic lessons; while the elements of richness and variety must be *fed* by story, description, and, above all, pictures.

M. V. H.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held on October 14. Present: Sir Philip Magnus, Vice-President, in the chair; Mr. Barlet, Mr. Baumann, Rev. J. O. Bevan, Rev. A. W. Boulden, Mr. Brown, Dr. Buchheim, Mr. Butler, Miss Dawes, Mr. Eve, Mr. Harris, Mr. Pinches, Mr. Rushbrooke, Rev. Dr. Scott, Mr. Sergeant, Mr. Armitage Smith, Mr. Storr, Dr. Sully, and Mr. Walmsley.

The minutes of the last meeting were read and confirmed.

It was resolved that, in consequence of the Education Exhibition to take place at the Imperial Institute in January next, and of the series of conferences and demonstrations proposed to be held in connexion therewith, in which the College had been invited to take part, the next Winter Meeting of Teachers should not take place till January, 1901.

The Diploma of Associate was granted to Mr. C. H. Hart, who had passed the required examination.

The Report of the Examination Committee was adopted, and the following additions were made to the examining staff of the College:—*Mathematics*: Mr. J. Blaikie, M.A. Camb.; *German*: Mr. E. L. Milner-Barry, M.A. Camb., and Mr. A. E. Twentyman, B.A. Oxford.

The Report of the Finance Committee was adopted.

The following persons were elected members of the College:—

- Miss G. A. Aldridge, A.C.P., 73 King's Road, Reading.
- Mr. H. R. Leatham, Thanet College, Margate.
- Miss S. Shenessy, A.C.P., Rufford School, near Ormskirk.
- Miss A. Wicks, A.C.P., 3 Hainault Terrace, Ilford.

The following books had been presented to the Library since the last meeting of the Council:—

By the EDUCATION DEPARTMENT LIBRARY.—Preussische Statistik, Nos. 150 and 151. By E. ARNOLD.—Lloyd Jones' Verne's Un Drama dans les Airs; Poole's Laboulaye's *Pif Paf*.

By G. BELL & SONS.—Spencer's *Eutropius*, Books I. and II.; Wells' *Ovid's Metamorphoses*, Book I.

By BLACKIE & SON.—Blackie's English Classics (Macaulay's *Lay of Virginia* and Southey's *Shorter Poems*); Downe's *Passages from Modern Authors for Class-Reading*; Fenn's *Nat the Naturalist*; Smeaton's *English Satires*; Warner's *Brief Survey of British History*.

By W. B. CLIVE.—London University Guide and University Correspondence College Calendar, 1899-1900.

By HACHETTE & Co.—Lazare's *Gems of Modern French Poetry for Reading and Recitation*, and *Petits Chefs-d'Œuvre Contemporains*; Naftel's *Malot's Remi en Angleterre*.

By MACMILLAN & Co.—Castle's *Elementary Practical Mathematics*; Evans' *Botany for Beginners*; Gregory and Simmon's *Exercises in Practical Physics*, Part I.; Hadley's *Magnetism and Electricity for Beginners*; Page's *Virgil's Æneid XII. and Virgil's Georgic III.*; Pellissier's *De Vogue's Coëtis russes*; Peterson's *Johnson's Life of Pope*, and *Life of Dryden*; Pollard's *Chaucer's Squire's Tale*; Roscoe and Harden's *Inorganic Chemistry for Advanced Students*; Stephen's *French History for Schools*; Todhunter and Loney's *Euclid*, Books I.-IV.; Wackley's *About's Le Roi des Montagnes*.

Calendars of University College, Bristol; Mason University College, Birmingham; Durham College of Science, Newcastle.

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FORECASTS AND COMMENTS.

November 1, 1899.

THE Committee of the Modern Language Association Fixtures. tion has arranged for a course of lectures on Phonetics, especially intended for teachers of English, French, and German, to be delivered in London during the present term and the Lent term, 1900. The lectures will be given by Prof. Walter Rippmann, at Queen's College, 43 Harley Street, Cavendish Square, on the following Wednesday evenings at 8.30:—November 8 and 22, December 6, January 31, February 14 and 28, March 14 and 28. Each lecture will be followed by a discussion. Application for tickets should be made to W. G. Lipscomb, M.A., Hon. Secretary of the Modern Language Association, University College School.

* * *

HERE are the scholarship fixtures at Oxford for the month of November:—November 7: Exeter, Brasenose, Christ Church—Classics. November 14: Merton, Pembroke, Worcester—Classics; Wadham—Hebrew. November 21: Queen's, St. John's, Keble—Classics; Balliol, Queen's, Corpus Christi—Mathematics; Balliol, New College, Queen's—History; Balliol, Christ Church, Trinity—Science. November 23: Balliol—Classics. November 28: Brasenose, Christ Church, Pembroke, Worcester—Mathematics. November 30: Trinity and Wadham—Classics.

* * *

MR. A. J. BALFOUR will preside at a special festival dinner in aid of King's College, London, at the Whitehall Rooms, on November 28.

* * *

THE next competition for Junior County Scholarships will be held on November 11.

* * *

THE Annual Preliminary Examination for Scholarships under the London School Board will be held on December 4 and 5, 1899. This year there will be 63 scholarships and exhibitions—38 for boys and 25 for girls. This number includes 10 places for boys in the Christ's Hospital School, London (Blue Coat School) and 5 places in their Girls' School, Hertford, and 19 places for boys and 16 for girls whose parents have resided for a year in certain London parishes.

* * *

EIGHT entrance scholarships, from £75 to £50, tenable for three years, will be offered for competition at the Royal Holloway College, Egham, in July next. For further information application should be made to the Secretary, Royal Holloway College, Egham, Surrey.

* * *

THERE will be no Winter Meeting of the College Education of Preceptors in January next. The English Gossip. Education Exhibition, preliminary to the transfer of educational exhibits to Paris, has been fixed for the first fortnight of 1900. In connexion with this exhibition there is to be a series of conferences and lectures, in which the College has been invited, and has consented, to co-operate. Under these circumstances the Council has resolved to suspend its Winter Meeting for the year.

THURSDAY, October 12, being Founder's Day at Harrow, was chosen as a suitable occasion to uncover the reredos which has been placed in the school chapel in memory of Dr. Vaughan. It has been provided by a subscription among Old Harrovians, and is a beautiful piece of work. At the evening service the Rev. Dr. Butler, Master of Trinity, referred to the special and splendid influence of Dr. Vaughan on the boys, and on the fortunes of the school during his headmastership.

LORD KELVIN's successor in the Chair of Natural Philosophy at Glasgow will receive an income of about £1,500. Prof. Gray, who is a Scotchman and fifty-two years of age, was educated at Glasgow University; and from 1875 to 1884 he was Lord Kelvin's assistant. He has written some works on electrical measurements—a subject on which his predecessor is one of our greatest authorities.

THE London School Board seems to be disposed to show fight over the question of higher-grade Board schools. At its meeting on October 19, a recommendation of the Works Committee for the erection of a higher-grade mixed school at Hackney was met by an amendment that in view of the recent decision of the auditor, disallowing expenditure by the Board on science and art teaching, certain parts of the proposed school, to be devoted to such teaching, should be abandoned. After some discussion the amendment was rejected by 29 to 15 votes, and the motion was agreed to. The Board also decided to appeal to the High Court against the surcharges made by the auditor in connexion with art and science teaching. Probably the Board relies on the *fait accompli*, and expects that every school which it establishes will be maintained by some one or other.

CRICKET is undoubtedly an educational topic, but Mr. Alfred Lyttelton's jeremiad over the decadence of the game in the *National Review* for October has but little application to school cricket. He says that first-class cricket has become dull, and when a "blue," and such a brilliant all-round athlete as he is, suggests that the despicable stone-wall tactics of the new cricket school accounts for the rise of golf, it is perhaps high time to cry "wolf."

MR. LYTTELTON suggests an increase in the height of the wicket, or (better still) a decrease in the width of the bat. *Tempora mutantur!* When we played cricket at school and college, the wickets were too high and too broad, the bat was too narrow, the ball too small, and the game was never, never dull. But then we did not play for gate-money.

THE Sesame Club continues its discussion of matters bearing more or less closely on education. Among other lectures in its autumn session may be mentioned one on "Early Umbrian Art," by Miss March Phillips, and one on "Schools and Scholars in India," by Mrs. F. A. Steele. The debate on "The Obsolescence of Education" should prove suggestive and spirited, since it is to be opened by Mr. Bernard Shaw.

At a meeting of the Council of the College of Preceptors held on October 14, the following were appointed to Examinerships:—In Mathematics, J. Blaikie, M.A., Fellow of Gonville and Caius College, Cambridge, an Examiner for the Oxford and Cambridge Joint Board; in German, E. L. Milner-Barry, M.A. Cambridge, an Examiner for the Cambridge Modern Language Tripos, and A. E. Twentyman, B.A. Oxford.

At a recent meeting of the Glasgow University Court, Mr. Andrew Gray, Professor of Physics in the University of North Wales, was elected to succeed Lord Kelvin in the Chair of Natural Philosophy. Mr. D. J. Medley, of Keble College, Oxford, was appointed to the Chair of History, vacant through

the resignation of Professor Lodge, now of Edinburgh University.

THE Professorship of Music at Oxford, in succession to Sir John Stainer, resigned, will shortly be filled. Sir Hubert Parry is a candidate for the position.

THE Principalship of University College, Liverpool, is vacant by the resignation of Mr. Glazebrook.

IN the new legal department of the Yorkshire College, Leeds, wherein Mr. Walter R. Phillips, LL.M., has been appointed the Professor, the Lecturers on Law are Mr. G. Glover Alexander, M.A., LL.B., Mr. Albert Earnshaw, M.A., and Mr. C. J. Haworth, B.A., LL.B. Mr. Arthur J. Grant, M.A., has been appointed Professor of Ancient History, and Mr. C. M. Gillespie, M.A., has been appointed Lecturer on Logic.

THE REV. W. E. ADDIS, M.A., has been appointed Lecturer on Old Testament Literature in Manchester College, Oxford, in succession to Mr. J. Estlin Carpenter, M.A., now Hibbert Lecturer on the Comparative Study of Religions.

THE REV. H. C. BEECHING has been elected Clark Lecturer on English Literature at Cambridge. Mr. W. L. Duckworth is appointed Lecturer in Physical Anthropology in the same University.

MISS WINIFRED L. JAMES, B.A. London, has been appointed to be Headmistress of the Perth Intermediate School.

THERE is a vacancy in the headmastership of Aldenham School, Herts. Applications should be made on or before November 11. There is also a vacancy in the Headmastership of the Rhondda Intermediate School.

THE death is announced of Mr. E. J. Marshall, who had been for nearly fifty years Headmaster of Brighton Grammar School.

APPLICATIONS for the Principalship of the Borough Road Training College, Isleworth, should be sent in not later than November 10.

It is proposed to found a Lectureship on English Literature at University College, London, to be known as the Stopford Brooke Lectureship, and with Mr. Stopford Brooke as the first Lecturer. The project has been approved by the Council of University College, and the committee which has been formed to promote it includes Mr. Bryce, Mr. Gosse, Dr. Blake Odgers, Miss Anna Swanwick, Miss Kate Warren, and Prof. Ker. Subscriptions are invited.

ON this subject the *Daily Chronicle* says:

University College is one of the principal constituent bodies of the new University of London, which promises in the course of a few years to stand conspicuous amongst the Universities of the world. The nation must endow its metropolitan University until it is not merely efficient, but "exceeding magnificent." The liberality of the State must be supplemented by the generosity of the private benefactor. We cannot imagine a better form in which to give expression to such generosity than the endowment of a chair for Mr. Stopford Brooke, whose name is familiar to students of English, and whose lofty and elegant discourses have stood for many years past with English audiences as models of a picturesque and poetical prose.

A CORRESPONDENT of the *Times* at Rome tells us that a profound impression was produced in the Oriental Congress by a letter from Prof. Max Müller. In pathetic but dignified terms the venerable scholar bade farewell to the Congress, on the ground that his illness precluded any hope that he would again take part in its proceedings. He spoke of the approaching completion of the translation of the "Sacred Books of the East," and

presented a copy of that magnificent series to the Congress as a testimony of his good will, and of the encouragement and help which he had during many years received from its members. "The communication," we are told, "was received with deep emotion, for the amiable personality of Prof. Max Müller, the wide range of his scholarship, and his rare combination of genius with learning have given him a unique place among the Orientalists of Europe."

* * *

GREAT BRITAIN seems to have been well represented at the Congress. Its general President, Count di Gubernatis, who, under the King of Italy as patron, organized the work of the session, is intimately acquainted with India by personal travel, and has taken care that Indian interests should be strongly represented in the directing body. The presidents of sections include Sir Charles Lyall, delegate of the Government of India; Sir William Hunter, delegate of the University of Oxford; Sir Raymond West, and other distinguished scholars on behalf of the Royal Asiatic Society, Colonel Temple, Mr. Cecil Bendall, and Mr. Pinches, of the British Museum.

* * *

DR. HEINRICH ZIMMER, Professor of Sanscrit at the University of Greifswald, has been spending some weeks in Wales. The learned professor is known as one of the most eminent of living Celtic scholars. He is a fluent speaker in each of the four Celtic languages, and his articles in the German *Quarterly* some time ago displayed a comprehensive knowledge of Welsh literature.

* * *

THE most noticeable article in the *English Historical Review* for October is Dr. Gardiner's paper on "The Transplantation to Connaught," and what is known as Cromwell's Settlement. The writer has worked upon a large number of authorities, and throws much light on the almost incredible scheme of packing away the irreconcilable Irish Papists in "Connaught and Clare." Dr. Gardiner's conclusion is that "we may still fairly talk of the Cromwellian settlement of Ireland, because it was Cromwell's sword and Cromwell's power which gave it life." But the scheme was apparently not Cromwell's original device, and he did something to qualify its severity.

* * *

THE *Oxford Magazine* says that the Daniel Press has been very active this summer. "A Selection of Hymns from the Yattendon Hymnal," put together by Mr. Robert Bridges; a sylvan drama by Michael Field, called "Noontide Branches"; and a brochure entitled "Outlines," by a known but anonymous writer, an old Oxford man who signs himself W. S., represent the recent output. The promised "Sonnets by Mary Queen of Scots" have been delayed, but are in hand; and one or two more very interesting additions to the now long list of the Worcester House impressions are in contemplation.

* * *

MR. R. S. RAIT, who has just been elected to a fellowship at New College, Oxford, is Stanhope Prizeman in the University, and took First Class Honours at the Finals three months ago. He has already published a pamphlet on "The Kingis Quair," an article on "Andrew Melville and the Revolt against Aristotle in Scotland," besides a book on "Mary Queen of Scots" (which, within six months, is entering on its second edition), and a school history for one of Messrs. Blackie's series. He also last year visited Hanover and Berlin at the instance of the New Spalding Club, and made investigations (which he embodied in a report to the Club) regarding the Burnet MSS. preserved in the Staats-Archiv at Hanover, and the Marshal Keith letters in the Royal Library at Berlin.

* * *

PROF. MEDLEY, who has been appointed to the Chair of History in Glasgow University, was educated at Wellington and at Keble College. His age is thirty-eight. His first published work was "A Student's Manual of English Constitutional History," which was originally issued in 1894, and

reached a second edition four years later. At Cambridge it was placed among the books recommended to undergraduates by the Board of History and of Law, and was largely used in American Universities. At present he has in hand a "History of the Empire and Papacy in Mediæval Times."

* * *

THE death is announced, at a ripe old age, of the Rev. C. Cadwallader Adams, formerly Fellow of Magdalen College, Oxford. Dr. Adams was an industrious and prolific writer. Among his works were "The Twelve Foundations and other Poems," a Greek and a Latin "Delectus," "Wykehamica," "Perils in the Transvaal," "A History of the Modern Jews," &c. But he was best known as the author of stories for boys. Such tales as "The Cherry-Stones," "The First of June," and "Schoolboy Honour" went through numerous editions and enjoyed a wide and long popularity.

* * *

THE MS. of Milton's minor poems, which has been preserved for upwards of two hundred years in the Library of Trinity College, Cambridge, has been reproduced in facsimile by Mr. Dew-Smith, and printed by the collotype process. The MS., of which the greater part is in Milton's own hand, consists of 47 pages, and contains the "Arcades," "Comus," "Lycidas," and several of the "Sonnets," besides the first sketch of "Paradise Lost" as a drama, and notes for poems from sacred and profane history. Each page of the facsimile is accompanied by a literal copy in ordinary type. By the request of the Council of Trinity College, the work has been superintended by Mr. William Aldis Wright, Vice-Master.

* * *

"THE MATRICULATION HISTORY OF ENGLAND," by Mr. C. S. Fearenside, who is already known as the joint author of "The Intermediate Text-book of English History," is to be published shortly by Mr. Clive. The book is intended for use by candidates preparing for London University Matriculation, one of the requirements of that examination being "the History of England to the end of the seventeenth century." Particular attention has been given to the arrangement of the narrative and to the avoidance of loose and inaccurate expressions, and care has been taken not to confuse the learner with unimportant names and details. Here and there introductory and summary chapters indicate the characteristics and tendencies of each period. Maps, plans, and tables have been freely introduced. The narrative of events before 1066 is unusually full, owing to the importance attached to this portion of our history at the Matriculation Examination. Mr. Fearenside will shortly proceed with a continuation of the above work, bringing the narrative down to the present time; the whole will then be issued under the title of "The Tutorial History of England."

* * *

A COMPANION volume—"The Tutorial History of English Literature"—may be expected early in 1900. The author is Mr. A. J. Wyatt, who recently completed the late Mr. W. H. Low's "Intermediate Text-book of English Literature," and who has edited several English classics in the "University Tutorial Series." Mr. Wyatt will concern himself only with the really great names in our literature, the book being intended as a primer on the subject, suitable for the middle forms in schools and for candidates for London University Matriculation. Illustrative extracts will enter largely into the work.

* * *

AMONGST the new announcements of the Cambridge University Press are: "Bacchylides, the new poems and fragments," a revised text, with introduction, critical notes, and commentary, by R. C. Jebb, Litt.D., Regius Professor of Greek in the University of Cambridge; "Herondas, the Mimes," edited with a commentary by Walter Headlam, M.A., Fellow of King's College, Cambridge; "Two Greek Grammars of the Thirteenth Century," now first edited with introduction and notes, by the Rev. Edmond Nolan; "The Early Age of Greece," by William

Ridgeway, M.A., Disney Professor of Archæology in the University of Cambridge; and the second volume of a "Catalogue of the Greek Manuscripts on Mount Athos," edited by Spyr. P. Lambros, Professor of History in the University of Athens.

* * *

IN Mathematics and Science, the same Press announces:—The "Scientific Papers" of John Couch Adams, M.A., Sc.D., D.C.L., LL.D., F.R.S., &c., late Lowndean Professor of Astronomy and Geometry in the University of Cambridge. Vol. II., edited by W. G. Adams, Sc.D., and R. A. Sampson, M.A.; and other "Scientific Papers" by Lord Rayleigh, Sc.D., F.R.S.; by the late John Hopkinson, M.A., D.Sc., F.R.S.; by Osborne Reynolds, M.A., F.R.S., Professor of Engineering in the Owens College, Manchester; and by P. G. Tait, M.A.

SCIENCE TEACHING AND INSPECTION.

THE FUNCTIONS OF SCIENCE TEACHING BEST TESTED BY EXAMINATION AND THOSE BEST TESTED BY INSPECTION.

MR. H. W. EVE, Dean of the College of Preceptors, took the chair at the evening meeting of members on Wednesday, October 18, when Dr. WORMELL read the following paper:—

In mountaineering, every stage we reach as we climb upwards invites us to survey our surroundings from the new level, and to modify our plans with the new light thus obtained. So it is with educational progress. The new Act just passed is such a stage, and presents its invitation to pause and look forward. So it happens that, although I have spoken frequently here on questions connected with the teaching of science, and thought I had spoken my last word on the subject, I find new reflections suggested by the new conditions.

The most important feature of the Act, as regards my subject, is the recognition in it of the value of inspection of schools. I am persuaded that the emphasizing of inspection is the emancipation of science teaching. The effort to restrain this work to that which can be examined in the ordinary way, like arithmetic, geography, or literature, has narrowed and stultified our science work. There are functions of science as an educative instrument that may be fully and safely tested by examination, but there are other functions peculiar to itself that are best tested by inspection, that is to say, by the observation of experienced and skilled inspectors in the laboratories and workshops. In some of its functions science work cannot subject itself to the ordinary forms of examination without being stultified. Examinations sufficiently test knowledge, but inspection is needed to test skill and power.

"Knowledge dwells in heads replete with thoughts of other men."

But, in one main part of science work, it is the operator's own investigations and operations that require estimating, not simply his knowledge of what has been done by others. Examination, in a sense, is, of course, a necessary accompaniment of inspection, for an inspector must ask what is being done and why; but this questioning is not examination as ordinarily understood. Examination is a silent process carried out under the vigilant eye of a bull-dog or of a pack of bull-dogs, the examiners themselves being *in nubibus*. By the extension of inspection it must not be supposed we shall necessarily lower the value of examinations; on the contrary, we shall strengthen it by limiting it to its natural offices.

In order to confirm this statement let me consider in some detail the uses of science in education. The advocates of science work have used a great variety of argument and illustration, and urged very varied reasons for their opinions. The fact is the matter may be viewed from many distinctly different standpoints, and the number is increased by the fact that different sciences are capable of serving different purposes as educational instruments. It has been a fad of mine to take two sciences, usually considered to resemble each other or to be nearly allied, and to contrast them as regards their effect as means of discipline.

Let us examine this point a little more closely. The physicist and the chemist have to pursue paths quite distinct from those of the mineralogist and botanist, or any other devotee of the descriptive natural sciences. Chemistry and physics are most intimately related; yet, even as compared with physics, as I have often pointed out, chemistry has its own special functions. Different types of mind progress in them with varying facility. When I find that students excel in chemistry who without much greater labour would not excel in physics, and *vice versa*, I conclude that, "though each resembles each in every part," there is a difference as regards the special function of physics and chemistry in education. In addition to the nature of the manipulations and observations exercised by chemistry, there are three special purposes the teaching of it serves. It teaches the possibility and value of economy—(1) economy of power, (2) economy of time, (3) economy of material.

Chemistry reveals very early methods of utilizing products apparently worthless, and of endowing bodies with properties which render them of increased value to man. The teaching of chemistry is a check upon waste. Would you encourage thrift? Then you will teach chemistry, for she, like a prudent housewife, economizes every scrap. Now, physics has a special influence on language that chemistry has not. The nomenclature of chemistry is by far the most concise and expressive of all scientific nomenclatures. Its symbolization is comparatively an ideal shorthand. But it does not mix well with ordinary literature. Such a word as sulphocyanide of potassium, for instance, cannot serve as a flower of rhetoric. How different is the case with the language of physics! It is born of the language of the people; its terms are amongst the most forcible in daily use. Take a few examples: dense, density, cohesion, porosity, tenacity, torsion, luminosity, compensation, capacity, elasticity, impulse, effort, force, gravity, moment, friction, lubrication, concord, discord, harmony, interference, resonance, energy, its conservation, dissipation, and transmutation, and a hundred others. Physics gives suitable clothing to many thoughts in fields of philosophy, speculation, and fiction. It may be that the primary object in introducing the study of physics to scholars in schools is one which applies to science generally. But the student of science, in addition to becoming exact in his manipulation and exact in his habits of thought, has to cultivate a habit of exactness in the use of language; and when, as in physics, the language is that of ordinary use, the latter result is an important aid to language teaching. Look at the force of the analogies drawn from physics. The composition of alcohols and acids furnishes neither simile nor metaphor, but Faraday's description of the rainbow over a waterfall, like hope, always prismatic, ever changing, but ever clinging to the rock, is eloquence itself. In very early days the use of analogies from the laws and processes of nature was understood, certainly ever since it was written that, "as iron sharpeneth iron, so a man sharpeneth the countenance of his friend." The very old Book of Job is inlaid with the notions of physics. Light and darkness, the molten looking-glass, the treasures of the snow, the hoar frost of heaven, the dew and the rain, springs of water and floods, the course of lightning, the clouds and the whirlwinds. Carlyle, with the instinct of genius, says of these descriptions: "So true every way, true eyesight and vision of all things; material things not less than spiritual." It is evident, therefore, that this bearing of physics is not dependent on depth of knowledge: it begins with the first clear perceptions of actions of Nature and the first successful attempts to express them in definite and exact terms. The conditions of a profitable use of language in physics, and physics in language, are that these actions shall themselves have been thoroughly observed and tested. But the mutual aid of each to the other never ceases to grow as long as knowledge grows. The literary influences of some sciences are fit subjects for examination.

Again, first and foremost, perhaps, amongst the services which are common to most sciences is the influence on the growth of mind and reasoning powers. The successful student of science becomes ready at all times to correct or amend his conclusions in the face of new facts. He can never be guilty of an arrogant assumption of infallibility. It is not the student of science who says: "What I know not is not knowledge."

Goethe, when an old man about seventy, wrote some thoughts on education. He thought men were striving more to get power of speech—glibness of tongue and pen—than to be careful for the truth of what they spoke or wrote; that it was becoming common to find excellent speakers discoursing fluently on what was not true—having found a wrong judgment in regard to fact. Hence Goethe sketched a scheme of mute education under the direction of an overseer.

Now science is the overseer, and no other need be devised for the direction of Goethe's plan, and the study of science will naturally develop the three reverences, each distinct from fear, which Goethe thought all needed, which no child brings into the world with him, but without which all other things are useless. This outcome of science study is again a fit subject for examination.

Again, the study of science expands the aspirations. Science has not, like literature and art, a standard of excellence. It is as infinite as the wisdom of God, from whom it emanates. All ordinary powers decrease as you depart from the centre; but the power of scientific research augments the further it is removed from the human source from which it starts. Students who have no science in their curricula may be content to imitate what they cannot surpass; students of science have no such temptation.

Then, again, education is always being charged by those who think more of other spheres of knowledge with the duty of providing for leisure hours as well as business hours. But, surely, scientific studies fulfil this duty. Very much mental gratification comes from trying to understand and apply to human uses the laws of Nature. The philosopher of Scripture has said: "It is the glory of God to conceal a thing, but the honour of kings to search out a matter." Undoubtedly literature has no monopoly of the right or power to provide an elevating recreation for hours of leisure. Scientific research supplies its quota of delight for the leisure both of youth and of mature years.

In regard to all these functions, science work can be, to a great

extent, tested by examination—some, however, less so than others; those of chemistry, for instance, less than those of physics. Then there is the history of the sciences. To this we may easily give undue attention. It is worse than profitless to dwell on the errors of our forefathers; but it is rarely profitless to compare the conditions of men of one period with those of another period. Tracing back these respective conditions to their causes, we behold the head-springs of the influences which have given such diversity to the character and fortunes of different portions of the race. We are able to commune with the great principles which bear the future destinies of mankind in their bosom. Whatever now is, whether weal or woe, is the effect of causes that have existed; whatever is to be, whether of glory or debasement, will result from the causes put into operation by ourselves. The past is a unit fixed, irrevocable, about which there is no longer either option or alternative; but the future presents itself to us as an infinity of possibilities. For the purposes of duty, prosperity, and happiness to-morrow is in the control of the weakest; but yesterday is beyond the dominion of the mightiest potentate. The future, then, is our field of action. The past is only valuable as furnishing lights by which that field can be more successfully entered and cultivated.

It is easy, therefore, to pay too much attention to the history of any science; but there is one aspect in which the history is useful. The best order for elucidating the principles of the various successes is, as a rule, the historical order of discovery. The facts that are first found in order of time are those that are most palpable and lie nearest to hand; while, on the other hand, the discoveries of recent years are drawn from the most intricate and obscure phenomena, and require to be searched after. The growth of an individual mind or intellect resembles the growth of the general mind and intellect of man as a race, and hence the historical order of phenomena is the best order for teaching. We begin the study of electricity, for example, not with dynamos and telephones, the latest inventions, but with a bit of amber and piece of cloth, or a cake of indiarubber and dried sheet of cartridge-paper.

All this time, however, I am but beating about the bush and have scarcely touched the main purpose of science teaching. It is (I have the courage to say it)—it is the utilitarian purpose. Eyes and hands have to be trained, minds have to be braced, sinews have to be strengthened for the hard struggle of industry. Men often make grave mistakes as to the right and logical order of such duties as this, and hence exhaust themselves on non-essentials. Let me ask which is the first virtue in the order of necessity? Certainly it is industry, for by it we now have homes, food, and the means of a comfortable existence; and, if all men and women possessed all other and higher virtues—were absolutely truthful, for instance—but were absolutely idle, the race would soon be extinct, one part dying of famine the other of rheumatism.

Again, what is the first commandment given by the Creator to man?—"Replenish the earth and subdue it." To hear the gabble of Babel of our day one might think it was—Chatter. You have the power of speech—chatter. No; the first commandment to man was to use the intelligence with which he was endowed to subdue the forces of the earth and to bring them into his service. As civilization advances, the demands on intelligent research increase, and the competition in industry becomes a competition of intellect. Experimental science then becomes the life and soul of industry. The searchers after truth for eternal truth's own sake are the horses of the chariot of industry; those who usefully apply the truths are the harness by which the motion is communicated to the chariot. The chief object in science teaching should be to increase the number of the searchers after scientific truth, and to multiply the number of those who can apply the principles for the development of industry.

This is, however, exactly the kind of work which is crippled by examination. We have but to trace the effects of the mincing, halting, and narrow efforts in the Local and other similar examinations to bring experimental science into the examination net to confirm this criticism. A little test-tubing is generally all that is attempted, but it is sufficient to lead schools to conclude that a little test-tubing is all that need be attempted in the schools themselves. It would have been better to leave the practical work free to develop by a kind of natural selection than to have constrained it by the limitations of the examination possibilities. But emancipation is at hand: it comes with the recognition of inspection as for some purposes a more efficient test than examination, the fact that examination and inspection should be twin powers.

Let me now inquire a little further into the differences of operation of inspection and examination. The impression of individual pupils, conveyed by the sham practical examinations I have referred to, have been notoriously erroneous, and the inspector of the future should seek rather to gain a correct, adequate, and just general impression. He will take an accurate and leisurely survey of appliances and results. He will watch the work and inform himself of the extent to which the operators understand it; but he will not spend his time in marking papers, neither will he trouble about the placing of scholars. The business of an inspector is not to place or mark, but to judge and report on general results. Even if to the duty of inspection be added that of

awarding certificates, this will not impose the duty of placing. Such certificates must be in grades or degrees, but should not attempt an order of merit.

I am aware that some teachers have feared the imposition of inspection, fearing lest it should degrade us to a Chinese uniformity or deprive us of freedom. I think this fear may now be dismissed entirely. With wise impartiality our legislators in the new Act provide for the acceptance of inspection by such institutions as the Universities, the College of Preceptors, and similarly qualified agents. We may rest assured, therefore, that the new progress will not deprive us of freedom. Indeed, my contention is that, as regards science work in particular, I will restore to us a freedom we had partially lost. Science will be the better able to fulfil the demands made upon her by industry.

Mobile and steady hands guided by clear vision are everywhere in demand. The hope of science is the hope of the world. Hence my last word on this subject is a plea for free scope for science in education. Science the infinite is part of that which will live for ever. Let us continue to amend our systems. Science will live through the changes. In the world of science there is a constant system of regeneration. Theories exist for a time, but, like the phoenix, die and rise yet more glorious from their ashes. In all this there is no discontinuity, no incongruity. A phoenix does not from its ashes produce an eagle, but a phoenix, as before. When perfect freedom is given to our system we shall find that thousands of minds with keen, passionate, undaunted enthusiasm will fling their whole energy into the toil of science, and thereby add year by year to the sum of human knowledge and to the power of humanity to keep the first commandment. Then will industry escape the punishment of Arachne of old which threatens it. Arachne, you know, was wonderfully skilled in needlework, but presumptuously challenged Minerva to a trial of skill. Minerva united science to her handicraft skill, and this combination secured her success. Arachne was cast from her proud position among mortals by being changed into a spider, ever spinning the same web the same way—the same for wintry blasts as for gentle summer zephyrs. With an emancipated system of science teaching, our industries will resemble Minerva the triumphant.

Dr. GLADSTONE thanked Dr. Wormell for again bringing forward the claims of science, and remarked that the historical method of teaching natural science commends itself on the ground that the mind of the individual followed, to some degree, the same order of development as that of the race, and that it was appropriate to commence the study with the observation of substances near at hand, and which were more accessible than those more recently discovered. The objects of the study of science were very numerous, and it was desirable to determine which were the more valuable. Perhaps the lowest aim was to derive amusement therefrom. Another was the teaching of science as affording material for mathematical problems. More important than these, however, was the mental discipline to be derived from careful and systematic investigation. The study of science developed the power of observation and comparison, and of drawing deductions, and it also trained the judgment. During the century just closing there had been a marvellous adaptation of science to the needs of mankind; but this need hardly be considered in relation to the study of science as an educational question. Science required different treatment from other subjects, both in teaching and in examination. It could not be learned from text-books, and it could not be tested efficiently by means of examination papers. The teacher had to impart a knowledge of certain facts and of the principles connecting those facts, and then to utilize these facts and principles for the general development of the mind. It was important that, from the very beginning, children should be encouraged to make their own experiments. They were thus led to use their own observation and judgment, and they could not fail to take delight in making discoveries for themselves. A competent inspector should ascertain what had been the main object of the teacher in carrying on the class—whether it had been merely to impart scientific knowledge to the pupils, or whether he had also taught the pupils to observe the application of this knowledge intelligently. It would be well for him always to look at the note-books of the pupils, so as to gain the means of judging the nature and quality of the teaching, as well as of the progress of the individual scholar.

Mr. SAPAT considered that the lecturer had laid too much stress on the utilitarian value of the study of science. It was possible to overrate the advantage derived from the application of scientific discoveries to the improvement of material comfort. But it was of far more importance to regard scientific study as a means of discovering truth, and it might also be of use in the teaching of moral lessons.

Mr. ORCHARD remarked that science text-books, even some of the best, were defective in their method of explaining first principles, and thus progress in scientific study was hindered. He agreed with Dr. Gladstone that the study of science was invaluable as a mental discipline, and that inspection should not be confined to the manner in which the work was done, but should extend to the note-books of the students. He did not think that the historical method could profitably be applied to the study of science, as it would involve much waste of time. He was glad that the lecturer had drawn attention to the moral

value of science teaching. To recognize how much one did not know compared with what one did know was a most valuable lesson.

Mr. FOAT said that a fundamental error in the teaching of science, as in the teaching of some other subjects, was that too much attention was paid to dry details, and too little to the great principles that were of far more importance to the young student. It thus happened that pupils left school under the impression that the study of chemistry consisted in the acquirement of a number of formulæ, and that geometry was only another name for Euclid's propositions—often learnt by heart, and without any intelligent apprehension. It followed that such pupils would have distaste for these branches of education, which they might have respected had they been induced to contemplate their glorious possibilities; and when they grew up they could hardly be expected to encourage the study of them by their own children. Unfortunately the exigencies of examinations did not favour the more intelligent plan, but he hoped that teachers would not allow that to divert them from the right path.

Mr. BROWN remarked that there was an important difference between examination and inspection; for, while the former was a test of the pupil's knowledge, the latter was a test of the method by which that knowledge had been obtained. As a test of school work, he considered inspection to be the more satisfactory, because it was less liable to be affected by the idiosyncrasies of examiners. A further objection to examination was that, although a boy might be well taught, and possess an adequate knowledge of his subject, he might be deficient in the power of setting out his knowledge on paper. The best test that could be applied would be for the inspector to hear lessons given by the teachers.

The CHAIRMAN, after illustrating Dr. Wormell's references to chemical nomenclature by a few lines from "Exeter Change,"—

Time was when trimethylamine seemed long,
And phosphammonium all unfit for song. . . .
Until at last the gasping chemists come
To methyl-ethyl-amyl-phenyl-ammonium,

said that, to whatever danger the efficiency of the examination might be liable from the vagaries of examiners, there was no less ground for apprehension in the case of inspection, and that in the latter case the results might be more prejudicial. Dr. Gladstone had touched on a number of objects that might be aimed at in teaching science in schools; but, whatever might be the main object, it seemed essential that boys and girls should go out into the world with clear ideas of how the progress in science had been made, and should understand how to apply scientific method to whatever they might have to deal with. The progress of science had greatly influenced other studies the votaries of which knew very little about science. There were classical scholars, historians, and political economists who could not describe the common pump or write out the binomial theorem, but who had been largely influenced by the methods of science. Fifty or sixty years ago, for example, the interpretation of classical authors proceeded too much upon *a priori* principles. But the application of scientific method had resulted in more minute observation of the facts of language, greater caution in drawing inferences, and more care in testing conclusions. Mr. Foat had put before them a very difficult ideal. It was right to give young pupils large ideas of the science they were studying, but, at the same time, they must not be allowed to think that they knew things of which they were profoundly ignorant. A good teacher should, no doubt, relieve the necessary drudgery of some parts of the study by giving his pupils glimpses of the great results they might ultimately obtain. It was not easy to exactly define the scope of examination and the scope of inspection. Examination was a useful mode of testing knowledge of mathematics and power of translating unseen passages, and it might also be applied to those parts of science which were bound up with mathematics, as well as to descriptions of mechanical and scientific appliances. Then, too, there were certain parts of scientific study that could be tested by practical examination—some parts of qualitative analysis, such problems as finding the angle of a prism or working out questions by means of Atwood's machine. But there was a considerable field where examination did not answer so well. At the point where a student began to observe for himself it failed entirely, for the heuristic method did not lend itself to examination. There must also be a large field of biological study where examination was extremely difficult, and examination of abstruse biological matters without books of reference at hand did not give a good test of powers.

Dr. WORMELL having replied to the remarks of the various speakers, a vote of thanks to the lecturer concluded the proceedings.

THE LINES OF FUTURE PROGRESS IN SECONDARY EDUCATION.

By the Rev. G. C. BELL, Headmaster of Marlborough College.

We print below the substance of a contribution read by the Headmaster of Marlborough College at the Church Congress in London. It deals very helpfully with some of the main

problems raised by the reorganization of secondary education, and our readers will be glad to have a fuller report of this paper. Mr. Bell, who is a member of the College Council, began by saying that his subject was suggested to him by the Bishop of London, and he deprecated the suggestion that he was endowed with prophetic power.

WHAT IS PROGRESS?

Progress is a vague, subjective word; its definition varies with the wishes and aims of the definer. Yet all, reserving the right of private interpretation, might agree that the aim of educational progress is to make boys and girls more fit for their duties as men and women in the home and family, in civic and social life. Now, for progress of any kind there is need of motive power, and also of machinery, or agencies for converting the power into movement. There is no lack of motive forces that might contribute to educational progress; but, as we shall see, each has its own defects, and, as they do not act in parallel lines, some partly neutralize the moving power of others.

If I mention first (a) the reforming impulse of some part of the teaching profession, it is because this force has actually been the chief mover of recent legislation, which has opened new avenues for progress. Indeed, if the pressure of this force had been relaxed during the past Session, the Education Bill would almost certainly have been dropped by the Government.

(b) The steadfast zeal of many who hold that the future welfare of England depends on nothing so much as on education, at once liberal and religious; and that increase in wealth, power, and knowledge can be of no permanent advantage to a nation unless the children of all classes of the community receive a training such as will not only develop intellect, but also mould character by morality rooted in religion. The immense network of voluntary schools is evidence of the power of this conviction in the sphere of primary education. The new departure in secondary education will open fresh channels for its influence: our prayer will be that our Church and other religious denominations may be guided to a policy which shall avoid barren and exasperating strife, and lead to an amicable and equitable settlement.

(c) The desire of the industrial and mercantile classes for such improvements in education as may enable British commerce and industry to retain or recover their position amid the growing competition of the world. The potency of this force is evinced by the activity of the Science and Art Department and of many County Councils; but it is not seldom misdirected and even detrimental to real progress. Technical and scientific knowledge, imparted prematurely and by wrong methods, tends to sterilize faculty instead of developing it. Such knowledge cannot be fruitful unless an adequate liberal education has prepared the soil for it to grow in.

(d) I will mention but one more motive force which ought to be far more potent than it is—viz., public opinion. It should be like the steady current of a full flowing river, such as the St. Lawrence, which supplies resistless power for driving machinery of every kind. There is, indeed, urgent necessity for an immense reinforcement of public interest in educational matters. The new legislation will demand the help of multitudes of educated men and women, not only to serve on County Councils, Local Authorities, and governing bodies, but also to control, correct, or stimulate them by the influence of intelligent public opinion. No legislation can effect the needful reforms, unless such men and women combine to remedy the prevalent ignorance and apathy about educational questions, and recognize more generally that, as parents and citizens, they are bound to fit themselves for active co-operation or intelligent criticism by acquainting themselves with the aims and principles of educational progress and its bearing on the welfare of the family, the nation, and the Empire.

AGENCIES BY WHICH MOTIVE FORCES MAY BE APPLIED.

I.—The Central Authority established by the Education Act: its action is awaited with hopefulness, tempered by anxiety. Excellent intentions are professed, but certain incidents have stirred an uneasy fear lest the Education Board should be unduly influenced by traditions or by personal questions at a time when consummate knowledge and discretion are needed for evolving order out of the present chaos and anarchy; for classifying and registering schools and teachers; for the training of teachers, and the inspection of schools; for negotiations with Universities and other educational organizations; and for controlling and guiding Local Authorities and governing bodies all over England.

In some of these duties the Central Authority will be aided by a Consultative Committee, about which little information could be extracted; but enough is known to indicate that its weight and power will largely depend on its own act and discretion. The Minister may consult it as little or as much as he pleases; if it attempts to dominate, it will be neglected.

Attempts were made by friends of the Church to secure that those who are interested in religious education should be adequately represented on this Committee. But, in view of circumstances which threatened the very life of the Bill, it was wisely contended that, if the

thorny religious question were imported into the discussion in Parliament, the Bill would disappear from the Ministerial programme.

This was an overwhelming argument of practical policy; of another argument the truth remains to be tested, viz., that for taking securities on behalf of religious education the fitting time would come when the question of the constitution and functions of Local Authorities was discussed in Parliament and elsewhere.

II.—This question, of the most pressing and urgent importance, has now come into the immediate foreground: it must be settled on comprehensive principles in the next Session. Those who are interested in the maintenance of religious education cannot expect that, in constituting the Local Authorities, Parliament will provide for direct representation of the Church of England and other religious bodies; and, if such provision could be made, local circumstances would often render it ineffective. But Parliament may be induced to accept such legislation as will debar all Local Authorities from a policy detrimental to religious education; and, at this stage, no time must be lost in agreeing upon proposals which, while effective for this purpose, are also likely to be acceptable to the majority in both Houses.

In framing such proposals Churchmen will doubtless follow the statesmanlike policy of the Archbishop of Canterbury. He said in the House of Lords, April 24, 1899: "I do not claim for the Church of England anything in the nature of special treatment: I do not ask that any preference should be given to the Church as compared with any other religious body." Following the lead of the Archbishop, and asking for an equitable settlement of this vital question in common with other religious bodies, the Church will be reinforced by a body of opinion which should make defeat impossible.

III.—Improvements in the methods and mutual relations of examining bodies may largely contribute to progress. It is to be hoped that by agreement and consolidation examinations may be largely reduced in number, and, in part, replaced by well devised systems of inspection; that there will be clearer views about the standards and curricula suited to different kinds of schools; and that examiners will act in closer accord with teachers. It is common complaint that examinations tend to impair the educational value of many subjects: in no subject has their depraving influence been more seriously felt than in the teaching of religious knowledge or "divinity." I need not enter into details, having already expressed in print candid opinions on this question. Interesting schemes for the improvement of divinity examinations are afoot in several dioceses, and notably in Canterbury, under the guidance of the Archbishop.

IV.—Parliament may help progress, not only by laws which secure the due relations between the religious, moral, and secular elements of education, but also by removing some grave defects which lie outside the jurisdiction of Central or Local Authorities; in particular the system of allocating enormous emoluments at Universities and elsewhere for the endowment of scholarships, under conditions which fail to produce commensurate results: large sums of money are spent in diminishing the University expenses of sons of well-to-do parents, or in encouraging premature specialization at the schools to the lasting detriment of many who gain these emoluments. Much of this money might be more profitably assigned to such objects as larger aid to able students of moderate means; aid to University Extension studies or students; the encouragement of post-graduate study; and the establishment of faculties at Universities for the training of teachers.

V.—The Church of England and other religious bodies will forward progress by steadily insisting that the first essential in education is moral training and the discipline of character, and that the heart of morality is religion; by urging applications of this fundamental principle on Parliament, Central and Local Authorities, governing bodies, examining Boards, teachers, and parents; by applying expert knowledge to formulate schemes of religious teaching on the lines best suited to young people at different stages of mental growth; by preparing manuals for teachers and pupils on Scripture teaching, Church history, Christian doctrine, and ethics; by taking part in the inspection of the methods, conditions, and quality of religious teaching in schools, with the assent of the authorities; by promoting the establishment of training courses for teachers, in which due weight shall be given to religious teaching, and to right methods of imparting it; and by urging parents first to fulfil their own duty of religious education in the home, and then to insist that religious teaching shall have its due place in the schools.

VI.—For parents might help progress far more than they commonly do; not seldom their one aim seems to be to select such schools as are most likely to prepare their sons successfully for given examinations. The time may be coming when parents will more generally seek to understand the aims, ideals, and principles of higher education, and then will apply their knowledge in home education, in the choice of schools, in their relations to teachers, and in their civic or political action in questions affecting education.

VII.—One result of recent legislation is that some kind of training will probably in the near future become a condition of entering the teaching profession, and many improvements will follow. Practical knowledge of the best methods of organization and instruction will in no way fetter the independence and originality of the teacher; it will give him more confidence and a fuller choice of expedients; he will

be like a well taught craftsman who has many good devices and knows the use of all in turn. In teaching language, much time and care will be devoted to the mother tongue; classical authors, ancient and modern, will be regarded not merely as quarries from which words, phrases, and idioms may be extracted, but also as masters of thought, form, and style; science, including mathematics, will be taught in such stages and by such methods as shall best develop faculties of observation and powers of reasoning; and there will be fuller recognition of the value of manual instruction in early years for developing faculties used in higher stages of intellectual progress. The trained teacher will be skilled in the use of these and other expedients, because he has some scientific knowledge of the mutual relations of the physical and mental powers; he moves on scientific lines in his practical application of means for awakening and maintaining interest and attention; for developing in due order and proportion the powers of observation, memory, imagination, and reasoning; and so training his pupils that well ordered and assimilated knowledge acquired in the school course shall be rich in promise of capacity and fruitage in the season of maturity.

Mr. Bell concludes his interesting paper with the following sentences:—"I have enumerated some of the agencies which may contribute to future progress. There is much reason for hopefulness as we trace the possible lines of movement; yet it is natural that some misgivings should be felt by those who watch the play of conflicting interests, opinions, and prejudices, and forecast the dangers of the onward course. We have to beware lest improvements in organization, equipment, and intellectual attainment may directly or indirectly impair the special qualities of English higher education. Improved curricula, or methods framed on foreign models, would be dearly bought if they weakened those influences of our higher schools which discipline the heart, and form the character, and fit our young people to take their part in those duties towards the country, the Empire, and the world at large which the providence of God has laid upon English men and women of our generation."

ON LIBRARIES.

THE famous Althorp collection, numbering as many as 40,000 volumes, finds a fitting and worthy home in Manchester in the beautiful Gothic building which has just been completed after nine years' work of architect and mason. Every one now knows how this magnificent gift has been given to the city of Manchester by Mrs. Rylands, who secured Earl Spencer's library at a cost of £250,000, and then planned this building as a memorial of her late husband in the city in which he had lived and worked. Such a "temple of peace" is not to be found in many cities outside London and our great Universities.

To be turned loose amongst books is to have a rare opportunity of culture, and it is one which the young people of an earlier generation enjoyed, perhaps, more frequently than the modern schoolboy and schoolgirl, with all their systematically organized schooling. Present-day education may be said to suffer somewhat from the want of a margin. Speaking of his sister, Charles Lamb says in one of his essays: "Her education in youth was not much attended to, and she happily missed all that train of female garniture which passeth by the name of accomplishments. She was tumbled early into a spacious closet of good old English reading, without much selection or prohibition, and browsed at will upon that fair and wholesome pasturage. Had I twenty girls, they should be brought up exactly in this fashion. I know not whether their chance in wedlock might not be diminished by it; but I can answer for it that it makes (if the worst come to the worst) most incomparable old maids."

Browsing among books is certainly a delightful and luxurious occupation. The drawback of an ordinary lending or reference library is that this is made impossible by the well meant, but amazing, intervention of the middleman in the form of a librarian, who comes between you and your books when you would fain choose and pull them down for yourself, as you can in the Reading Room of the British Museum or in the Camera at Oxford. In the latter you may spend hours of luxurious quiet, with no sound to disturb you save the occasional footfall of fellow-readers and the gentle, steady sound of stone-cutting outside, where the workmen are, as usual, busy on the tower of St. Mary's. The special delight of the Camera is that one can go down on one's knees before the low shelves of books—economics, philosophy, poetry, what you will—and pull down any book that takes one's fancy—to a certain extent, that is. All the books are not thus available for the browsing student; for many he must conform to the ceremonial prescribed, and specify his wants on slips of paper according to the accepted usage. The Camera is in other ways a delightful reading place. You are so hospitably received and generously treated once inside the noiselessly closing door. Here you find not only desk and pen and ink at your disposal; there is paper, too, and positively a paper basket—crowning luxury of the literary scribbler—one of the neces-

sary luxuries, let us say. He must be a half-hearted student who cannot study here. To my mind it is ideal as a place of reading.

The Bodleian proper has another atmosphere entirely—more solemn, more exclusive, more awe-inspiring. There is, or was, a venerable guardian of the books, who was apt to look with some suspicion at the youthful reader who applied for entrance within Duke Humfrey's gates. The look suggested that the Camera might surely serve your purpose, and it was with no trace of real relenting that he showed you to a place among the manuscripts.

The ceremonial of book getting, too, both here and at the British Museum, is sufficiently alarming, and the vast tracts of written catalogue are a trifle perplexing and disquieting to the new comer. No casuals need apply; that is made very clear to the duller intelligence, and the effect of the place is extremely sobering to the mind. The British Museum has been called "the Valley of the Shadow of Books," and, perhaps, no better name could be found to describe it.

It is interesting and instructive to watch the readers at a public library. In one which I often frequent there is a constant stream of readers of all sorts and conditions. There is the schoolboy, who comes in for "cribs," and the student who supplements his private library. The man of business hurries in to look up a patent or read up other facts for his business. In one corner, night after night, you may see a shabby old working man dressed in corduroy clothes and in an old red neck-cloth. He invariably takes from the open shelf a large Bible and Matthew Henry's "Commentaries," and alternately reads and sleeps over them in the warmth till such time as he departs for his supper and his bed. I have often wondered and speculated about my friend of the "Commentaries." Does he seek warmth or consolation most? Is he a theologian working out a new found creed, or is the large-print Bible but a pretext for light and warmth and shelter? I do not know. Two young people were as regular as he; but they came for literature without a doubt. They were, I think, true lovers of books, as well as of each other, and they spent many hours side by side in company with the poets. They looked very happy, and yet they were undoubtedly poor. Yet had they great riches.

REVIEWS.

THE NATION AS SCHOOLMASTER.

Our National Education. By the Hon. E. Lyulph Stanley, Vice-Chairman of the London School Board. (James Nisbet & Co.)

This is a series of essays on educational topics of the day, exhibiting throughout the well known qualities and abilities of the Hon. Lyulph Stanley as an educationalist. The whole is marked by the author's exactness and thorough grasp of simple facts and figures; but, at the same time, is as strongly marked by his individual mental form and his bias in favour of universal School Boards, with power to absorb or swallow up all other educational agencies in the country. He shows a contempt, often only thinly veiled, for everything that stands in the way of the realization of his ideal.

The first chapter, entitled "Technical Instruction," opens with a definition as wide as the world of business, according to which "the physician, clergyman, lawyer, . . . the infant in Bethnal Green who helps his parent to make match-boxes by the gross, the girl of twelve who goes to a dancing-school with a view to entering the *corps de ballet*, are all receiving technical instruction." The range of the inquiry, is, however, at once narrowed to the forms of technical instruction which need and deserve public organization and support.

Then follows an account of the Act of 1889, which is both clear and complete, and with which few reasonable persons would disagree. "Apparently," says the writer, "what was in the mind of the framers of this Act of 1889 was such a specialized secondary instruction as may by a liberal construction be of material service in fitting young people for industrial or commercial life; but the giving of a marked and definite course of instruction closely connected with a trade was not approved." This is the plain unvarnished truth of the matter, but when we come to the comments on it we see the mark of the Hon. Lyulph Stanley. "While certain subjects have been capriciously allowed and disallowed by the Science and Art Department on applications of Local Authorities, no clear principle can be laid down." The author clearly charges the Authorities with inconsistency because certain employments, like naval architecture, are recognized by them, while the trades for which the usual apprenticeship is entered on are excluded. But, the principle of action is here quite clear, though unrecognized by Mr. Stanley. If the ordinary rules of supply and demand in regard to any of the ordinary trades are disturbed by State intervention, there

would certainly be a disastrous glut in the supply of artisans of the trades thus artificially recruited. In such a matter as naval architecture there is no such danger.

A similar illustration of rational explanation with which all agree, followed by comments which show the bias of the writer, occurs in connexion with the Local Authorities: "The danger is that, if the School Boards and the County Councils do not work in association with each other, there may be friction and a waste of effort and a failure to make each school work so as to lead naturally to a higher one." This is excellent, but it is discounted by the claim of School Boards to take charge of the technical training of those who are already at work, and by an attack on the Science and Art Department. The author says that "the manner in which the Science and Art Department, already doomed to death, is bestirring itself to prejudice the future in favour of County Councils, so far from helping the solution of the educational problem, is making it more difficult. For, in a moment when Local Authorities should try and unite, the County Councils are being egged on, by departmental inspiration, to apply for powers which the great School Boards have protested against unanimously." This is an example of "friendly co-operation" as advocated by Mr. Stanley. We recognize the same genius in the comments on the endowed schools and the Universities. The voluntary system in all its phases is abhorrent to this member of the London School Board. How does he wipe them out of his path? By reviving a paradox often stated thirty years ago by Robert Lowe—"endowments have been the curse of secondary and higher education."

Pity the shades of the pious founders, of the magnificent public benefactors, of the far-seeing philanthropists whom our country has had the glory of producing and whose memory it delights to honour. Oxford and Cambridge so fascinate visitors by the beauty of the buildings and by their historic importance that these visitors, according to the author, "fail to realize how inadequate they are to the needs of the day." "Cambridge has to sue for alms to enable it to perform a national duty." Individuals subscribe their ten thousands; but, "if the higher education is a national need, the nation should not make it depend on almsgiving." We may take it for granted that nothing short of a penal Act prohibiting voluntary contributions towards any part of our educational work would satisfy the writer. Mr. Chamberlain's great effort to raise a Midland University by voluntary impulse is to be regarded as a curse, not a blessing. When this becomes the view of our countrymen as a whole the social atmosphere will be so cold and selfish, so miserably unsympathetic, that life in it will not be worth living. Fortunately, we see no signs of the decay of philanthropy, although the channels in which it operates are necessarily changed by the altered conditions of life.

The best chapter in the book, from our point of view, is that on the training of teachers. With the exception of a little cynicism directed against the schoolmasters in secondary schools, there is little in it with which we cannot heartily agree. Mr. Stanley is certainly at his best when he deals with the proper work of School Boards, and we wish we had here more information respecting this work and its cost.

Although reminded that "the County Councils have the whisky money," which, no doubt, Mr. Stanley covets, and that "non-educational authorities are now specially aided by a State subvention of £700,000 a year," we are not treated to any analysis of the State subvention to the London School Board, or of the distribution of the wealth it gathers from the rates. The chief reference to the London School Board is one in which Diggle and Riley are slain once more. In "the outlook," which concludes the volume, the author predicts the adjustment of the new and the old, the transition from private speculation to public supply, from private denominational and clerical management to representative lay management. He also tells us that "the teachers and professors who have hitherto reigned supreme unobserved, and, therefore, uncriticized, will have to submit like others to popular government." There are many educationalists who desire as earnestly as Mr. Stanley to "see a system adapted to the traditions and habits of our country yet willing to learn from others," but who are convinced that our author's plan of a universal and uniform pabulum is not such a system.

IAMBICS.

Demonstrations in Greek Iambic Verse. By W. H. D. Rouse. (Cambridge University Press.)

It is but a few months since we noticed Mr. Rouse's cleverly devised lessons in Latin elegiacs. The volume now before us

is a companion treatise on Greek verse, and, like its predecessor, is remarkably fresh and stimulating. In an introduction, extending over seventy-five pages, the author has set down a large collection of useful hints on the structure and usage of Greek tragic verse, and has given some valuable tables of classified examples. Several points that he makes have not appeared, so far as we are aware, in any other manual of the kind. Amongst these are his remarks on rhythm and the verse pause. He gives an interesting and reasonable account of various phenomena connected with the *cæsura*, and his advice to the beginner, in this as in other matters, is generally such as we can heartily subscribe to. He insists, most properly, that the pupil who would acquire facility must be prepared to make catalogues of classified words for himself. It is herein we are convinced that the secret lies of acquiring ease in Greek iambic composition. The vocabulary of Latin elegiacs is small and differs but little from the vocabulary of Latin prose. But in iambic verse, in spite of its far greater affinity in some respects to prose writing, the diction employed is wholly different from the diction of ordinary prose; and on this great and fundamental difference of language Mr. Rouse rightly insists.

Among the most ingenious lessons is his demonstration how a passage of Herodotus may be readily turned into tolerable verse. Therefore, if he (the beginner) can put English into simple Greek prose, it is only a step from this to simple Greek verse; and his aim should always be to make the verse simple until his knowledge increases and he feels sure of his own power. Half the mistakes of verse writers come from attempting to write finely before they can write simply. This is most true, and it is upon the sound principle of starting with what is plain and bald in language, and advancing gradually to the elaborate and decorated, that Mr. Rouse proceeds. For special commendation we may further single out the remarks on Antithesis, Repetition, and Abstract Terms. Occasionally, we are unable to accept the Greek offered in the worked-out versions as sound, and we cannot imagine why Mr. Rouse quotes the imperfect fragment of Sophocles

πάντ' ἐκκαλύπτων ὁ χρόνος εἰς φῶς ἄγει

as an example of the unusual lengthening of a short final before aspirate followed by ρ . If Brunck's $\tau\acute{o}$ $\phi\acute{o}\varsigma$ is correct, then the \acute{o} is short. As it stands the line cannot be scanned. The dropping of the $\tau\acute{o}$ is easily accounted for by the fact that the line grew into a proverb in the form πάντα τὰ καλυπτόμενα ὁ χρόνος εἰς φῶς ἄγει. The corruption reappears in the version of the line as given among the "Sentences" of Menander, where $\pi\rho\acute{o}\varsigma$ is substituted for the unmetrical $\epsilon\iota\varsigma$. In the useful list of verse inflexions we miss the forms $\delta\iota\nu\alpha$, $\acute{\epsilon}\pi\iota\sigma\tau\alpha$, $\acute{\epsilon}\pi\iota\sigma\tau\omega$, $\pi\acute{\epsilon}\pi\iota\sigma\theta\iota$. The important subject of *asyndeton* does not seem to be adequately treated; for, though in the index reference is given to page 71, there is nothing about the matter there; and on page 72 a very few lines are devoted to but one aspect of the matter, the *asyndeton* of epithets.

However, on the whole, we are in such hearty agreement with Mr. Rouse that we do not wish to cavil at small blemishes in his book, and can only hope that his book will find its way into the hands of many teachers, to the certain benefit both of themselves and of their pupils.

THE STORY OF THE WORLD.

The International Geography. By Seventy Authors. With 488 Illustrations. Edited by H. R. Mill, D.Sc. (Newnes.)

Dr. Mill has gathered round him a large staff of competent assistants, who have collaborated with him under a detailed general scheme, with the result that the 1,090 pages of this compact "summary of geography" are notably consistent and uniform. The first part of the volume is occupied by ten chapters on the principles of geography, dealing with mathematical, political, and applied geography; maps and map-reading, the "plan of the earth," the origin of land-forms, the oceans, climates, and the distribution of plants, animals, and mankind. The second part, comprising more than four-fifths of the text, treats of the countries of the world as they are. Though the book is neither a gazetteer nor an encyclopaedia, it has some of the features of both, being comprehensive without attempting to be exhaustive. It is written in a straightforward, readable form, without lists or tables, except a few statistics at the end of each chapter; and, though the writers are careful to give us the essential details of information in every case, they are not over-technical or inconsiderately learned. The pages are dotted thick with little maps and plans let into the text, and illustrating it in

an admirably varied manner. To any one who learned his geography at school, in the ordinary (and, perhaps, inevitable) fashion of comparative lists and tabulated statistics, this "International Geography" should be very welcome and serviceable as a means of reviving his knowledge, and, at the same time, co-ordinating and digesting it.

The distribution of the work amongst the various contributors has been careful and appropriate. In most cases an important foreign country is described by natives of that country, and their contributions have been translated by the Editor, or by Mrs. Mill, or another. English writers dealing with foreign countries derive their credentials from the fact of residence in, or intimate connexion with, the lands which they describe. Some of Dr. Mill's selections have been peculiarly happy. Thus, Sir George Robertson writes of Afghanistan, Mr. G. G. Chisholm deals with the Chinese Empire, Mrs. Bishop with Korea, Mr. W. P. Reeves with New Zealand, Mr. J. Rodway with the West Indian colonies, Sir H. Johnston with Tunisia and British Central Africa, Mr. Bryce with Natal, the Transvaal, and the Orange State; Sir W. Martin Conway treats of "the Arctic Record," whilst Prof. F. Nansen takes the Arctic Regions. Geography treated in this reasonable manner could not fail to be interesting; and that word very fairly expresses the prevailing note of the volume as a whole. Mr. Selous, the well known traveller and hunter of big game, describes Southern Rhodesia and Bechuanaland. Dealing with the Zambesi River he writes:

The fall known as *Mosi-a-tunya* (Smoke-sounding) by the natives, which was discovered by Dr. Livingstone in 1851, and named by him the Victoria Falls, is second to none in the world in magnificence; for, although I will not say that it is finer than Niagara, it yet surpasses that stupendous cataract in some respects, and, as a whole, appeals quite as powerfully to the imagination. The magnitude of these falls will be understood from the bald statement that they are 2,000 yards in width, and 450 feet in perpendicular height. The vast volume of water falls, not into an open gorge like Niagara, but into a narrow rift, whence the escape is by a still narrower zigzag ravine through a mass of hard rock. The falls are about two hundred and twenty-five miles distant from Bulawayo, in a direct line, and will probably be connected by rail with that town within the next few years.

We do not find much inducement to be critical in regard to the plan and execution of this volume. It is rather a reading-book than a school-book; but, accepting the design, it is an excellent achievement.

BRITISH HISTORY.

- (1) *England in the Nineteenth Century.* By C. W. Oman. (Edward Arnold.) (2) *A Brief Survey of British History.* By George Townsend Warner, M.A. (Blackie.) (3) *History of Great Britain from B.C. 55.* (McDougall.)

These three reading-books are approximately equal in size, though they differ in scale. Mr. Oman deals with ninety-eight years in over two hundred and sixty pages, thus giving himself space to enter somewhat fully into matters of special importance. He tells the story of the century with much spirit and picturesqueness, and he makes his text both clear and attractive. He is anything but wooden in style, and is not above sacrificing the precise meaning of words for the sake of an easy and fluent narrative. At the beginning of the century, he says, the National Debt "was piling itself up at the most fearful rate." The difference of revenue between thirty-nine and sixty-three millions he calls "immense." War, he says, "is such a fearful burden"; Bonaparte professed "magnificent" sentiments; Englishmen looked forward to a period of "economy and retrenchment," as though one could economize without retrenching. The author does not hesitate over such sentences as this: "The longer the First Consul studied the problem . . . the more difficult it began to appear." But these are comparatively trivial matters. Mr. Oman's book is not put forward as a model of style, and, as an historical summary, it has many excellent qualities. There is a series of very good maps.

Mr. Warner, who dates his preface from Harrow School, has written an admirable volume, which he fitly calls "A Survey of British History," and which is thoroughly bright and pleasant to read. There is scarcely a page without some personal detail or quoted phrase or sentence, and the dramatic instinct of the writer is manifest throughout. Mr. Warner's plan is to select some of the most important factors in each period, omitting the rest, and treating those which he chooses as a chain of causes and effects. He arouses the interest of his readers by a graphic narration, and appeals to their intelligence by showing how the events of one year spring out of, and lead up to, the events that

precede and follow them. The character of his successive chapters is indicated by their titles—"The Unlucky House of Stuart," "Mary Stuart and the Reformation in Scotland," "Royal Marriages," "Elizabeth and the Armada," "The Stuarts and their Difficulties," "War between King and Parliament," "Britain Governed by an Army." There is a useful summary at the end of the book, and it is illustrated by several maps and plans.

McDougall's "Complete Historical Reader" is somewhat more elementary in its treatment than Mr. Warner's "Survey," and it is not so philosophical in its arrangement; but it proceeds on the same plan of selected passages and chronological summary. It is a well executed work, very suitable as a reader, and rendered more attractive by a hundred and twenty-five illustrations and maps.

SENSIBLE LECTURES.

Object Addresses. By the Rev. A. Hampden Lee. (Edinburgh: Oliphant, Anderson, & Ferrier.)

As the title of this book implies, Mr. Lee's method is to take various objects likely to interest and attract children, and to use these as illustrations of truths to be impressed on their minds. The writer shows himself to be at once a shrewd man and a lover of children. He does not fall into the mistake of supposing that the abstractions of religion are any more intelligible to a childish mind because they are abstractions. Knowing how a child's mind works always among things tangible and concrete, he, very sensibly, decides to work in the same material, and therefore chooses for his texts such things as a piece of chalk, a bunch of keys, a magnet, a wild nettle, and a model of a lighthouse. The freshness, reality, and imaginative sympathy in these talks must have won the attention and reached the hearts of the audience they were meant for. It is just as possible to be dull and foolish in dealing with nettles and magnets as with anything else. But quick eyes and the gift of seeing associations between different things tend to eliminate foolishness, and both are possessed by Mr. Lee. His illustrations are apt, and his anecdotes to the point. Moreover, he has a convincing way of treating his subject, and a really poetic manner of presenting it to children.

Some of the best addresses in the book are those entitled "The Divine Magnet," "The Thread of Habit," and "The Lighthouse of Life." The last of the series, entitled "Who shall be Tenant?" is illustrated by a card bearing the inscription "This House to Let." "Every boy and girl is like a house," says the writer; "You are to let, and there are many who want to come to live with you, and remain always in your life-house." The various would-be tenants are then introduced and described: Idleness, with his hands in his pockets; Envy with green eyes, thin, and queer-looking; Pride and Strong Drink. "Thus we come finally to the point:—"Behold, I stand at the door and knock." The book may well be recommended to those who are looking for something suggestive and practical, and are anxious to avoid what is stereotyped and lifeless.

GENERAL NOTICES.

CLASSICS.

Ovid, Metamorphoses, Book I., edited by G. H. Wells (Bell); and *Eutropius, Books I. and II.*, edited by J. G. Spencer (Bell), belong to Messrs. Bell's new "Illustrated Classics," the first volumes of which we noticed in this column last month. The two books before us leave nothing to be desired, in point either of fullness or of appearance. Both editors have performed their task with much care, and with a perfect appreciation of the wants of beginners. The notes are supplemented by a grammatical appendix, in which the more important points are conveniently tabulated. The list of proper names is valuable, and the illustrations, drawn from genuine sources, add greatly to the attractiveness of the volumes. In the comments learning is rightly eschewed; but some interesting parallels from English literature are cited. The introductions are brief, simple, and to the point. The "Eutropius" is undoubtedly the best on the market. Altogether, the volumes cannot be too highly commended.

Cæsar, De Bello Gallico, Book VI., edited by E. S. Shuckburgh (Cambridge University Press), belongs to the "Series for Schools and Training Colleges"; and it is almost needless to say that the editor has provided a thoroughly satisfactory set of notes. The introduction seems to us to be too long and overloaded with facts.

Æschylus, Prometheus Vincit, edited by H. Rackham (Cambridge University Press), an addition to the long list of commentaries on this play, is less elaborate than the edition of Messrs. Sikes and Willson (with which it is natural to compare it); but it is full of learning. The editor displays a thorough knowledge of the work of his predecessors; and the critical notes are enriched with some hitherto unpublished suggestions by Mr. Walter Headlam. We miss a *conspectus* of the lyrical metres.

Euripides, Hippolytus, edited by J. E. Harry (Ginn), is an interesting edition, not only on account of the illustrations that it contains, but also because Prof. Harry has incorporated in his notes many references to English literature. There are also many grammatical notes, bearing marks of the teaching of Prof. Gildersleeve, and many references to prose diction and idiom. Some of the notes—such as those on suicide and exile—are amusingly discursive; but, on the whole, the commentary is illuminating and decidedly entertaining. Prof. Harry occasionally falls foul of Mr. Hadley, as when the latter has the temerity to call κέρταται a *perfect*. We have seen this statement in other English, school books; but, though as a matter of form it is, of course, correct, as a matter of *usage* it is wrong. Prof. Harry's work is scholarly and sound throughout. It is unfortunate that the poet's name is twice mis-spelt on the cover.

Cicero, De Officiis, translated by G. B. Gardiner (Methuen), is a new volume in the "Classical Translations" series. "It may at once be conceded," says the translator, in a burst of confidence, "that as a scientific treatise the 'De Officiis' has little merit"; and it might therefore, be questioned whether it was worth while to make a new English translation. Dr. Gardiner holds, however, that the lofty morality that is inculcated on every page largely atones for the lack of profundity; and he rightly points out that the historical interest of this homily is considerable. To a modern Englishman it seems odd enough that the greatest Roman thinkers should have thought to cure the waywardness of the young by addressing "goody-goody" books to them. But, inasmuch as this work remains a prescribed subject in the French *collèges*, we must presume that our low estimate of the practical value of such treatises must be the consequence of a radical difference of temperament. The truth is that no Englishman was ever persuaded to do right by reading anything that was not based either on religious teaching or on sound—not sham—philosophy. Cicero's popular penny philosophy was, doubtless, the best substitute for religion that could be provided at the time; but the interest of the thing has evaporated, and the work has long since served its turn, save only as a piece of Latinity. We cannot think that Dr. Gardiner's version, praiseworthy as it is, will induce any one to read the "De Officiis" who can possibly avoid it.

There are several points to be noticed about Mr. St. J. B. Wynne Willson's edition of *Cæsar, Gallic War, II.-V.* (Blackwood.) It is illustrated, not only with maps of Gaul and south-eastern Britain, the latter, by the way, showing forests and marshes, but also with pictures of Roman soldiers, a besieged town, and various military appliances. Next, there is a list of phrases connected with fighting extracted from the two books, which ought to be very useful in adding to the schoolboy's vocabulary, generally so deficient. Lastly, many of the notes are written with the avowed object of pointing out differences of idiom between English and Latin, with a view to the writing of Latin prose. It is a pity that this idea is not so completely carried out as the preface might lead one to expect. For example, *quibus vendant* is well translated "a market," but it is not pointed out that the same form is most useful in rendering English nouns which really disguise a clause. Again, *in consiliis capiendis mobiles* is excellently rendered "impulsive," but the opportunity of calling attention to the Latin equivalents of modern adjectives is missed. The grammatical notes, which in the early part are intentionally numerous, are clear and often suggestive. The edition is evidently the work of a practical schoolmaster, and is likely to be especially useful to teachers who have had no opportunity of hearing scholarly classical lessons given to the middle forms of schools.

Second Year Latin, by J. B. Greenough, B. L. D'Ooge, and M. G. Daniell, (Ginn & Co.) is a book of nearly seven hundred pages, and hardly what one would put in the hands of English schoolboys. It seems rather to be adapted, and well adapted, for those who begin Latin rather late, and who must content themselves with very moderate scholarship and some knowledge of Roman history and antiquities. It is almost entirely a reading book. The early part consists chiefly of stories and fables; a few taken from classical writers, but the majority from modern German text-books (Meurer, Perthes, &c.), drawn up for the lower classes of schools. These are followed by the story of Ulysses from Ritchie's "Fabulae Faciles" and lives of Marius and Cæsar by Lhomond, whose "De Viris illustribus Urbis Romæ" should, by the way, not be called "Viri Romæ." Then come a very few pages of poetical selections. The bulk of the book is taken up with extracts from Cæsar's "Gallic War," including, among other passages, the whole of the Second Book, the invasions of Britain, and the sieges of Avaricum and Alesia. There is

a full vocabulary, and a good supply of practical notes. An important feature of the book is the wealth of illustrations, mostly connected with Roman warfare, but also including several reproductions of Greek antiquities, in connexion with some of the anecdotes in the earlier part.

MODERN LANGUAGES.

Gems of Modern French Poetry. Edited by J. Lazare. (Hachette.)

This is an interesting selection from poets of this century, including some old favourites, like Theuriet's "La Chanson du Vaunier," De Vigny's "La Pégote," "La Sérieuse," and Victor Hugo's "Les Pauvres." Victor Hugo is well represented, and there are pieces by Coppée and Verlaine; but we miss Leconte de Lisle and De Hérédia—perhaps on grounds of copyright. There is a short and useful introduction on French metre, which would be more complete if it told us in what combinations *i* and *u* are vowels and consonants respectively. This always presents a difficulty to English students. Short biographical notices of the authors are given. The notes are the weakest part of the book. They consist almost exclusively of mere translations of words and phrases, most of them quite unnecessary. Some are good; others—as, for example, *jetant vingt-quatre éclairs*, "firing twenty-four shots"; *se tordrait sous elle*, "reeled about on the same spot"—are poor.

Grammar Tables. By J. Oliphant. (Macniven & Wallace.)

The object of this little book is to set out side by side the chief grammatical forms of English, French, and German. Thus, one double page shows the personal pronouns as inflected in the three languages, with notes pointing out how far each language has discarded inflexions of gender, case, &c. The tables include most of what it is absolutely necessary to commit to memory in the way of accident, and, with the notes, might be utilized by a good teacher to enforce some elementary notions of the science of language.

Jules Verne, Un Drame dans les Aïrs. Edited by J. G. Lloyd Jones. (Arnold.)

Another volume in the same series. The text is, however, less happily chosen, for we have here little beyond a history of the exploits of aeronauts. Most of it is in dialogue. There is a profusion of signs of exclamation, which in the end get on one's nerves. The notes and vocabulary are carried out in the same way as those to "Pif Paf." We notice that in the latter the words from *coûter* to *curieux* have slipped in between *condamner* and *condition*; that there should be no quotes in page 9, line 9; and that *jeun* in the vocabulary should have no accent. In page 32, line 22, the rendering "to arrive" or "to reach" will not fit the text; nor is the adjectival value of "trouble" (e.g., in page 8, line 6) noticed in the vocabulary.

Rules of French Grammar at a Glance. By O. F. Camphuis. (Marlborough.)

There are many of the rules of elementary grammar in this book, which is clearly printed. It will do as well as a good number of other books. There is nothing sufficiently novel about the book for us to give it special commendation.

Songs of Béranger. Edited by G. H. Ely. (Blackie.)

It does not seem to us likely that the ordinary English child will appreciate these songs. The lyricism of Béranger—if, indeed, his verse is lyric at all—is so different from anything to be found in the English verse a child usually reads that he will derive little pleasure from these poems. The editor's introduction gives a good account of Béranger, and the notes and vocabulary are carefully done—worthy, indeed, of a better subject.

Children's Guide to the French Language. By A. G. Ferrier. (Blackwood.)

We gather from the preface that this book presupposes a preliminary course of one, if not two, months; and it seems a pity that not more guidance is given to the teacher how to get over the early difficulties of pronunciation, seeing that Miss Ferrier attaches so much importance to this matter. The lessons consist of sentences which are connected, and present little scenes which are calculated to interest young children. Here a good deal of skill is displayed. In matters of pronunciation, however, the "guidance" is not always safe. No distinction is made between long and short vowels, between the two kinds of *a* and of *eu*; in *fille* the *lle* is said to be mute, which is misleading, to say the least; *ou* and *oi* are classed together under the same heading as "double or compound vowels." The second edition of the book contains grammatical notes to the first section, and the third section gives "important grammatical rules and verbs."

Tutorial Handbook of French Composition. By A. Mercier. (Blackwood.)

The French Lecturer at St. Andrews has produced a very useful little book, which admirably accomplishes its modest object of helping students preparing for examinations, especially those who have to rely on their resources. It is on rather novel lines, which commend themselves at once to any one who has had to teach the subject. We are confident that many students will buy this book, and will derive great benefit from it.

Carnoy, Les Deux Bossus. Edited by E. B. Le François. (Blackie.)

A short fairy-tale (twenty-eight pages of text in large type), which beginners will read with pleasure. The editor has done his modest work well; he has furnished notes, a vocabulary, and a table of irregular verbs. We are not familiar with the form "Ashasvérus" as the name of "this legendary unfortunate man," the Wandering Jew.

Petits Chefs-d'œuvre Contemporains. Edited by J. Lazare. (Hachette.)

Mr. Lazare has chosen six stories by well known authors, averaging about a hundred and fourteen pages. They have not, we believe, been used as school texts before, at any rate in England. They are one and all well suited for this purpose, and the book is a welcome addition to our "intermediate" readers. The notes (chiefly renderings) are quite satisfactory. The vocabulary is unfortunately incomplete. A page was taken at random, and it was found that twenty-five words (in twenty-four lines) were absent.

Laboulaye, Pif Paf. Edited by W. Mansfield Poole, M.A. (Arnold.)

This short text is meant for pupils of thirteen and fourteen, according to the General Editor's preface to the volumes in "Arnold's French Reading Books," of which this is one of the first. It will probably be found that even younger children will be able to read the text without much difficulty. The language is simple; there is plenty of action, and a good deal of quiet humour. The notes give very full grammatical details, which are clearly put, and English renderings, which are quite satisfactory. We miss notes on *y avait perdu son latin* (page 4, line 9), and on *roman carthaginois* (page 24, line 7). Had "Salammbô" been recently published when "Pif Paf" was written? We venture to make a few suggestions for future volumes of the series. Could not the lines be numbered by fives? At present they are numbered by tens, which gives trouble needlessly. Is there any point in printing every word in the vocabulary with a capital, and could not somewhat larger type be used in this part of the book? The vocabulary might be a little fuller. Compare, for instance, the rendering of *alphabet* with its use in page 4, line 6; *colère*, in page 4, line 13, which does not mean "anger"; and *de grands traits*, in page 4, line 25, which does not mean "great features."

Auswahl aus Luthers deutschen Schriften. Edited by W. H. Carruth, Ph.D. (Ginn & Co.)

Dr. Carruth, who is Professor of German in the University of Kansas, has done useful work in editing these extracts. As he says in his preface, there is no German writer whose work is so much praised, and so little read by foreigners, as Martin Luther. The longest extracts are the appeal to the Christian nobility of the German nation ("An dem Adel"); the letter to the Municipal Councils ("An die Radherrn"), urging the establishment of schools; and the diatribe against Prince Henry of Brunswick ("Wider Hans Worst"). There are also specimens of the translation of the Bible, several of Luther's hymns—of which "Ein feste Burg" is so familiar in England—and a few letters! and miscellaneous writings, including two extracts on music. Great pains have been taken to produce a text which should be readable, and which should, at the same time, retain for the student Luther's inflexions, syntax, and vocabulary, as nearly as they can be ascertained. The notes, without being too numerous, explain all real difficulties; and the literary life of Luther, which forms the introduction, is very full and carefully put together. Perhaps a rather less detailed narrative, accompanied by a chronological table, would have been better suited to the general reader, who is in danger of not seeing the wood for trees.

Leading Events of Modern Warfare. By A. Weiss, Ph.D. (Hachette.)

This German reading book, edited by the Professor of German at Woolwich, is intended for military students and Army candidates. It consists of the episodes of the wars of this century, taken from good writers, such as Von Treitschke, Raumer, &c., and extending from Trafalgar to the capture of Wei-hai-wei by the Japanese. The selections seem well made, including, as they do, among other battles, Leipsic, Waterloo, Gettysburg, Plevna, and Sedan. The editor's work is less satisfactory. He has supplied a full vocabulary, such as is given in elementary reading books, but quite unnecessary for students at the stage for which the selection is intended. What is really wanted is (1) a very brief introduction to each episode; (2) rough plans of the battlefields, such as one finds in many of the best school texts; (3) explanatory notes, especially on military matters. None of these are forthcoming; all might have been supplied, with less labour, and more interest to the editor, than the *Holzschneiderei* of index-making.

Praktisches Lehrbuch der Spanischen Sprache für Handelsschulen und zum Selbstunterricht. Von Dr. S. Gräfenberg. (Frankfurt: Carl Jügel.)

It is refreshing to receive a book constructed on such sound principles as Dr. Gräfenberg's "Practical Manual of Spanish for Commercial Schools and Private Students." In each lesson, after a succinct and clear statement of the most important points of grammar introduced, and illustrated by the sentences exhibited, a dialogue is given with a form of advertisement or an anecdote, which together form the basis of the exercise that follows, not without further help in grammar. The method resembles that very successfully applied by Koch to English and French for German readers. The ninth chapter (*Numerales*) may serve as an example. First, the cardinal numerals

are given, next notes on these, then a dialogue (*El Tiempo*, time) followed by notes; after these an *anecdota*, followed by the exercise for translation into Spanish, and that by *Nombres geográficos*, *Anuncio*, and *Carta* (offer of services by traveller, making use of some names of countries), which has some more notes in its wake, with another exercise to complete the lesson.

Hossfeld's German Grammar. By C. Brenkmann. Revised and Enlarged by L. A. Happé. (Hirschfeld.)

This book is not as much ahead of the times as the "1900" on the title-page might lead one to believe. Indeed, it is on the good old lines, and Mr. Happé has merely revised the spelling and added a chapter on German Construction; thirty short vocabularies, each containing twenty words in daily use (among which we notice the "horned beetle," the "tailor's goose," and the "non-com. officer"); a selection of poems culminating in Bürger's "Lenore" (!); and an English-German vocabulary.

Nelson's First German Reader. Edited by J. J. Trotter, M.A. (Nelson.)

Mr. Trotter has here given us a good selection of passages, of the most varied kind, but carefully graded. He has rightly refrained from annotating them, as he has added a very full vocabulary, as well as a list of the irregular verbs. It would have been well to "cook" the texts a little here and there; a purist might object to the use of *derselbe* for *er* (three times on as many pages). The book is carefully printed, in accordance with the "new orthography," except that *alles*, *niemand*, &c. are still spelled with capitals. It is a pity that the lines have not been numbered.

MISCELLANEOUS.

The Learners' Prayer Book. With Simple Notes. (Frowde.)

This handy little volume is intended for young people to use as a service-book at church and at home. It combines in an admirable manner the purposes of a prayer-book and a book of instruction. It does not include a history of the Book of Common Prayer, but is explanatory and exegetical in a simple sense. There are marginal references and definitions of terms, and the notes constitute a helpful commentary throughout. These aids to the understanding are in rather small print; but this was necessary in order to keep the volume to a convenient size.

"*I Believe.*" By the Most Rev. J. E. Cowell, Metropolitan Bishop of India. (Religious Tract Society.)

A book for the young, intended to set forth the nature and reasonableness of the Creed. It is a valuable first book of doctrine by an old schoolmaster, and will, doubtless, be found useful by such as still have boys and girls under their charge in whose hands they desire to place a book of this kind. Bishop Cowell is generally very clear and precise; but here is a curious little exception: "Any one of the beliefs so expressed may be, and is, stronger and weaker than some of the others."

Doubt and Faith. By E. J. Hardy, M.A. (Fisher Unwin.)

This volume is made up of the Donnellan Lectures delivered last year in Trinity College, Dublin, with a few supplemental chapters. It is dedicated "to young men generally, who are 'perplexed in faith but pure in deed.'" In his preface Mr. Hardy says: "These lectures were addressed, not to the Fellows, Professors, and other wise men of Trinity College, Dublin, but to the babes or undergraduates of that *alma mater*. Most of my predecessors seem to have reversed the process. They were so clever and learned that what they said was Greek to the younger portion of their hearers." The preface and book alike are very frank and ingenuous.

The First Epistle to the Thessalonians. By the Rev. G. W. Garrod, B.A. (Macmillan.)

Mr. Garrod's analyses and brief notes are very useful. The volume is thoroughly educational, and precisely what is needed for a close study of the Epistle. It is systematic and complete, without being too learned.

Nat the Naturalist. By G. Manville Fenn. (Blackie.)

This is another of "Blackie's Continuous Readers," two of which we noticed last month. If a book is to be read continuously in class, this is a fairly good one to choose for the purpose. The incidents and excitements of the story are well distributed, so that no single reading need be dull. A boy and his sea-faring uncle travel in the Eastern seas in search of rare birds, and meet with plenty of adventures among savages and wild beasts. The book has plenty of action, some humour, good moral lessons well in the background, and plenty of opportunity for picking up general information in geography and natural history; for, though the story is pure fancy, the birds, beasts, &c., mentioned are kept within the bounds of reality. The short notes at the end will prove useful to the teacher.

Lives of Great Italians. By Frank Horridge. (Fisher Unwin.)

It is not to be expected that much fresh light can be thrown by a single writer on the lives and work of men of such diverse times and genius as are here put together. Dante, Petrarch, Carmagnola, Machiavelli, Michel Angelo, Galileo, Goldoni, Alfieri, Cavour, and Victor Emanuel are all comprehensively dealt with in less than five hundred pages. The fact that they are Italians is a very slender thread to connect such

men; they belong to the world far more than to Italy, and we think that a group of Italian poets, painters, or statesmen would have proved more acceptable to the general reader. The author has not sought to show the development of character and the influence of the time and contemporaries on his various subjects, so much as to place before the reader as many facts as possible in a given space. For instance, in the account of Michel Angelo, the events of his life are stated clearly in chronological order, but little attempt is made at a critical survey of his work as a sculptor and painter. The book is distinctly marred for the purpose of reference by absence of an index or any subdivisions.

Commercial Geography of the British Isles. By A. J. Herbertson. (Chambers.)

Teachers will find this handy little volume of great use in two ways: first, in suggesting various courses of lessons to vary the usual routine of geography work; and, secondly, in the compact form in which the information is presented. The book is avowedly not intended to be put in the hands of pupils. It is illustrated by several very clear little maps.

The Pickwick Papers (Nelson), in the "New Century Library Edition," is a capital little volume. Although small in bulk, and easily held in the hand, the type is large and clear, and the pages fall well apart at any place. This edition will be a treat to the book-lover, who is never happy without one of his old friends in his pocket.

Rumpelstiltskin. By Mrs. Hugh Bell. (Longmans.)

A play adapted to young children, founded on the old folk-story "Tom-tit-tot," in which the distressed princess has the task of finding out the pixie's name. Full stage directions are given, with suggestions as to dress, and the action is enlivened by songs and dances, for which the music is added. There are eight chief characters, while any number of children can be introduced for the elf-dance.

Passages from Modern Authors for Class-Reading. Compiled by John Downie. (Blackie.)

This is a good school-reader, variety in subject and style being well provided. Literary merit in the extracts selected should, however, always come before mere information—a principle not always adhered to in this volume. The notes and derivations are short and well arranged, and the book, as a whole, is on the right lines.

Teachers, Don't! By George Crowther. (McDougall.)

There is no word more discomposing than "don't." It seems to rouse in both children and adults whatever of demon they may possess. This little book illustrates the point. It is apparently written in great seriousness, although these two rules are printed (very large) one after the other—"Don't encourage guessing. Don't allow it at all"; while the pamphlet is the oddest mixture of disconnected vetoes, some more reasonable than others.

The "Art Student" Series of Photographs, from Casts, for Freehold Drawing of Ornament in Outline. Sets I. and II. (Educational Supply Association.)

These sets of cards are an excellent illustration of the application of photography to educational purposes. So far as casts can be usefully represented by flat drawing, the task is here thoroughly well performed; and we can safely recommend these packets of copies for school use.

Pupil-Teachers' English Note-Book. By A. T. Flux. (Nelson & Sons.)

Plain English grammatical rules and lists, with many useful features, including lined blank leaves.

Book-keeping for Elementary Schools, in Three Stages. Stage I.

By J. Thornton. (Macmillan.)

A clear and well written introduction to the subject, with numerous progressive questions at the end of the lessons.

Macmillan's Book-keeping Exercise Books: Journal and Ledger.

(Macmillan.)

This is a very serviceable set, prepared expressly for beginners. The exercise books will greatly facilitate the work of the learner.

"Chambers's Commercial Handbooks."—*Commercial Correspondence and Office Routine. First Year's Course.* By G. R. Walker. (Chambers.)

Suited for the Evening Continuation Code. The book may also be used with advantage in the upper standards or classes of commercial day schools.

The Student's Phonographic Shorthand Exercises. By A. Fieldhouse, "F.I.P.S. Honours." (Huddersfield: Jubb & Sons.)

This is a handy little book, illustrating the principles and practice of the art of shorthand. Mr. Fieldhouse is a commercial lecturer at the Huddersfield Technical College.

We have received the following English texts:—*The Faerie Queene, Book IV.*, edited by Kate M. Warren (Constable), with a full literary introduction, analysis, and glossary, for elder pupils. *Paradise Lost, I. and II.*, edited by Thomas Page (Moffatt & Paige). The notes, analyses, &c., are too copious; but teachers will find the book useful. *Johnson's Life of Dryden and Johnson's Life of Pope*, by Peter Peterson (Macmillan), with full notes and summaries of the text. *Chaucer's The*

Squire's Tale, by A. W. Pollard (Macmillan), with special grammatical notes and references, in addition to the usual explanatory notes. *As You Like It*, by Stanley Wood (Heywood). This is another of the "Dinglewood" series of Shakespeare without the Shakespeare—only questions and notes for examination purposes. *The White Ship*, by D. G. Rossetti (Ellis & Elvey), is at the opposite extreme. We have the little poem pure and simple, innocent of notes, but full of poetry. *Macaulay's Lay of Virginia and Southey's Shorter Poems* (Blackie), the latter edited by C. J. Battersby. *Bacon's New Atlantis*, by A. T. Flux (Macmillan).

From Messrs. Pitman and Sons we have a number of the "Rapid Series," including a "Practical Spanish Grammar," with conversations and a copious vocabulary, by Don Baltasar Vitoria and W. G. Isbister, B.A. Lond.; "Spanish Business Interviews," "Spanish Business Letters," "Advanced Spanish Conversational Exercises," "Easy Spanish Conversational Sentences," "French Commercial Phrases and Abbreviations," and "German Commercial Phrases and Abbreviations." The series is very helpful; and we should say that it will be distinctly serviceable to self-teachers.

WE HAVE ALSO RECEIVED the following publications and new editions:—

The Calendar of the University College of North Wales, the University Correspondence College, and the Birkbeck Literary and Scientific Institution.

The Record of Technical and Secondary Education, October, 1899. (Macmillan.)

The English Language, its History and Structure, by W. H. Low, M.A. (Clive)—a fifth edition.

English Composition, and How to Teach it, by Robert S. Wood (McDougal)—also a fifth edition.

Moffatt's Science Readers. Book III. (Moffatt & Paige.)

Arabic Self-Taught, by C. A. Thimm, revised by G. Hagopian. (Marlborough & Co.)—a third edition.

The Student's Commercial Book-keeping, Part I., Elementary, by A. Fieldhouse (Bean)—a fourth edition.

Tennyson's "In Memoriam," and other Poems ("Masterpiece Library," *Review of Reviews* Office)—a marvellous bargain at one penny.

"Nelson's Supplementary Infant Readers." No. 1.—*Up to London, to see the Queen.* (Nelson & Sons)—simple English, good large type, and nice illustrations.

GIFT-BOOKS AND PRIZES.

I.

HISTORICAL STORIES.

One of Mr. Henty's best stories for the year is *Won by the Sword* (Blackie). It deals with the closing years of the Thirty Years' War, and is thus a sequel, in some sense, of the *Lion of the North*. The hero is a son of a Scottish officer in the French service, who puts Cardinal Mazarin under an obligation. Condé and the Queen Mother appear on the scene; and with such a background the author has known how to make a capital historical romance.

A combination of historical and other stories is brought together under the title of *Peril and Prowess* (Chambers). They are told by George Henty, George Manville Fenn, A. Conan Doyle, W. W. Jacobs, D. L. Johnstone, and several others. There are many exciting narratives amongst them, and they are all well illustrated.

Tom Graham, V.C., by William Johnston (Nelson), is a tale of Afghan warfare. The first half of the book shows us Tom Graham at an English grammar school, a promising high-spirited lad, rather disposed to insubordination, but governed in the main by duty and conscience. Of course he makes an excellent soldier in the ranks, and he earns distinction at Peiwar Khotal and Sherpur. He gets his V.C., and other ample rewards on his return home.

A Vanished Nation, by Herbert Hayens (Nelson), is a stirring tale of adventure in Paraguay, amongst hot-blooded Spaniards and half-castes, in the days of President Lopez's gallant struggle against rebels and Argentines and Brazilians and the "Banda Oriental." Mr. Hayens calls Lopez a South American Napoleon, and there is something pertinent in the comparison. He also calls him a monster, and apparently justifies the word. Anyhow, this is a brisk and spirited tale, which will impress an historical episode on the mind.

TALES OF ADVENTURE.

A Roving Commission, by George Henty (Blackie), is founded on the revolt of the slaves of Hayti against the French. The horrors of the French Revolution occurred about the same time, but, according to Mr. Henty, "paled before the fiendish outrages committed by their black imitators in Hayti." Boys (with perhaps a few exceptions) can read a great deal of the horrible without being particularly harmed by it, and they will heartily welcome this book, beautifully and copiously illustrated by William Rainey. The hero, by the way, is an officer of the British Navy.

Yuletide Yarns, edited by G. A. Henty (Longmans), will be welcome in a school or family of boys of considerable difference in age. Great variety is introduced in every direction. The ten stories are contributed each by a different writer, and again illustrated by a different draughtsman. Some are founded on historical legend, others are pure fiction; some are easy and simple reading, others more complicated in plot and style; while an enormous range of climate and period is selected from. The whole collection forms a handsome volume.

There is always a fascination about the heroes of La Vendée, and Mr. Henty has done wisely in weaving one of his romances around them. Most boys will appreciate *No Surrender* (Blackie), crammed as it is from start to finish with fighting, sieges, assaults, and escapes of fugitives. There are several illustrations of an exciting kind by Stanley Wood.

Another seasonable book (also well illustrated by Stanley Wood) is *With Shield and Assegai*, by Captain F. S. Brereton (Blackie). The son of a missionary in Zululand, a lad who has been used to the Zulus from babyhood, is sent to England to school, is wrongfully accused of theft, enlists, and eventually finds himself in the British force attacking the Zulus. The defence of Borke's Drift is the subject of a very good chapter, and all the descriptions are given in a straightforward, easy style, capable of interesting quite a young boy. There is plenty of useful information, historical and geographical, but it is made very palatable, and in no way interferes with the interest of the tale.

Sowing and Harvesting, by Mary Debenham (National Society), is a tale of the French Revolution. The horrors are touched very lightly, and but little excitement of any kind relieves the book. The illustrations by Gertrude Hammond are fair, but lacking in point and variety.

SCHOOLBOY STORIES.

A story of school life, best adapted for elder boys, is *Wynport College*, by Frederick Harrison (Blackie). The author evidently understands schoolboy tastes, the several chapters dealing with a multitude of interests—cricket, boat-races, a school fight, examination and scholarship excitements, evil-doers detected by snap-shot photography, a boy expelled for stealing a banknote and coming out innocent and triumphant at the close, with "scrapes" of a minor nature innumerable. Although a long book, there are no dull pages in it, and eight illustrations by Harold Copping add to its attractions.

Boys of the Priory School, by Florence Coombe (Blackie), is written in Miss Coombe's characteristically stirring and humorous style. The boys are real boys, and the book is free from exaggeration in any direction. At the same time, it is full of life and incident, and will delight children who are at the stage of demanding tales of school life. A few very fair illustrations add to its value as a gift-book.

The Fellow who Won, by Andrew Home (Nelson), is a schoolboy story with a supplement of life in the world outside. It is, on the whole, capitally told, with much play of character, plenty of excitement, and any amount of poetical justice, such as thrashings for the bad boys and a friendly baronet for the hero. We can recommend it; boys will like it, and it will do them no harm.

From the same publishers we have *Mobsley's Mohicans*, by Harold Avery, described as "a tale of two terms." It is amusing enough, and more trivial than Mr. Home's story, being intended for somewhat younger boys. For them, however, the latter part of the narrative is rather strong meat.

GIRLS' STORIES.

The King's Signet, by Eliza Pollard (Blackie), is a description of the sufferings and emigration of the Huguenots after the Revocation of the Edict of Nantes. The historical atmosphere is carefully represented, and the author's regard for truth naturally gives a somewhat melancholy tone to the tale, although it ends in peace and happiness. It is specially suitable for girls, as the central figure is the brave and self-denying heroine, who works wonders and saves many lives by means of her talisman.

A Good-hearted Girl, or a Present-day Heroine, by Emma Marshall (Chambers), is a tale of girl friendship and quiet family life, not without some interesting incidents. A director of a mining company has involved many in financial ruin, and the story centres round his daughter, who spends her life in redeeming her father's misdeeds. There is a natural, healthy tone in the book, and the heroine is not too brilliant or fortunate for imitation.

A Loyal Little Maid, by Sarah Tytler (Blackie), is a story founded on an incident in the Earl of Mar's rebellion. It describes the brave and clever attempts of a little girl to save her father's life. She goes through much tribulation, and is even imprisoned; but the story has a light and cheerful tone throughout, has a dash of romance, and ends happily in the marriage of the heroine with her former boy-playmate, whom she rescues from the Bastille. There are three or four good illustrations by Paul Hardy.

Some Great Thing, by Lady Dunboyne (National Society), is, as the title suggests, a story with the impatience and disappointment of Naamau for its moral. A young girl of to-day is always dreaming of

doing some great deed: the opportunity does not arise till the end of the book, when she saves a life by self-sacrifice. We think the moral would have been better if even that opportunity had not occurred, for "the finest life lies oft in doing finely a multitude of unromantic things." Some of the ideas on married life in the book, though quite harmless, are a little over the heads of the young girls for whom the book is evidently intended.

Letice Temple, by Maud Vevers (National Society).—This is a purely imaginative story with an historical setting. The romantic times of James II. afford material for descriptions of highwaymen, heroic bishops, and Judge Jeffries, while there is a fairly successful attempt to reproduce the style of language and manners of the period. The incidents move briskly, with no dull pages, and the book will tend to encourage a young girl's interest in history.

Admirers of Mrs. Oliphant will welcome the republication of *The Unjust Steward* (Chambers).—The story, it will be remembered, concerns an old Scotch minister who is in money difficulties, and extricates himself by following the method of the unjust steward, soothing his conscience with the reflection that the villain of the parable had been "commended." Needless to say, the minister suffers terribly for his falsehood, and matters are complicated by the fact that the man he has wronged is his daughter's suitor. The story is, perhaps, dragged out to an unwarrantable extent, and none of the characters are strong or fresh enough to compel prolonged interest. It may be added that the moral of the tale is hardly sufficiently materialized for young readers.

The Odds and the Evens, by L. T. Meade (Chambers), is a pleasant and fairly diverting story of a war got up between the neighbouring families of the Freres and the Carlingfords, called respectively the Evens and the Odds, from the number of children in each. There are all sorts of rivalries and reprisals, and, as the master-spirits are two girls, Nina Carlingford and Rosalie Frere, girl-readers are pretty sure to take a special interest in the story.

FOR CHILDREN AND OTHERS.

Mabel's Prince Wonderful; or, A Trip to Storyland, by W. E. Cule (Chambers), commends itself at once as a book for little children by its excellent type and paper. The illustrations are, for the most part, disappointing, the drawing poor, and the whole design often unsuited to a child's mind. The little stories are based on the old nursery tales and rhymes, and the connecting thread is the little heroine who wanders about and meets and talks to their various characters, Bluebeard, Prince Charming, the Fairy Godmother, and so forth. Unfortunately, it suggests the immortal "Alice."

Nancy's Fancies, by E. L. Haverfield, illustrated by Percy Tarrant (Chambers), is a simple story about two little children, whose father has been reported as lost at sea, and whose mother has a very hard struggle to support them. An infectious illness, a railway journey, with the children's various games and fancies, form the chief incidents. Of course, the father arrives safely to make a happy ending. The book is a suitable gift for young children, who could read it without difficulty by themselves.

The Harvest of a Quiet Eye, by the Rev. J. R. Vernon, M.A. (Religious Tract Society), is a welcome addition to the list of books suitable for Sunday readings to the young. Some passages are a little too advanced for children, but all the members of a family circle would gain some material for thought from the various chapters on Spring Days, the Beauty of Rain, Musings in the Twilight, &c. Good pieces of poetry are plentifully quoted, and the whole book, as the title suggests, breathes the spirit of Wordsworth.

We are glad to see a reprint of an old favourite by Mrs. Molesworth, *The Boys and I* (Chambers).—It is just the book for children of six to ten years, for it depicts the thoughts and words and small scrapes of three little people of that age. It is supposed to be actually written by the eldest of them, and is a clever imitation of a child's language. The present edition is copiously and pleasantly illustrated by Lewis Baumer.

The Herd Boy and His Hermit is by Miss Charlotte M. Yonge (National Society).—The period of the Wars of the Roses forms the background to the story of a boy who is hidden for safety with a Cumberland shepherd. The authoress's well known style of quiet narration of interesting events, together with a few alluring illustrations, makes the book a very suitable one for prize or gift.

Such a Tomboy, and other Stories, is written by Katherine E. Vernham, and published by the National Society.—These little sketches, chiefly from humble life, are just sufficiently realistic to arouse the sympathy and interest of young readers in a few sorts and conditions of men. There is a distinctly moral tone throughout the book, but it is not unduly forced, being presented more by deeds than by words.

A King's Thegn, by Geraldine Gay, is another story published by the National Society.—King Alfred and his struggle with the Danes is an endless source of material for children's tales. The present one is written in the first person by a thegn, and the defeat of the Danes at Ethandun is fully described.

Bugle Minor, by M. Bramston (National Society), relates the

adventures of a bugle boy in the Royal Marines. The story is brightly written, with plenty of geographical and general information. The scene is chiefly laid in Africa.

Guy's Duty, by Penelope Leslie (National Society), is intended for quite young readers, who will be able to follow the simple incidents of a voyage to India and mild adventures in that country with great ease. We doubt, however, whether any but children whose parents are in India, or who have some such close connexion with it, will be interested in the tale. Neither the characters depicted, nor their conversation, are attractive in themselves.

A Sunday in Summer, by A. E. Deane (National Society), describes the wrecking of a train by some idle boys, with the brave attempt of another boy to signal the driver to stop. The boys' various futures are depicted and morals drawn from them.

Founders of the Empire, by Philip Gibbs (Cassell), is an attractive little volume which children could read by themselves to amplify their history lessons. The language is straightforward and simple, the "Founders" are all well chosen, and there are numerous illustrations, four of them coloured.

Messrs. Ward, Lock, & Co. have issued new editions of *The Prince of the House of David* and *The Pilgrim Child*.—The former work has been completely revised by the Rev. J. H. Ingraham, and he has endeavoured to avail himself of all suggestions and criticisms that have appeared since the book was first issued in 1855.—*The Pilgrim Child*, by Theodora Elmslie, might be described briefly as "Bunyan for little people." Considering the early age at which children will enjoy the "Pilgrim's Progress," such a work as this seems hardly needed. Both books are illustrated carefully and tastefully, but representations of religious subjects always leave much to be desired.

The Courteous Knight, and Other Tales, by E. Edwardson (Nelson), is a mix-up of Arthurian and Spenserian legends, borrowed from Malory and Spenser. It is a rather bold experiment on Mr. Edwardson's part, and there is a danger lest it should confuse the mind of a young reader, and mislead his literary taste. The book is illustrated and decorated by Robert Hope—very well in the main, though with some inequalities.

ANNUALS.

We receive from the Religious Tract Society their four annual volumes of Magazines. *The Sunday at Home* is an able combination of serious and lighter matter with biographies, Bible-studies, tales, and poetry. The coloured designs will greatly please the younger readers.—Surely every boy's hobby is catered for in the *Boy's Own Annual*; it is an inexhaustible mine of adventure, information, and the slighter kind of illustration. Some of the large coloured plates are very attractive, especially the ever popular sheet of flags and funnels.—The companion volume, *The Girl's Own*, though quieter in tone, will doubtless please the girls with its articles on dressmaking, cookery, and girls' employments.—*The Leisure Hour* contains much good reading for the elder children. Besides fiction, general information and biographies are its strong points. There are a few good full-page reproductions of well known pictures.—*Chums* (Cassell) is as attractive as usual for the younger ones, and will provide them with amusement for many a day. It is very copiously illustrated, and has many stories, anecdotes, jests, and useful papers.

CORRESPONDENCE.

MEDICAL PRELIMINARIES.

To the Editor of the Educational Times.

SIR,—In his recent inaugural address delivered before the Medico-Chirurgical Society of Nottingham, Prof. Saundby, of Mason College, Birmingham, discussed the standard of preliminary education for medical students. He stated that it is now possible for a boy to become a medical student notwithstanding bad spelling and grammar and a most imperfect acquaintance "with other polite branches of learning." The conclusion he arrives at is that the standard should be that attained in public schools by boys of eighteen, and not of fourteen, as is at present the case. What this standard is should be determined by schoolmasters on the assumption that the education given will be of the ordinary classical or "literary" type, without any admixture of special subjects.

Prof. Saundby goes a good deal farther than this. Non-medical scientific knowledge, he says, is either a necessary part of a professional course of study or it should be dispensed with altogether. The latter alternative is boldly suggested in the case of students who only intend to become general practitioners. To obviate, apparently, the necessity of preliminary examinations, he advocates the systematic granting of Leaving Certificates by school authorities, and implies that such certificates would afford a satisfactory test of the previous education of a student, which is all that is required. He foretells the removal of mechanics, botany, geology, chemistry, and physics from

the medical curriculum as compulsory subjects, and, *a fortiori*, does not think them necessary as a part of a medical student's preliminary education. In short, he says: Extend the student's general culture, even at the expense of his general scientific training.

The flood of inaugural addresses given during October in our medical schools and their frequent reference to this question of medical education has attracted the attention of the *Spectator*. In a recent article on "Doctors and Culture," it maintains that there exists a latent cleavage between doctors and other educated men which is most injurious to both, and that a difference in their ways of thinking is produced by a difference in culture. The remedy proposed is a twofold education—professional training *plus* culture—which, according to the *Spectator*, can be supplied by "one more year of study." Shades of Plato and Matthew Arnold! and is it so simple? We have all these years dreamed of "culture" as such a refined and rare essence that classical scholars, artists, and even brilliant essayists might at times seem uncultured when in each other's society. Yet, one more year of the "humanities" is to make the G.P. a cultured man! There must be much virtue in that professional training after all, and we have even heard medical men put down the want of intellectual sympathy between doctors and other professional men to a lamentable ignorance of science among members of the other learned professions. We should lament the want of "culture" among medical men less if we paid greater court at the shrine of Hygeia. The *Spectator* looks forward to the time when doctors even in the slums will be as educated as barristers, and as self-sacrificing as the clergy. I am not sure that they are not so already; but, in any case, I think it is more to the purpose to urge all worshippers of culture to press forward the work of secondary education legislation. Improved secondary education will solve more problems than those involved in a medical student's preliminary examination.

Although I have no desire to condone a lack of acquaintance with "polite branches of learning" in our medical practitioners, at the same time I doubt the wisdom of insisting upon a higher standard of general education than obtains at present. Even without Cobbett's criticisms on the grammar of Wellington's despatches one can easily conceive the great Duke laying siege in vain to Woolwich and Sandhurst and having to outflank the enemy by a march through the Militia Competitive. A few weeks ago a London medical professor told me of one of his students—a woeful speller—who handed in some notes of brain dissections in which the words "fissures of the brain" appeared as "fishers of the brine." Of course, the fault was laid at the door of modern teaching; whereas the real remedy, if any, in such a case would probably be a surgical operation. No possible amount of "polite learning" can make some boys spell correctly.

The medical writings of the late Dr. Thomas, one of the most brilliant surgeons of Liverpool, were grammatical shambles, and I am afraid that Lord Grimthorpe's letters to the *Times* would not survive the ordeal of any preliminary examination in the kingdom. But it will never do to bar such men from professional careers by raising the standard of preliminary education to what schoolmasters think a boy ought to know at eighteen. A solid professional training is in itself a means of culture, and is certainly more essential than accuracy of grammatical expression. How Prof. Saundby hopes to impart a solid professional training without insisting on some elementary knowledge, at least, of mechanics, botany, chemistry, and physics is to me incomprehensible; and his suggestion of Leaving Certificates involving variable standards seems much less satisfactory than the present system, where the preliminary examinations are conducted by properly qualified examining bodies. A "G.P."

THE INTERNATIONAL CONGRESS ON ELEMENTARY EDUCATION.

To the Editor of the *Educational Times*.

MONSIEUR LE RÉDACTEUR,—Le succès des précédents Congrès internationaux de l'Enseignement primaire et l'utilité de leurs travaux, qui ont souvent inspiré de fécondes mesures législatives ou administratives, nous encouragent à faire un nouvel appel, à l'occasion de l'Exposition de 1900, à ceux qui, en France et chez les autres nations, coopèrent à cette œuvre d'un intérêt vraiment universel.

Vous connaissez déjà le profit de ces réunions où chacun gagne, au contact d'hommes consacrés à la même tâche que lui, des idées et des forces nouvelles; où chaque nation peut s'enrichir, dans la mesure qui convient à son régime et à son tempérament propres, de l'expérience des autres nations; où tous, par une mutuelle communication de leurs heureuses tentatives et par un examen commun des problèmes qui attendent encore une solution, peuvent propager le bien qu'ils ont déjà fait et créer quelque nouveau moyen de progrès.

Le Congrès international de 1900, auquel nous serions heureux de vous voir participer, s'ouvrira le jeudi 2 août, pour durer jusqu'au dimanche 5 inclusivement.

Il sera divisé en cinq sections, correspondant aux cinq questions suivantes, mises à l'étude:—

1. L'éducation ménagère.—Sa définition, ses limites, son adaptation à chacun des degrés de l'enseignement primaire. Quelles peuvent être, à chacun de ces degrés, les parts respectives de la théorie et de la

pratique? Programme pour chacun des degrés et plan d'ensemble.—Par qui sera donné le double enseignement? Par un personnel spécial, ou par les institutrices elles-mêmes, préparées, à cet effet?

2. De la fréquentation scolaire.—La non-fréquentation et la fréquentation irrégulière. Insuffisance de l'action de la loi de 1882 en France. Moyens à employer pour augmenter cette action; moyens d'ordre législatif, d'ordre administratif, d'ordre pédagogique.—Etat de la fréquentation scolaire chez les principales nations.

3. De l'éducation morale.—Son objet, ses principes, ses méthodes et ses procédés; parts respectives de la théorie et de la pratique. Sa place dans l'ensemble du programme, ses liens avec les autres parties.

4. De l'enseignement primaire supérieur.—Son objet; ses limites: moyens de l'adapter aux intérêts régionaux et locaux.

5. Des institutions post-scolaires: cours d'adultes, conférences et lectures publiques, patronages et associations amicales, sociétés scolaires de secours mutuels et de retraites.—Moyens d'en assurer l'existence et le développement, de les multiplier, de les grouper.

Les auteurs des mémoires sont invités à faire suivre leurs conclusions de projets de résolution. Les mémoires devront tous être adressés, avant le 1 mai 1900, à M. Trautner, directeur d'école communale à Paris, 20 rue Etienne-Marcel, secrétaire de la Commission d'organisation, qui les transmettra ensuite aux rapporteurs compétents. Pour que cette transmission soit possible, il est nécessaire que chaque mémoire ne vise qu'une seule question. Nous vous adressons, sous ce pli, avec un exemplaire du règlement, un bulletin d'adhésion que nous vous prions de vouloir bien, si vous devez assister au Congrès, remplir suivant les indications qu'il contient, et renvoyer à M. Marguery, trésorier, 36 boulevard Bonne-Nouvelle, Paris.

Veillez agréer, Monsieur, l'assurance de notre considération très distinguée.

GRÉARD, *le Président*.

EMILE COUTURIER, *le Secrétaire général de la Commission d'organisation*.

L.-R. TRAUTNER, *Secrétaire de la Commission*.

Paris, 1 octobre, 1899.

THE LONDON UNIVERSITY COMMISSION.

To the Editor of the *Educational Times*.

DEAR SIR,—We should be much obliged if you would kindly print this and the following letter and attached form in your November issue, in order to obtain for us as many signatures as possible to an appeal with which you must be cordially in sympathy.—Yours faithfully,

WILLIAM K. HILL.

36 Bickerton Road, N., October 19, 1899.

EDUCATION AND THE NEW UNIVERSITY OF LONDON.

October, 1899.

DEAR SIR OR MADAM,—We beg to draw your attention to the following facts, and ask your help in the proposed effort to rectify what we consider a grave omission. In Section 5 on page 8 of the Interim Report by the Special Committee of Convocation appointed to make representations to the London University Commission appear these words: "With regard to the position to be occupied by the art or profession of teaching, the Committee think that this subject should find its place as a branch of the Faculty of Arts."

At a meeting of Convocation, held at Burlington House on October 10, this section was challenged, and, upon a motion that the Report of the Committee be received, an amendment was moved by Mr. Frank W. G. Foat and seconded by Mr. William K. Hill: "That the Committee be requested to reconsider the wording of Section 5 on page 8 of their Report with a view to recommending to the Commission that a separate Faculty of and degree in Education should be established in the new University of London. This amendment was lost. There remains, therefore, one course—i.e., to avail ourselves of a clause in the University of London Act which requires the Statutory Commission to consider any recommendation made and signed by not less than fifty members of Convocation. If, therefore, you share with us the opinion that the omission to establish a Faculty of and degree in Education is a defect which should have serious consideration, will you kindly fill up the subjoined form, and cut out and send it at your earliest convenience, to either of the undersigned?—We are, yours faithfully,

FRANK W. G. FOAT, M.A.,

City of London School, Victoria Embankment, E.C.

WILLIAM K. HILL, B.A.,

36 Bickerton Road, Junction Road, N.

FORM.

I, the undersigned, being a present Member of Convocation of the University of London, hereby authorize Messrs. F. W. G. Foat and W. K. Hill to detach my signature inscribed below and affix it to a Memorial addressed to the University of London Statutory Commission in these terms:—

To the Members of the University of London Statutory Commission.

GENTLEMEN,—We, the undersigned Members of Convocation of the University of London, having learnt, from the Report of the Special

Committee of Convocation presented on October 10, that no provision has been, or is likely to be, made in the proposed Statutes for the establishment of a separate Faculty of and degree in Education in the new University of London, hereby earnestly pray you to reconsider the question and use your best endeavour to make such provision. And we are further of opinion that, if no other means be available for representing such Faculty of Education on the proposed Academic Board of Studies, one representative should be transferred, at your discretion, from some other Faculty or Faculties as at present proposed. If it should please you to require it, we will endeavour to send a deputation of members to explain our reasons for desiring a separate Faculty of and degree in Education and to suggest a possible method of giving effect to our desire.

COLLEGE OF PRECEPTORS.

LECTURES FOR TEACHERS.

By P. A. BARNETT, Esq., M.A., formerly Principal of the "Borough Road" Training College, Isleworth.

SYLLABUS.

LECTURE I.

Preparation for Teaching as a Profession.

The meaning and purpose of training; economy of effort; development of capacity. The possibilities of training; the cultivable margin of aptitude. The methods of training; practice in the art of instruction; personal observation and record-making; study of books. Training as it affects the teacher's aim, character, and temperament, appreciation of the scope and difficulties of education, and personal acceptability.

LECTURE II.

The Teacher and a Definition of Education.

The value of the definition of an art: to simplify and inspire purpose; to determine method; to suggest procedure. Education the direction of a force constant in society; the teacher's place as beneficent agent. The historical development of the ideal of education in political and religious societies; its social and psychological consequences as they affect teaching. The effect of prevalent theories of knowledge and conduct on conceptions of education. Misleading ideals. The authorities in education and teaching.

LECTURE III.

Education as a problem in Organization.

What is a liberal education, and who is to have it? The many-sidedness of human nature. Educational needs indicated by common fundamental endowments and destiny; hence interrogation of sociology and psychology. Free access to a liberal education as a test of social and political ideals. Current conceptions of a liberal education. The division of "subjects." The nature of specialization; its limits and social effects. The teacher and his syllabus and time table. Curriculum for boys and for girls.

LECTURE IV.

Education as a problem in Psychology.

The value and scope of psychology in the work of the class-room. Teaching and education. The suggestiveness of physio-psychology. The conflicting doctrines of psychologizers. The mind as a combination or *plexus* of "faculties." Professional pedantry and superstitions of the school-room. Empirical tricks and delusive short-cuts in teaching. The direct lessons of psychology. The teacher and "all-round" cultivation.

LECTURE V.

The Relation of Body and Mind.

Physiological health and psychological health involve each other. The basis of the Kindergarten organization and methods. The dangers of excessive regard for machinery. Youth a process. Stages of development, and necessary growth of curriculum and alteration of procedure. Signs of distress and defect. Training of manual dexterities. The limit of its usefulness: as to age; as to social conditions. Health in the school, school-house, and school-room. The meaning of Play.

LECTURE VI.

School Morals.

School a poor substitute for, but necessary complement to, the home. A definition of School necessary in order to economize and direct effort. Domestic and public virtues. The corporate life of school. Sentiment and conduct. The cultivation of aptitudes for an ideal community. Rewards and punishments. The cultivation of character by the teacher. The effect of surroundings on character. Surroundings and habit. *Nagging*. The organization and character of school games.

LECTURE VII.

Language as Literature and Rhetoric.

Literature and its definition. Literature in the cultivation of the imagination and emotions. Use of literature in school; as reading, as recitation, as a "study." Literature a compendious study. The order of interest. "Culture" and its relation to literature in school. The investigation of literary masterpieces; dangers of philological treatment. The relation of appreciation and expression. The order of rhetoric or "composition" teaching. The need for *copiousness* of reading.

LECTURE VIII.

Language as Speech.

The meaning of "Self-expression." The relations of intelligence and intelligibility. The cultivation of audible speech; a physical exercise. Procedure in teaching Speech, Reading, Elocution. The place of the Pattern. The rarity and importance of right Emphasis. Oral examination. Foreign speech: the mother method; the analytical method. The differences in the teaching of modern and ancient languages; as to aim; as to procedure. The limits of oral teaching. The application of tests in examination.

LECTURE IX.

Abstraction in Mathematics, Logic, and Grammar.

The capacity for abstraction. Its place in mental development. Mathematical certainty and the necessary qualifications of mathematical certitude; the delimitation of terms used *technically*, in special connexions. The value of cultivating the power to define. The uses and limitations of Arithmetic and formal Grammar; the skeleton of the art of reasoning. Grammar as an inductive science.

LECTURE X.

Training in the power of Discovery.

Science and its definition. False notions of science, and meaningless antithesis between science and other studies. Science as observation and experiment in the school curriculum. The perils of restricted observations and unanalysed experiments. The logical subdivisions of science. Philology as science. Imagination in science. Invention and Design. The place of Geography in the hierarchy of sciences; as a compendious and general study; as a special and applied study.

LECTURE XI.

History as a School Subject.

History as a concrete study, and as a method. The relation of history to literature and other subjects in the curriculum. History as an atmosphere; as a panorama; as the interpretation of the succession of events affecting political societies. The necessary material for basis. The order of teaching. The desirable completeness of each stage. The passage from general to particular and *vice versa*. The need for frequent concrete attachments in school teaching. Ancient and modern history. History as a core or centre of instruction. Suggested courses.

LECTURE XII.

Summaries and general conclusions.

The Fee for the Course of Twelve Lectures is Half-a-Guinea.

. The Lectures will be delivered on Friday Evenings at 7 o'clock, at the College, Bloomsbury Square, W.C.—Members of the College have free admission to the Course.

MATHEMATICS.

14175. (R. TUCKER, M.A.)—The normal at P, on a parabola, meets the directrix at Q. Show that QS meets (1) the tangent at P, (2) the diameter through P, in cubic curves.

Solution by K. G. PANCHAPAGESA AIYAR; Rev. T. MITCHESON, B.A.; and the PROPOSER.

Let the coordinates of P be $(am^2, -2am)$, so that the equation of the normal at P is $y = mx - 2am - am^3$ (i.)

The equation of the directrix is $x = -a$ (ii.)

Therefore, from (i.) and (ii.), Q is a point $[-a, -(3am + am^3)]$.

Again, the equation of QS is $\frac{x+a}{a+a} = \frac{y+(3am+am^3)}{3am+am^3}$;

i.e., $x(3m+m^3) - 2y - 3am - am^3 = 0$ (iii.)

And the equation of the tangent at P to the parabola is $am^2 + my + x = 0$ (iv.)

[The rest in Volume.]

14164. (Professor ELLIOTT, F.R.S.)—If a, b are positive moduli, and $\alpha - \beta$ lies between 0 and 2π , and if $f(z)$ is a function of the complex variable $z = re^{i\theta}$ which approaches definite limits $f(0)$ and $f(\infty)$ as z becomes infinitely small and infinitely great within the sector from $\theta = \beta$ to $\theta = \alpha$, and is holomorphic within and on the bounding lines of the sector except for simple poles at c_1, c_2, \dots, c_n within the sector, prove the FRULLANIAN formula

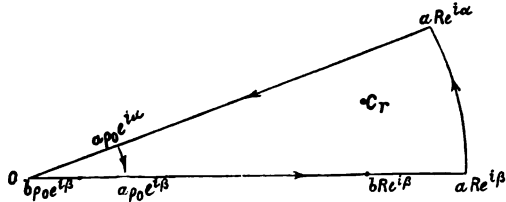
$$\int_0^\infty \frac{f(ae^{i\alpha}x) - f(be^{i\beta}x)}{x} dx = \{f(\infty) - f(0)\} \left\{ \log \frac{a}{b} + i(\alpha - \beta) \right\} - 2\pi i \sum_{r=1}^{r=n} \left[(z - c_r) \frac{f(z)}{z} \right]_{z=c_r}$$

the variable x being real.

Solutions (1) by G. H. HARDY, B.A.; (2) by H. W. CURJEL, M.A.

(1) Integrate $\int \frac{f(z)}{z} dz$ round the contour bounded by $\theta = \alpha$, $\theta = \beta$, $r = a\rho_0$, $r = aR$; where ρ_0 decreases, and R increases beyond limit.

$$\begin{aligned} & \{f(\infty) - f(0)\} \int_{\beta}^{\alpha} i d\theta + \int_{b\rho_0 e^{i\beta}}^{bR e^{i\beta}} \frac{f(z)}{z} dz - \int_{a\rho_0 e^{i\alpha}}^{aR e^{i\alpha}} \frac{f(z)}{z} dz \\ & - f(0) \int_{b\rho_0 e^{i\beta}}^{a\rho_0 e^{i\alpha}} \frac{dz}{z} + f(\infty) \int_{bR e^{i\beta}}^{aR e^{i\alpha}} \frac{dz}{z} \\ & = 2\pi i \sum_{r=1}^{r=n} \left[(z - c_r) \frac{f(z)}{z} \right]_{z=c_r}, \end{aligned}$$



which reduces to

$$\int_0^{\infty} \frac{f(ae^{i\alpha}x) - f(be^{i\beta}x)}{x} dx = \{f(\infty) - f(0)\} \{i(\alpha - \beta) + \log a/b\} - 2\pi i \sum_{r=1}^{r=n} \left[(z - c_r) \frac{f(z)}{z} \right]_{z=c_r},$$

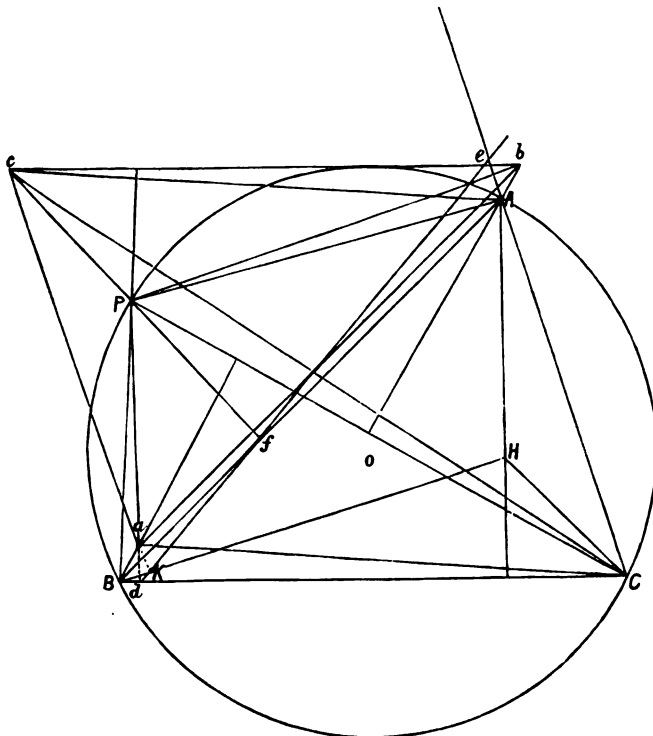
x being real.

[The rest in Volume.]

14190. (C. E. HILLYER, M.A.)—If P be a point on the circumcircle of ABC , whose orthocentre is H , and a be the orthocentre of the triangle PBC , b of the triangle PCA , and c of the triangle PAB ; prove (1) that B, a, H, C are concyclic; (2) that the SIMSON-line of P with respect to the triangle ABC is also the SIMSON-line of a with respect to the triangle HBC , and of b with respect to HCA , and of c with respect to HAB ; (3) that this line bisects Aa, Bb, Cc , and PH .

Solution by R. TUCKER, M.A.; W. H. SALMON, B.A.; and K. G. PANCHAPAGASA AIYAR.

- (1) Because angles BaC, BHC are supplements of the equal angles P, A ; therefore, &c.
- (2) $\angle BKd = BPf - HBC = C - PBA = PCB = \angle Bad$; therefore B, a, K, d are concyclic, and $\angle BKa$ a right angle; therefore, &c.



(3) Pa, AH each $= 2$ (perpendicular from O on BC), and parallel to one another. Therefore $AH a P$ is a parallelogram, and Aa bisects HP , and so for the others; and, by a well-known property, the SIMSON-line dfe bisects HP .

(4) Again $aH = AP$ and parallel to it } therefore $\angle aHb = 180^\circ - C$.
 $bH = BP$ and parallel to it } therefore $abcH$ concyclic.

(5) The loci of a, b, c are evidently circles, as P moves round the circumference.

(6) $\angle aPb = \angle APB = \angle AHB$.

Therefore, by (3), $\triangle abc$ is congruent with $\triangle ABC$, and P is its orthocentre; its sides are also (because Ba is equal and parallel to Ab) parallel to the sides of ABC . Also, from (3), the mid-point of HP is the Centre of Perspective of the triangles.

[The rest in Vol.]

13977. (REV. T. MITCHESON, B.A.)—If $(x_1, y_1), (x_2, y_2)$, and (x_3, y_3) be the three tangential points on a parabola from which normals can be drawn to a given point, find the length of the ordinate of the co-normal point.

Solution by the PROPOSER; R. KNOWLES, B.A.; and G. W. PRESTON, B.A.

Let (β, γ) be the co-normal point, and the equation to the normal through that point is $2a\gamma - 2ay_1 = \beta y_1 + x_1 y_1$,

since $y_1^2 = 4ax_1$; hence, for finding y_1 , we have

$$y_1^2 + 4a(2a - \beta)y_1 - 8a^2\gamma = 0;$$

therefore $y_1 + y_2 + y_3 = 0, y_1 y_2 + y_1 y_3 + y_2 y_3 = 4a(2a - \beta)$,

and $y_1 y_2 y_3 = 8a^2\gamma$.

From these equations we get

$$4ax_1 + 4ax_2 + 4ax_3 = 8a(2a - \beta) \text{ and } 1/y_1 + 1/y_2 + 1/y_3 = (2a - \beta)/2a\gamma,$$

and therefore the ordinate required is

$$\frac{1}{2} (x_1 + x_2 + x_3) (y_1^{-1} + y_2^{-1} + y_3^{-1}).$$

[Mr. KNOWLES remarks:—"The ordinate required is γ , and in the solution it is shown that $\gamma = y_1 y_2 y_3 / 8a^2$."]

14083. (C. E. HILLYER, M.A.)—Show that the collinearity of the mid-points of the diagonals of a complete quadrilateral is an immediate deduction from MENELAUS' theorem, viz., that the ratio compounded of the ratios of the segments into which a straight line divides the sides of a triangle is -1 , and its converse.

Solution by the PROPOSER and Prof. N. BHATTACHARYYA.

Let a straight line meet BC in D, CA in E , and AB in F . Then, if D' is the mid-point of AD, B' of AC, C' of AB , we have C', B', D' in a straight line and parallel to BC , and

$$C'D' : D'B' = BD : DC.$$

Similarly, E' is a point in $C'A'$ such that

$$A'E' : E'C' = CE : EA;$$

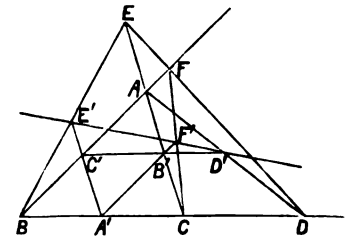
and F' in $A'B'$ such that

$$B'F' : F'A' = AF : FB.$$

But $BD.CE.AF = DC.EA.FB = -1$.

Therefore $C'D'.A'E'.B'F' = D'B'.E'C'.F'A' = -1$.

Therefore D', E', F' are collinear; and these are the mid-points of the diagonals of the quadrilateral $ACDF$.



14135. (PROFESSOR THOMAS SAVAGE.)—For what positive integral value or values of n is $(n+1)^n - n^n$ divisible by $2mn+1$, where m is any positive integer?

Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.

$\{(n+1)^n - n^n\}$ is always divisible by some prime p of form $p = 2mn+1$, where m is some positive integer (not any integer as stated in the question). n may be any positive integer.

[This is believed to have been proved by EULER, for the more general case $(a^n - b^n)$ is always divisible by $p = 2mn+1 = \text{prime}$.

The PROPOSER observes: "Owing to an error—unfortunately not detected at first revision of manuscripts—in the working of a particular case of FERMAT'S theorem ($x^n + y^n \neq z^n$, for integers), I was led, by the result, to set the question as printed.]

14242. (C. JOSS, M.A.)—Tangents to a circle at the vertices of an inscribed triangle meet the opposite sides produced in collinear points.

Solution by Rev. J. CULLEN; and Prof. N. BHATTACHARYYA.

By applying PASCAL'S theorem to the hexagon inscribed in a TUCKER circle we see that the anti-parallel $FE', F'D$, and $D'E$ intersect the sides in collinear points. When the TUCKER circle becomes the circumcircle the PASCAL line becomes LEMOINE'S line. (See figure in Quest. 14159.)

[The PROPOSER observes: "This results from PASCAL'S theorem by diminishing the alternate sides of the hexagon until the secants become tangents. The quadrilateral and pentagon are likewise included in the general form:—If six lines cut one another in concyclic points, lines

1 and 4, 2 and 5, 3 and 6 meet in collinear points. See McDOWELL'S Exercises (1863), No. 224.)"

14257. (Professor COCHEZ.)—Etudier $x^4 + y^4 + 3x^2y + y^3 = 0$.

Solution by H. J. WOODALL, A.R.C.S.

By solving the equation, we find

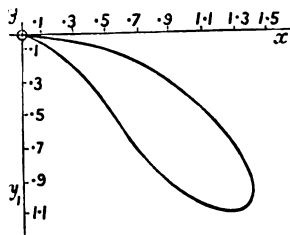
$$x^2 = -\frac{3}{2}y \pm \frac{1}{2}y(5 - 4y^2)^{\frac{1}{2}}$$

whence y must be negative and not greater than $-\frac{1}{2}\sqrt{5}$, i.e., $-1.118...$

Also the curve is symmetrical with respect to the axis of y , $y = -1$ cuts the curve where $x^4 - 3x^2 + 2 = 0$; therefore the points $(\pm\sqrt{2}, -1)$ and $(\pm 1, -1)$ are on the curve. The curve is parallel to the x -axis where $du/dx = 0$, i.e., $4x^3 + 6xy = 0$; this gives the points $(0,0), (\pm 1.295..., -1.118...)$. Properly, the curve at the point $(0, 0)$ requires further examination, since here

$$du/dy = 0$$

also. The x -axis is, however, a double tangent at $(0, 0)$. The curve is parallel to the y -axis at $(\pm 1.414..., -1)$, and one-half of it is represented in the accompanying figure.



14291. (R. F. DAVIS, M.A.)—If ABCD be any quadrilateral circumscribed to a circle (centre O), then $AB \cdot AD/OA^2 = CB \cdot CD/OC^2$.

Solution by C. E. McVICKER.

$\alpha + \beta + \gamma + \delta = \pi$; therefore AOD can be divided into β and γ , also BOC can be divided into α and δ . By similar triangles,

$$OA^2 = AB \cdot AX;$$

therefore $OA^2/(AB \cdot AD) = AX/AD$;

similarly, $OC^2/(CB \cdot CD) = CY/CB$.

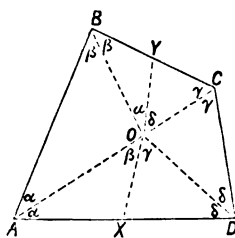
It is now required to show that XY divides the sides proportionally.

$$AX/XD = (AX/XO)(XO/XD)$$

$$= (\sin \beta / \sin \alpha)(\sin \delta / \sin \gamma),$$

$$CY/YB = (\sin \delta / \sin \gamma)(\sin \beta / \sin \alpha),$$

which is the same; whence the theorem follows at once.



14275. (R. J. DALLAS.)—Being given four points A, B, C, D, prove that the nine-point circles of the four triangles formed by leaving out one point in turn all pass through one point.

Solution by Rev. T. ROACH, M.A.; W. C. STANHAM, B.A.; and others.

The nine-point circle of any triangle is the locus of the centre of equilateral hyperbolas described about the triangle. Let one of the hyperbolas be described about ABC and pass through D. Then the centre of the equilateral hyperbola through ABCD lies on the nine-point circle of ABC. Similarly, it lies on the nine-point circles of BCD, CDA, DAB; therefore these four circles all pass through one point.

14088. (Rev. T. ROACH, M.A.)—OP and OQ are tangents to a parabola: prove $OP^2 : OQ^2 = SP : SQ$.

Solution by H. A. WEBB; the PROPOSER; and many others.

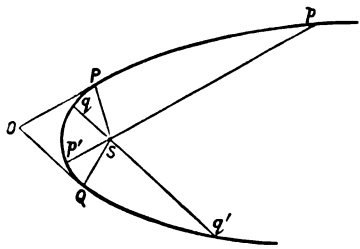
Draw pp', qq' parallel to OP, OQ respectively.

pp', qq' are the parameters of the diameters through P, Q, and are equal to $4SP, 4SQ$ respectively.

Also $Sp \cdot Sp' = Sg \cdot Sg'$ = half the semi-latus rectum.

Then, by BOSCOVICH'S theorem,

$$OP^2 : OQ^2 = Sp \cdot Sp' : Sg \cdot Sg' \\ = pp' : qq' \\ = SP : SQ.$$



14276. (R. KNOWLES, B.A.)—At a point R (eccentric angle θ) of the ellipse $a^2y^2 + b^2x^2 = a^2b^2$, chords RP, RQ are drawn at right angles; the normal at R meets PQ in M and the curve in N. Prove (1) that $RM : MN = a^4 \sin^2 \theta + b^4 \cos^2 \theta : a^2b^2$. (2) If $R(am^2, 2am)$ be on the parabola $y^2 = 4ax$, prove that $RM = m^2MN$.

Solution by G. W. PRESTON, B.A.

Draw the double ordinate RHQ, and draw MF, NG perpendicular to CA. Now M is the FRENCHER point of the point R; and therefore CMQ is a straight line and $CQ : CM = a^2 + b^2 : a^2 - b^2$. (Vide RUSSELL'S Geometry, p. 201, Ex. 6.)

But, by parallels, $CQ : CM = CH : CF$;

$$\therefore CH : CF = a^2 + b^2 : a^2 - b^2; \therefore CH : FH = a^2 + b^2 : 2b^2;$$

$$\therefore CF = \{(a^2 - b^2)/(a^2 + b^2)\} (a \cos \theta) \text{ and } FH = \{2b^2/(a^2 + b^2)\} (a \cos \theta).$$

It is clear, from the figure, that $RM : MN = FH : FG$.

Now

$$FG = CF - CG$$

$$= CF - (CG + CH) + CH.$$

Equation of normal at R is

$$a \sin \theta \cdot x - b \cos \theta \cdot y$$

$$= (a^2 - b^2) \sin \theta \cos \theta.$$

Substituting the value of y from this, in the equation of curve, we get

$$b^2x^2 + \frac{a^2 \{a \sin \theta \cdot x - (a^2 - b^2) \sin \theta \cos \theta\}^2}{b^2 \cos^2 \theta} = a^2b^2,$$

a quadratic in x , the sum of whose roots is

$$CG + CH = \frac{2a^3(a^2 - b^2) \sin^2 \theta \cos \theta}{a^4 \sin^2 \theta + b^4 \cos^2 \theta};$$

$$\therefore FG = \frac{a^2 - b^2}{a^2 + b^2} (a \cos \theta) - \frac{2a^3(a^2 - b^2) \sin^2 \theta \cos \theta}{A} + a \cos \theta$$

(where $A = a^4 \sin^2 \theta + \&c.$)

[The rest in Volume.]

14147. (Rev. W. ALLEN WHITWORTH, M.A.)—If three square numbers (not having a common factor) be in arithmetical progression, the middle one divided by 120 will leave a remainder 1 or 25 or 49, and each of the others divided by 240 will leave a remainder 1 or 49. For example: 49, 289, 529; 289, 625, 961; 961, 1681, 2401.

Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.; and R. W. D. CHRISTIE.

Let x^2, y^2, z^2 be the three squares, such that $x^2 + z^2 = 2y^2$ ($x < y < z$). The general solution of this has been shown in a recent number of this journal to be

$$x = (m \sim 2n)^2 - 2n^2, \quad y = (m \sim n)^2 + n^2, \quad z = m^2 \sim 2n^2.$$

Hence x, y, z will be all even if m is even (a case excluded since x, y, z are to have no common factor); and x, y, z will be all odd if m be odd. Thus x, y, z, m must be all odd. Now all odd squares are of form $(8\alpha + 1)$; and all squares are of one of the forms 3β or $(3\beta + 1)$, and also of one of the forms $(5\gamma - 1), 5\gamma, (5\gamma + 1)$. Now, since y is of form $(a^2 + b^2)$, all its factors must be of that form, so y cannot have the factor 3, and y^2 cannot be of form 3β . Similarly, x^2 and z^2 are both of form $(c^2 \sim 2f^2)$, x and z are each of one of the forms $(8\alpha \pm 1)$, and all their factors must be of form $(c^2 \sim 2f^2)$; hence x^2 and z^2 are both of form $(16\alpha + 1)$; and x and z cannot have the factors 3 or 5; so that x^2 and z^2 cannot be of form 3β or 5γ .

$$\text{Hence } y^2 = 8\alpha + 1 = 3\beta + 1 = 5\gamma - 1, \text{ or } 5\gamma, \text{ or } 5\gamma + 1;$$

$$x^2 \text{ and } z^2 = 16\alpha + 1 = 3\beta + 1 = 5\gamma - 1 \text{ or } 5\gamma + 1.$$

Compounding the three forms,

$$y^2 = 120\eta + 1, 25, \text{ or } 49; \quad x^2 \text{ and } z^2 = 240\xi + 1 \text{ or } 49.$$

14094. (ROBERT W. D. CHRISTIE.)—In my factorization table (vide Vol. LXIX., p. 99) prove the law $a = 10t + u, b = Mu + t$, where t signifies the tens digit, u the units, and M the multiplier.

E.g.—Under prime 79 we have

$$15 = 10 \times 1 + 5 \text{ and } 41 = 8 \times 5 + 1, \quad 12 = 8 \times 1 + 4, \quad 17 = 8 \times 2 + 1, \text{ \&c.,}$$

where $1501 = 41001 = 120001 = 1700001 = 79(M)$, &c., ad lib.

Solution by the PROPOSER.

Let P be any number $10M - 1$ prime to 10, where M signifies the multiplier, and let $a_1, a_2, a_3, \dots, a_n$ represent the digits in the vertical columns of the table whose general law is $a_n 10^n + 1 = 0 \pmod{P}$. We have to prove that $Mu + t = a_{n+1}$, where $a_n = 10t + u$.

By the general law of the table,

$$a_n 10^n + 1 = 0 \pmod{P} \text{ and } a_{n+1} 10^{n+1} + 1 = 0 \pmod{P};$$

$$\text{therefore } 10^n (10a_{n+1} - a_n) = 0 \pmod{P};$$

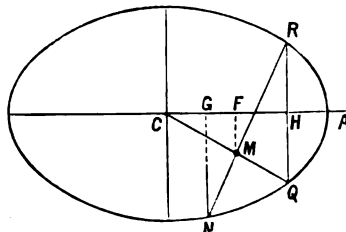
$$\text{i.e., } 10a_{n+1} - a_n = 0 \pmod{P} \dots\dots\dots (1),$$

since 10 is prime to P by hypothesis.

$$\text{Again, by (1), } 10(Mu + t) - (10t + u) = 0 \pmod{P};$$

$$\text{therefore } u(10M - 1) = 0 \pmod{P}, \quad \text{i.e., } 10M - 1 = 0 \pmod{P},$$

when M is the multiplier.



QUESTIONS FOR SOLUTION.

14360. (Professor G. B. MATHEWS, F.R.S.)—Let $A(x)$, $B(x)$ denote two given rational integral functions of x , of degrees m , n respectively ($m > n$): discuss the problem of establishing an identity

$$A(x) = Q(x) B(x) + ax^m + bx^{m-1} + \dots + lx^n,$$

where a, β, \dots, l form a set of n -assigned indices (all different) chosen at pleasure from the series $0, 1, 2, \dots, (m-1)$, m , and $Q(x)$ is a rational integral function of degree $(m-n)$. In particular, give a practical rule for finding $Q(x)$ and the coefficients a, β, \dots, l . [N.B.—This question is proposed mainly for the consideration of those who write on "Division" in Elementary Algebras.]

14361. (Professor E. LEMOINE.)—Dans un triangle ABC inscrire un triangle A'B'C' semblable à un triangle donné et tel que ABC et A'B'C' soient orthologiques. On sait que deux triangles ABC, A'B'C' sont dits orthologiques si les perpendiculaires abaissées des sommets de l'un sur les côtés de l'autre sont concourantes.

14362. (Professor S. SIMCOM, M.A.)—C is the point of bisection of SS₁. Find the locus of P when CS² is a harmonic mean between PS² and PS₁².

14363. (Professor NEUBERG.)—Trouver le lieu des foyers des paraboles qui ont une corde normale commune MN.

14364. (Professor SANJANA.)—Prove that the following problem (WOLSTENHOLME, 886) is inaccurate:—"The two straight lines

$$(x^2 + y^2) (\cos^2 \theta \sin^2 \alpha + \sin^2 \theta) = (x \tan \alpha - y \sin \theta^2)$$

include an angle α ." Find a value of α different from zero for which the question shall hold good.

14365. (Professor COCHEZ.)—Lieu des foyers des hyperboles tangentes à l'origine à l'axe des x , et ayant une asymptote perpendiculaire à l'axe des x .

14366. (Professor U. C. GHOSH.)—Two particles of masses m and m' are attached to the two ends of an inelastic string which passes through a small ring at the upper focus of a smooth ellipse held fixed in a vertical plane with its major axis vertical. The particle of mass m moves vertically up, and the other particle slides down, the curve. If, when motion commences, the distance of mass m' from the upper focus be a , prove that when it reaches this point (r, θ) , the upper focus being the origin, its velocity is

$$\sqrt{\left\{ \frac{2(r-a)(m'-em)(e^2 r^2 \sin^2 \theta + l^2)g}{[e^2 \sin^2 \theta (m+m') + m'l^2]e} \right\}}.$$

14367. (Professor N. BHATTACHARYYA.)—Show that the product of three numbers representing the sides of a right-angled triangle is divisible by 60.

14368. (D. BIDDLE.)—If the roots of the cubic equation $x^3 + qx + r = 0$ be x_1, x_2, x_3 and all real, prove that the sum of the products of $(x_1 - x_2)/x_3, (x_2 - x_3)/x_1, (x_3 - x_1)/x_2$, taken two at a time, is -9 .

14369. (R. TUCKER, M.A.)—P, Q, R are conormal points on a parabola, and $\gamma_1, \gamma_2, \gamma_3$ are the corresponding centres of curvature. Prove that the perpendiculars from γ_1, \dots , and from P, \dots , on QR, \dots , and $\gamma_2\gamma_3, \dots$, respectively pass through $\left\{ a \left[\frac{1}{2}(7S_2) + 2 \right], -\frac{1}{2}(7a\mu) \right\}$, and $\left\{ a \frac{1}{2}(7S_2), a(3\mu/S_2) \right\}$ respectively. Again, if k_1, k_2, k_3 are the points of intersection of the polars of $\gamma_1, \gamma_2, \gamma_3$ (k_2k_3 of γ_1, \dots) with respect to the curve, then k_2k_3, \dots meet gr, \dots in collinear points [the line being $\mu y - 2x = a(S_2 + 4)$], and $\Delta k_1k_2k_3 : \Delta PQR = 9 : S_2$, and the centroid of $k_1k_2k_3$ lies on the axis. [Refer to Quest. 13730.]

14370. (R. F. DAVIS, M.A.)—Employing a system of quadrilateral coordinates (analogous to trilinear coordinates) in which a point P is defined by its perpendicular distances ($\alpha, \beta, \gamma, \delta$) from the sides (AB, BC, CD, DA) of the quadrilateral of reference ABCD, prove the existence of the homogeneous linear relation between the coordinates of every point, $\alpha c \sin C \sin D - \beta d \sin D \sin A + \gamma a \sin A \sin B - \delta b \sin B \sin C \equiv 0$. Hence show that the equation of any line (or curve) is in a certain sense indeterminate. Prove that the equation to the locus of the centres of conics circumscribing the quadrilateral of reference may be written

$$\alpha\beta \sin D - \beta\gamma \sin A + \gamma\delta \sin B - \delta\alpha \sin C = 0.$$

14371. (J. A. THIRD, M.A.)—A conic, K, touches the sides BC, CA, AB of a triangle at X, Y, Z, and a tangent to it meets these sides in D, E, F respectively. Another conic, K', is circumscribed to ABC, and touches AD, BE, CF. Show (1) that P, the point of concurrence of AX, BY, CZ, lies on K'; (2) that if A'B'C' be a variable triangle in perspective with ABC with respect to P as centre and DEF as axis of perspective, A'B'C' and ABC are triply in perspective; (3) that the two variable centres of perspective, and therefore all three, lie on K'; and (4) that the two variable axes of perspective, and therefore all three, touch K. Consider the case when K' is the STEINER ellipse of ABC.

14372. (R. G. ARCHIBALD, M.A.)—The locus of the vertices of all parabolas in a plane having for focus a fixed point, and always passing through a fixed point, is a cardioid whose cusp is at the parabolic focus, and the diameter of whose fixed circle is the distance between the fixed points; further, the locus of the second point of intersection of the parabolas is a Cartesian oval.

14373. (C. E. McVICKER, M.A.)—The inscribed circles of two triangles are fixed. If the triangles have the same circumcircle, prove that its envelope is a pair of circles touching the direct common tangents of the fixed circles, and having for inverse points the centres of the latter. What is the statement when one of the fixed circles is infinitesimal?

14374. (G. H. HARDY, B.A.)—Prove

$$(1) \int_0^\infty \log \left(1 + \frac{\cos \alpha}{\cosh x} \right) \frac{dx}{a^2 + x^2} = \frac{\pi}{a} \log \left\{ \frac{\Gamma \left(\frac{a}{2\pi} + \frac{1}{4} \right) \Gamma \left(\frac{a}{2\pi} + \frac{3}{4} \right)}{\Gamma \left(\frac{a-\alpha}{2\pi} + \frac{1}{2} \right) \Gamma \left(\frac{a+\alpha}{2\pi} + \frac{1}{2} \right)} \right\};$$

$$(2) \int_0^\infty \log \left(1 + \frac{a^2}{x^2} \right) \frac{dx}{\cosh x + \cos \alpha} = \frac{2\pi}{\sin \alpha} \log \left\{ \frac{\Gamma \left(\frac{a+\alpha}{2\pi} + \frac{1}{2} \right) \Gamma \left(\frac{1}{2} - \frac{\alpha}{2\pi} \right)}{\Gamma \left(\frac{a-\alpha}{2\pi} + \frac{1}{2} \right) \Gamma \left(\frac{1}{2} + \frac{\alpha}{2\pi} \right)} \right\},$$

where $0 < \alpha < \pi$. [In Quest. 14317,

$$\text{for } \int_0^\infty \log \left(\frac{1-ax}{1-bx} \right) \frac{dx}{x} \text{ read } \int_0^\infty \log \left(\frac{1-pe^{-ax}}{1-pe^{-bx}} \right) \frac{dx}{x}, p > 1$$

(the former integral is meaningless); and for "between finite limits" read "between finite or infinite limits."]

14375. (H. MACCOLL, B.A.)—Three quantities are each taken at random between k and $-k$. Show that $3/8 =$ chance that their sum is positive, assuming that their product is positive = chance that their product is positive, assuming that their sum is positive. Show also that $-1/8 =$ dependence of the first event upon the second = dependence of the second event upon the first. (See solution of Quest. 14181 in the *Educational Times* for October.)

14376. (A. F. VAN DER HUYDEN, B.A.)—If I be the incentre, I_1, I_2, I_3 the excentres, and O the circumcentre of a triangle ABC, and if o, o_1, o_2, o_3 are the circumcentres of the triangles $I_1 I_2 I_3, I_1 I_2 I_3, I_1 I_3 I_1, I_1 I_2$ respectively, then o, I, O are respectively the orthocentre, circumcentre, and nine-point-centre of the triangle $o_1 o_2 o_3$, and the circle ABC touches the inscribed and escribed circles of this triangle.

14377. (E. W. REES, B.A.)—If on the sides of a triangle ABC squares $BB_1 C_1 C, CC_2 A_2 A, AA_3 B_3 B$ be described, and if $A_2 A_3, B_3 B_1, C_1 C_2$ intersect in the points C', A', B' , and if through A', B', C' perpendiculars be drawn respectively to BC, CA, and AB, prove that these perpendiculars intersect in a point O which is the centre of gravity of the triangle A'B'C', and that the symmedian point of this triangle is G, the centre of gravity of the triangle ABC.

14378. (F. H. PEACHELL, B.A.)—P is any point on $x^2/a^2 + y^2/b^2 = 1$; two points, D, E, are taken along the inward-drawn normal and tangent at P respectively, such that PD = half the ordinate, PE = half the abscissa. Prove that DE cuts the axis at $\tan^{-1} \left[(-2ab)/a^2 + b^2 \cdot \cot 2\phi \right]$, where ϕ is the eccentric angle of P.

14379. (J. J. BARNIVILLE, B.A.)—Having given $u_{n-1} + u_{n+1} = 4u_n$, prove that

$$\frac{1}{1^2+3} + \frac{1}{5^2+3} + \frac{1}{9^2+3} + \frac{1}{13^2+3} + \dots = \frac{1}{2\sqrt{3}},$$

$$\frac{1}{1^2+8} + \frac{1}{5^2+8} + \frac{1}{9^2+8} + \frac{1}{13^2+8} + \dots = \frac{1}{4\sqrt{3}},$$

$$\frac{1}{5^2-1} + \frac{1}{9^2-1} + \frac{1}{13^2-1} + \frac{1}{17^2-1} + \dots = \frac{1}{3} - \frac{1}{2\sqrt{3}},$$

$$\frac{1}{5^2-6} + \frac{1}{9^2-6} + \frac{1}{13^2-6} + \frac{1}{17^2-6} + \dots = \frac{1}{6} - \frac{1}{4\sqrt{3}}.$$

14380. (ROBERT W. D. CHRISTIE.)—Let p be an odd prime of form $8M + 3$. Solve (1) in integers, without using the method of continued fractions, the equation $X^2 - pY^2 = 1$; (2) generalize the method for all odd primes; (3) state the cases where the solution is instantaneous.

E.g. — (i.) Let $19y^2 - x^2 = 2$; then $T = 19t + 2, \therefore t = 1, T = 21, x = 13, y = 3, X = 170, Y = 39$. (ii.) $59y^2 - x^2 = 2, x = 23, y = 3, X = 530, Y = 69$.

14381. (R. KNOWLES.)—Tangents TP, TQ meet a rectangular hyperbola in P, Q; the circle TPQ cuts the curve again in C, D; the line joining the poles of PQ and CD, with respect to the hyperbola, meets the curve in M, N. Prove that the continued product of the lengths of the four perpendiculars from M, N on the asymptotes is constant.

14382. (I. ARNOLD.)—Given the three right lines joining the vertices of equilateral triangles described externally on the sides of any plane triangle, to construct the triangle.

14383. (Professor THOMAS SAVAGE.)—BOA is a sector of a circle; X is the point of bisection of arc AB. A tangent, XD, is drawn, equal in length to OX; OD is joined. It is required to draw through B (within angle OXD) a line KP meeting arc AB in K and OD in P, equal in length to the radius of the circle.

14384. (W. H. SALMON, B.A.)—If a chord of a circle S subtend a right angle at a fixed point O, show that its envelope is a conic S'; and that of the common tangents of S and S' two pairs intersect on the polar

of O, one pair at the centre of S, and the other on a fixed line. Show also that O has the same polar for S and S'.

14385. (H. W. CURJEL, M.A.)—Three equal circles of radius r are drawn each touching the other two and a given conic, they all lie entirely (1) inside, (2) outside, the given conic. Find the maximum and minimum values of r in both cases when the conic is an ellipse; the maximum values of r in both cases when the conic is an hyperbola [also the condition of possibility of (1)], and the minimum value of r in case (1) when the conic is a parabola.

14386. (Rev. J. CULLEN.)—Solve

$$\{\phi(x)D\}^m u_{x,y} = u_{x,y+m} \quad (D = d/dx),$$

and show that, if $\phi(x) = x^n$, then one solution is

$$u_{x,y} = \int_{r=0}^{r=y-1} \{(r+1)n-r\} x^{(y+1)n-y}.$$

Also, if $\phi(x) = e^x$, a solution is

$$u_{x,y} = e^{xy} \{\Gamma(D+y)/\Gamma(D)\} \psi(x),$$

where ψ is arbitrary.

14387. (Lt. Col. ALLAN CUNNINGHAM, R.E.)—Show how to find a sum of successive cubes equal to q times a square (where q is an integer containing no square factor). Give solutions when $q = 2, 3, 5, \&c.$

14388. (Rev. T. ROACH, M.A.)—A circle is inscribed in the sector of a clock face formed by the hands at 4 o'clock, and perpendiculars are drawn from the centre to both clock hands, forming a sector of the smaller circle. Find the ratio of the larger sector to the smaller.

14389. (Rev. A. M. WILCOX, M.A.)—If a straight line be drawn from the figure X to the figure XII on a clock, and another from the figure IX to the figure I, all the figures being supposed on the circumference, prove that the area of the dial between the straight lines is one-sixth of the whole area.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

6172. (J. J. WALKER, M.A.)—The sides of a triangle repelling with a force varying inversely as the cube of the distance (as in Quest. 6120), show that the attractions of the three sides on a particle situate at the centre of the inscribed circle are reducible to three forces perpendicular to the sides and proportional respectively to the angles which they subtend at that point. [With the solution to this Question, we shall be glad to receive a solution, partial or complete, of the connected Quest. 6120 (by the late Professor W. K. CLIFFORD, F.R.S.), which is as follows:—“The sides of a triangle repel with a force varying inversely as the cube of the distance: find (1) the position in which a particle will rest; also (2) supposing the faces of a tetrahedron to repel according to the same law, find where a particle will rest.”]

6222. (Professor CROFTON, F.R.S.)—A heavy particle rests on the summit of a smooth circle; if it be allowed to slide down the circle, show that the parabola which it describes on leaving the circle has double contact with the circle.

6228. (The late Dr. HOPKINSON, F.R.S.)—Let r_1, r_2 be the internal and external radii of a spherical shell; t_1, t_2 the constant temperatures at which the internal and external surfaces are constantly maintained: if $t_2 > t_1$, show that the tangential tension has a maximum positive value at the interior surface, and that, if γ be the coefficient of linear dilatation, this value is

$$\frac{(3\lambda + 2\mu)\mu\lambda(t_2 - t_1)r_2(r_2 - r_1)(2r_2 + r_1)}{(\lambda + 2\mu)(r_2^3 - r_1^3)}.$$

6255. (R. TUCKER, M.A.)—If

$$\frac{Q_1}{P_1} = \frac{1}{a} + \frac{1}{b} + \frac{1}{c} + \frac{1}{d}, \quad \frac{Q'_1}{P'_1} = \frac{1}{d} + \frac{1}{c} + \frac{1}{b} + \frac{1}{a},$$

show that

$$\Sigma \left(\frac{QQ'}{P} \right) + \Sigma \left(\frac{1}{P} \right) = 2\Sigma(ab) + 12.$$

Give the general form when the number of letters is n .

6261. (F. W. FOSTER.)—Given the radius, weight, velocity, and angle of inclination sideways from the vertical of a circular disc rolling freely on a level plane, find the radius of its track.

6265. (Professor W. H. H. HUDSON, M.A.)—A mass of liquid contained in a cylinder rotates about the axis of the cylinder in such a manner that the velocity at any point of the fluid varies inversely as its distance from the axis: find the form and position of the external surface.

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The Educational Times.

Types and Distinctions.

THE expectant attitude is still maintained in regard to the future of secondary education, not only by the general public, but also by those whose concern in education is intimate and professional. There is no use in prophecy, and not much in anticipation. As for discussion, though it has been less constant since Parliament accepted the main principles of ministerial responsibility and organized administration, it has not been lacking. Ideas accumulate; the Government have ears and eyes, as well as a voice and a pen. Both in Downing Street and in Whitehall they doubtless profit, more or less consciously, by every wise contribution to the questions at issue. The story of the past four or five years has shown that the Education Office is ready to listen to outside opinion, and even takes care to be acquainted with it. The new work which has to be done in and after April next will run all the more smoothly because of the good understanding which has existed between the officials at Whitehall and the independent experts in education.

There is a preliminary question of special interest for secondary schoolmasters, and for all who have a share of any kind in secondary education. In the remodelling of the Department, when the Board of Education takes the place of "My Lords," there will be separate permanent officials in charge of Elementary and Secondary Departments, and something will depend on the personality of the permanent Secretary for Secondary Education. We understand that this position is likely to be held by Captain Abney, C.B., F.R.S., now Director for Science in the Science and Art Department. There are few men in the public service with higher scientific qualifications than Captain Abney, who has been President of the Astronomical and Physical Societies. We have no doubt that he would, if appointed, discharge very admirably the functions assigned to his department. But it is pertinent to say that his appointment would not, in itself, be any guarantee that the right distinction will be maintained between technical instruction and secondary education in its widest and most liberal sense. The distinction must be maintained, if only because it will assert itself from the beginning. For anything we know to the contrary, the organizers of the Board of Education will be particularly scrupulous on this point, and will be careful to co-ordinate all the different branches

of education, and see that they do not run counter to or oppose one another.

Great mischief would certainly arise, and there would be a great delay in the accomplishment of our hopes, if the re-organization of secondary education were attempted by the methods, and in the spirit, of the Science and Art Department. These methods have been admirable in their way, and for their purposes. South Kensington, like the School Boards, has developed beyond its original conception, and has done much even for non-technical secondary education; but it has not done nearly enough to qualify it as a Secondary Authority. There is no need in these columns to emphasize the distinctions between the secondary and the technical. An able contributor to the *Times*, writing a few weeks ago on "The True Function of the Science and Art Department," illustrated the difficulty of controlling these two forms of intermediate education by means of the same kind of inspectors and the same officials.

The two forms require two radically different forms of inspection. There is the audit of the faculties, and the audit of applied knowledge. . . . Much of the dissatisfaction that the management of South Kensington has caused is really due to the inherent incompatibility of the two functions it attempts to perform. The evil will only be aggravated if higher primary and much of secondary education are definitely allotted to it. For in this case it will also be called upon to exercise oversight over the literary side of schools, for which it does not possess the requisite experience.

But we cannot doubt that the Duke of Devonshire and the permanent officials are fully alive to the necessity of a tripartite division of education, in which the secondary and the technical, though coeval, and not mutually exclusive as to their curriculum of subjects, must be treated by different processes and different tests. Even when this has been duly provided for, it will be found that, within the strictly "secondary" subdivision, there will be much further need for discrimination, involving distinct processes and tests. We cannot organize by casting all our plastic material into three moulds, or even into a dozen moulds. No State Department could accomplish this if it tried, however elaborate might be the written constitution with which it attempted the task. The three points of the secondary charter—freedom, variety, and elasticity—must be maintained to the last; and, indeed, as we have said in regard to the distinction between the secondary and the technical, they will assert themselves by their very necessity.

We can do no more than draw the attention of our readers to the interesting lecture which we print this month, in which Mr. Bevan deals with the probable effects of the Board of Education Act on the position of private schoolmasters.

Commercial Examinations.

THE CHANCELLOR OF THE EXCHEQUER, pleading on behalf of commercial education at the Mansion House, the very throne of British commercial success, is a spectacle which ought to attract the attention even of the hurrying crowd outside. We fear, however, that London commercial life is too cosmopolitan, and too anxious about the events of the morrow, to busy itself without much and constant goading over the education of the English clerk, while the German article is ready to hand in the street. As Sir Michael Hicks-Beach bore witness, the work of the London Chamber of Commerce in organizing its commercial examinations is unquestionably valuable, and it shows an enlightened patriotism in a section, at least, of the great army of London merchants. Whatever may be our future arrangements for improving education from the bread-and-butter aspect, there will always be room for such bodies as the London Chamber of Commerce in any practical scheme with that end in view. The vastness of modern commerce seems to lead to increased variety and sensitiveness in trade, and the advice of representative men conversant with its faintest pulsations will always be the safest for teachers to follow. Although in theory commercial education is a branch of technical, most of the ground is covered by good modern secondary education, and we fully agree with Sir Michael in his view that commercial success is to be won by the perfecting of our system of secondary education. A Faculty of Commerce in the new University of London, which he also advocates, would, doubtless, please *doctrinaire* economists; but, unless our secondary education is soon organized on more systematic and practical lines, such a faculty will only be needed to produce a Gibbon to write the decline and fall of British trade.

In the address to which we have referred Sir Michael Hicks-Beach probed with some thoroughness a weak spot in the English character on its intellectual side. He seems to attribute the inferiority of the present generation of commercial men in England as much to a lack of dogged perseverance and ability to live plainly while learning the necessary drudgery of business as to the want of a proper commercial education. Owing either to some bias in his nature or to the absence of a real intellectual tone in our education, the English youth rarely grasps the fact that his education has only commenced when he leaves school or the University. His main thought is that it is something to be got over and then put behind him. How many of our doctors, schoolmasters, clergy, or Army officers make any mental effort to improve their professional education when they have once passed their qualifying examinations? Only the fraction of a fraction. Why is this? Sidney Smith said that in his time Yorkshire parsons were all either Nimrods, ramrods, or fishing-rods. No such charge can be brought against the clergy of to-day, but, at the same time, it may be doubted if the desire for intellectual improvement is much more general or genuine than it was in Sidney Smith's day. Mere knowledge is, of course, vastly more widespread; it is the princely bounty of men of genius thrust, for the most part, perforce into the thankless hands of the rising generation. Are the plodding effort and wise self-denial which are all that the average boy requires to command success unattainable through the instrumentality of the newest educational methods? In any case let us not omit to train the character and the faculty before everything else.

NOTES.

THE International Association of Academies, to which Sir Michael Foster made some reference at the Dover meeting of the British Association, is now well advanced on the way to organization, and it ought not to be long before we can welcome it as an accomplished fact. There has been for some years past, as our scientific readers will know, a German association, or Cartell, of the Academies of Sciences of Munich and Vienna and of the Royal Societies of Sciences at Göttingen and Leipzig, which has met yearly to discuss matters of common interest. Representatives of the Royal Society of London attended the meeting last year at Göttingen, as well as that which took place the previous year at Leipzig, chiefly with the object of discussing the project of an international catalogue of scientific literature which the Royal Society had been engaged in promoting. It is out of these circumstances that the new and wider organization has sprung. When the Royal Society of London had ascertained that the project was likely to find favour, it was agreed that the Royal Society and the Berlin Academy should together issue an invitation to the Academy of Science, Paris; the Imperial Academy of Sciences, St. Petersburg; the Reale Accademia dei Lincei, Rome; the National Academy, Washington, as well as to the bodies included in the Cartell, requesting them to send delegates to a conference at Wiesbaden. Draft statutes were framed, and these are now under the consideration of the various bodies concerned. We may confidently expect that the first meeting of the Association will be held at Paris next year.

THE proposal made by the Special Board of Mathematics at Cambridge to "abolish the Senior Wrangler" is one which will doubtless fill many minds with dismay and concern. It will dash to the ground the eager hopes of youthful aspirants to that proud position still at school, perhaps meditating great things in the future. It will certainly rob the academic world of one of its most fruitful topics of discussion, and take one away from its sum of "sensations." But the Special Board declares that its case is strong. The Senior Wrangler, it says, may be a very picturesque figure, but he is blocking the way to real progress and efficiency. He is more ornamental than useful: hence his days are numbered. Under the existing regulations, it is true that only a very small percentage of mathematical students go on to the second and most important part of the Mathematical Tripos, because their energy is used up in preparing for Part I. The Senior Wrangler is, of course, chosen on the result of work in Part I., and this, although very difficult, is not difficult in the best kind of way. The difficulties there encountered are not fruitful, and they do not lead to practical results. The new proposal is to divide the candidates into classes and divisions containing names in alphabetical order; to reduce the schedule of subjects and modify the examinations so as to bring the first part of the Tripos within the compass of the time and effort which intrinsic educational value justifies. Then, it is hoped, more men will compete for the Smith's Prizes in Part II., and more attention will be given to such subjects as physics.

THE report of a special committee of the London School Board that there are something like fifty-five thousand underfed

children attending the elementary schools of London is a matter deserving the most serious consideration. Experience in teaching is not necessary to enable us to appreciate how difficult it must be to obtain satisfactory educational results with children who are habitually either under- or ill-fed, while the physical effects are no less disastrous. Some remedy must be found for such a virtual massacre of innocents; but there is considerable doubt as to whether the provision of meals for such children is within the province of the educational authority. The overlapping of jurisdictions has in the past been the prime source of waste and confusion in municipal government, and "it is not reason" that the School Board should leave education "and serve tables." Besides, the duty of caring for and protecting neglected children is by law that of the Guardians, who have ample powers not only to protect children from direct physical ill-treatment at the hands of their parents, but also to compel parents to provide their children with sufficient food. It might, indeed, be well to make it the duty of the Guardians to ascertain from the principals of the elementary schools in their districts the names of children who were thought to be underfed, and to make proper inquiry into their home surroundings. In most cases, probably, no more would be necessary; but, where from poverty or neglect the children were found underfed, the means already at the Guardians' disposal—or such other means as benevolence may suggest—should be used to provide relief.

THIS will involve finding out what children, if any, do come to school underfed, and, possibly, the punishment of such parents as wilfully neglect their children in this regard. The objections are easy to suggest. Any scheme of this sort is open to the charge that it tends to pauperize the children and demoralize the parents; and, of course, that is its danger. But two things must be remembered—first, that already the work is being done *incompletely* by people other than the parents, and that every one recognizes the need to do it completely somehow. The second point to note is that an essential part of the scheme is that stringent measures would be taken to penalize unscrupulous parents who attempted to get their children fed on false pretences.

THREE committees have already been appointed by the School Board during the last ten years to inquire and report on this matter. Voluntary associations have done much to solve the problem, but there are still many children who go to school habitually in a starving or underfed condition. The mass of evidence sifted by the last committee has convinced its members that voluntary effort is not equal to the task, and that, if the 55,000 children now left unprovided for are to be properly cared for, the Board must make itself responsible, and lend its aid to the existing agencies in the matter of organization. The most hopeful plan is to supplement, not to supplant, existing efforts, and to take every possible care that none but needy cases shall receive help.

THE death of Miss Anna Swanwick has removed from our midst one of the gentlest and most unostentatious of the pioneers of women's education, at the ripe age of eighty-six. There is no need to dwell on Miss Swanwick's attainments in mathematics or her scholarly knowledge of Hebrew, Greek, and German. So far as the last two languages are concerned,

her place as a translator of Æschylus and Goethe is in the ranks of English literature. Her excellent abilities were recognized in her youth, and she was sent to Berlin to carry on her study of languages. At a later date, when Bedford College was opened in 1849, Miss Swanwick followed some of the classes, together with Madame Bodichon. For five years Miss Swanwick was a Visitor of the College, the highest honour it can confer on those interested in its work. Miss Swanwick was also a real friend to Queen's College, Harley Street. She was a member of the Council for about twenty years, and was elected Visitor in 1873. She gave a handsome donation to the building fund, and was always willing to help a struggling student. One of Miss Swanwick's last public acts in connexion with education was to read a paper on the Study of Poetry at the Queen's College Jubilee in May, 1898. As a result the students have formed a "Swanwick Society," which meets monthly to read and study poetry.

MISS SWANWICK was also an early member of the Committee of the Ladies' Department of King's College, holding this office at the time the classes and lectures were removed to Kensington Square. When she ceased to be a member of Committee she was elected to be Visitor. Quite lately she presented her books to the Library of King's College. Her advice and help—which was at times very substantial—were highly valued by the Committee. It is impossible to render any account of her money benefactions, for she always gave with the least possible ostentation, and a desire has been expressed that her wishes should not be disregarded in this matter of publicity. It is not without interest to mention that, when John Stuart Mill presented his famous petition to the House of Commons on behalf of women's suffrage, in 1865, Miss Swanwick was one of the signatories. Mr. Mill undertook to present the petition if there were but a hundred signatures; but, in a brief space of time, fifteen hundred were obtained.

IN the recently published report of the Committee of Council on Education—the last which that body will ever submit to Her Majesty, as the next report will emanate from the new Board of Education—the statement is made that the average prime cost per child for its seat in a new Board school is about £14. 6s. 3½d. The figure, of course, relates entirely to the *building*, and not to the maintenance of a child in school, which costs annually £2. 8s. in England and Wales, excluding London. The £4. 6s. 3½d. includes the cost of sites, often very considerable, as well as the cost of laboratories, workshops, laundries, cookery kitchens, School Board offices, &c. The National Education Association issues a leaflet traversing this statement, and showing how the price of land in London causes the figure to mount. It then compares the Board and the voluntary schools, showing that the average cost per seat in both schools tends to be about the same. Many voluntary schools are quoted at £10 per place, and some more, whilst the Oldham Board gives £11. 8s. 9d.; Leicester, £10. 9s.; Sunderland, £9. 14s. 4d.; Scarborough, £9. 5s.; Swansea, £8. 11s. 5d.; Walsall, £8. 2s. 2d., as the cost per seat per child. It is certainly instructive to learn that the average price of the school site in London, before a brick is laid on it, works out to £6. 16s. 1d. per child. The Government

Report is more than a little misleading when it gives the figure of £14. 6s. 3½d. as the amount spent for each child's place. The aim is apparently to alarm the small places that may be meditating a School Board, and to prove the comparative cheapness of voluntarism. All the same, the figures are instructive to secondary teachers, who must themselves find the "cost per seat" out of the fees they receive from parents.

Nor content with an exciting discussion on the measure of encouragement due to football, the Atherstone School Board has been moved to its depths on the question of whether the schools should be closed on the advent of circuses and menageries into the town. The chairman thinks any recognition of circuses humiliating, while the vicar considers a visit to a menagerie as good as a lesson in natural history. The late Prof. Blackie, in a book of practical advice to students written many years ago, strongly urged them to attend circuses in order to keep before their minds right ideals of physical development and of agility and grace. It may be that the chairman is so steeped in classical literature that his mind is full of visions of the horrors of the Roman circus. The vicar's proposition, we think, requires some qualification. It is only true if and when the boys are accompanied by their masters. Elephants and bears in a state of nature do not live on buns, nor do monkeys feast on chocolate creams; so that first impressions need correction. English schoolboys await with interest the outcome of this discussion. If the chairman of the Atherstone School Board is against them, both professors and mammals are on their side. Why not let the boys decide the matter? But, perhaps, they have done so already.

QUITE *à propos*, a correspondent writes: "Many years ago, when I went to school in the hilly West Country, the neighbouring farmers kept a subscription pack of foxhounds for their mutual protection. Foxes were too plentiful then, and the hounds always went out to kill. Every one followed on foot; for, if we hadn't, there would have been more horses killed than foxes in our part of the country; and, besides, horses, other than cart horses, were scarce. Now the hunt one morning came disturbingly near the school, and, the door being open, one boy was sent to shut it. He looked out and did not return. Another boy was sent to call him back at once, but his voice was lost in the full cry of the passing chase, and even he returned not. The master thereupon went to the fatal door—and soon the whole school had to go in search of their master; but they had, I must admit, the generosity to take their master's terrier with them. The fox was dug out of his earth a good two miles up the valley, although the schoolmaster's fox-terrier lost a piece of its under lip before that was done. We might easily have been back for school at two; but the terrier wanted a lot of attention." There were no School Boards in those days.

SUMMARY.

THE MONTH.

On November 10, Sir Michael Hicks-Beach presided at the distribution of certificates to candidates in the senior and junior examinations held under the commercial education scheme of the London Chamber of Commerce. In reply to a hint at Govern-

ment grants, the Chancellor of the Exchequer urged the necessity of looking to the wealthiest commercial community in the world for private munificence.

Sir Michael said that the schools might give a boy the best commercial education in the world, but, if he was surpassed by a young German in hard work, in ability to live plainly, and in devotion to his business, he was afraid that, in spite of his commercial knowledge, the English lad would go to the wall. If a young Englishman disdained the drudgery of the lower grades, could they expect that he would rise as high as a young German who possessed the common sense to begin his work from the bottom, and to study thoroughly the whole business that he had to perform? In his opinion, better discipline among children at home, greater belief among parents in the inestimable value of a good education for their children, and a thorough foundation in elementary and secondary education had done more to promote the commercial success of Germany than any system of commercial education that existed at present. They could not wisely begin a special training in commercial education at an early age. The child ought to be well grounded first in elementary subjects. He or she ought also to learn the real meaning of the mother tongue, so as to be able not merely to write, but to write well. People seemed to think nowadays that the three R's were a comparatively insignificant factor in their system of commercial education; whereas they were at the bottom of it all.

THE annual meeting of the Association of Headmasters of Higher-Grade Schools and Schools of Science took place on November 3, in the rooms of the Society of Arts, under the presidency of Mr. W. Dyche. A letter was read from Mr. Sidney Webb, who wrote: "We on the London County Council have always done our best to incite and help the School Board to develop their higher-grade schools, and I am glad to say they have made great progress during the last few years. Our little difference with the School Board has been exclusively as to overlapping in evening work, and that we have settled. Our Technical Education Board has always been in favour of the School Board developing its higher-grade schools, at any rate up to fifteen years of age." In the course of his inaugural address the President said that

Up to two years ago the Education Department not merely permitted, but encouraged, School Boards to build and equip higher-grade schools, and made no difficulties about granting building loans to them. The Science and Art Department had until lately put considerable pressure on School Boards to found these schools, and had also required School Boards to spend large sums in furnishing expensive equipment and staff. During the last year or two, however, there had been a curious change in the attitude of both Departments. The Education Department had made difficulties in several places about the sanctioning of loans for the building and equipment of those parts of higher-grade schools required for the work of a school of science; and the Science and Art Department, while prudently abstaining from any open attack on large and well established schools, had closed some existing higher-grade schools of science, as, for instance, at Burnley, in order to favour a grammar school which had subsequently become a science school itself, and had refused to allow several new higher-grade schools, as at Bristol and Tottenham, to open a school of science section, although, with the sanction of the Education Department, they had avowedly been built and equipped for the purpose. The Bristol school was actually opened by the Secretary of the Education Department himself. It was time to put these schools on a satisfactory footing. They were the inevitable outcome of the national system of elementary education.

THE Birmingham Church Council of Education, looking forward to the completion of the new educational machinery, and especially to the promised Bill for the creation of Local Authorities, has put forward a series of recommendations, which vary, in some important respects, from those which have been made by other educational bodies. We quote a few of the more noteworthy passages from the manifesto of the Council.

It is generally assumed that the area of the Local Authority should be a county or something smaller than a county. To such an area there are several objections. (1) In the first place, it is exceedingly difficult to draw the line outside of which cities or large towns within the county are to be allowed to be independent of the County Local Authority, and yet it is equally difficult to see how the cities and large towns can be reconciled to being governed by County Authorities. It was in fact on this point that the Bill of 1896 failed. (2) The county boundaries split up many large cities or their suburbs into several portions, all of which in educational interests should really be one with the city and not with the surrounding county districts. Notably this is the case with London and Birmingham. . . . (3) It would be exceedingly difficult for County Local Authorities to deal in a satisfactory manner with educational endowments, since the elected

members would always be in danger of placing the wishes of their constituents before the interests of education. Nothing is more desirable in the interests of education than to liberate it entirely from the influence of the party wire-puller. (4) It is most undesirable that the Local Authorities should have schools of their own; but the County Authorities have already such schools in the technical schools, and it would be exceedingly difficult to persuade them to give up those schools. (5) But the chief objection to County Local Authorities seems to be this: that very few counties contain within themselves anything like a complete system of education, and in most cases it is not desirable that they should do so; and yet without such a complete system it is difficult to conceive of decentralization producing the results which are expected from it.

THE Council desires to see the management of schools left, as far as possible, in the hands in which it now rests; but that "all the managing bodies should be subjected to a Local Authority which could command their respect."

For this purpose, we suggest that England should be divided into about ten areas, as follows:—(1) A Metropolitan area, including London, Middlesex, Kent, Surrey, Sussex, Essex, and Hertfordshire; (2) a Southern Counties area, including Hampshire, Dorsetshire, Wiltshire, Berkshire, Buckinghamshire, and Oxfordshire; (3) a Western Counties area, including Somersetshire, Gloucestershire, Devonshire, and Cornwall; (4) a Midland Counties (West) area, including Warwickshire, Worcestershire, Northamptonshire, Staffordshire, Shropshire, and Herefordshire; (5) a Midland Counties (East) area, including Nottinghamshire, Lincolnshire, Derbyshire, Leicestershire, and Rutland; (6) an Eastern Counties area, including Bedfordshire, Cambridgeshire, Huntingdonshire, Norfolk, and Suffolk; (7) an area consisting of Lancashire and Cheshire; (8) an area consisting of Yorkshire; (9) an area consisting of Westmoreland, Cumberland, Durham, and Northumberland; (10) Wales (including Monmouthshire). Each of these areas contains a University or a University college, and most of them contain non-local secondary schools. Each would therefore include in itself the nucleus of the whole elements of a system of education from primary schools to the University.

AFTER considering the functions of the bodies thus to be created, the Birmingham Church Council concludes its recommendations in the following terms:—

It is vital to the interests of education in England that the new Local Authorities should be so constituted that—(1) Each Authority should contain within its area a complete system of education from primary to secondary, and from secondary to technical and University education, and should see that all the grades and links are kept in good order. (2) Each Authority should be so constituted as to command the respect of the University, and of all classes of schools in its area. (3) Each Authority should be absolutely above all suspicion of religious or political partiality, and of all forms of wire-pulling. We earnestly invite all Churchmen to press these conditions upon members of Parliament in their neighbourhood.

We may add that the Council includes the Bishop of Worcester as President, the Bishop Suffragan of Coventry, Canon Strange, the Rev. F. W. Burbidge, the Rev. A. R. Vardy, with many others.

BATH COLLEGE, which was in some financial straits earlier in the year, has now been placed on a sound basis, and begins a new and promising career with a fresh Board of Directors and Council. This Council held its first meeting on November 16, and a statement was made by the directors as to the new position of the school. A substantial sum has been raised in the form of shares and debentures, mainly among the prominent citizens of Bath. The old company has been wound up, and, with the aid of the money thus subscribed, the buildings and plant have been taken over by the new company, which begins its career unencumbered by any outside debt. The transfer has taken place without any change in the name of the school or any break in its work.

The Committee of Council on Education have received an intimation, through the Foreign Office, from the Austro-Hungarian Government that the latter are desirous of obtaining specimens of the best pictures used for object-lessons in the education of children from six to twelve years of age in public elementary schools in this country, as well as of illustrated alphabets and reading-books for the same schools. The Hungarian Government would be glad if English publishers who desire to offer specimens would send direct to the Royal Hungarian Ministry of Public Worship and Education, at Buda-

Pesth, specimens of the picture-books and reading-books for object-lesson purposes which they have published.

At a meeting of the Birmingham Chamber of Commerce, on November 15, it was reported that negotiations had been proceeding with the authorities of Mason College and King Edward's Foundation relative to the provision of a remodelled system of commercial education in the city. It was expected that the charter of the new University for Birmingham would be granted early next year, and that there would be a Faculty of Commerce in connexion therewith. A question was raised as to how far educational schemes came within the purview of the Chamber, and it was explained that its active intervention would cease when the local system of education had been properly coordinated. Mr. Neville Chamberlain said they were on the eve of a new departure in the educational life of Birmingham. They were looking forward to the rise of a University which would take up new and special lines, including commercial education. That was a great experiment, and it seemed to him to be the duty of that Chamber, as representing the commercial life of Birmingham, to do what it could to ensure the success of the experiment. Other members concurred, and the report was approved.

THE Committee appointed at Hanley, last June, to inquire into the question of establishing a University College for North Staffordshire has presented its report. After considering various suggestions, the Committee conclude by saying that, if it were decided to erect a college to meet more fully the present requirements of the district, the minimum cost of the building would be about £20,000. "If," proceeds the report, "the more complete scheme should be adopted, an endowment or subscription list, or other source of income, equal to about £1,000 per annum, would be absolutely necessary unless the teaching were to be placed under the Science and Art Department for the express purpose of earning grants." The scheme which in the opinion of the Committee is the most strongly to be recommended could only be carried out if a considerable donation could be obtained from some source such as has been provided for the equipment of the Universities in Manchester, Liverpool, and Birmingham. "If some generous donor," the report goes on, "would provide, say, £10,000, on condition that another £10,000 were raised locally, this latter sum could no doubt be raised." The report also refers to the benefit which such an institution as the proposed college would confer upon teachers in the district.

(For "Universities," see page 507.)

GIFT-BOOKS AND PRIZES.

II.

HISTORICAL STORIES.

One of the best of this year's historical stories is *Havelok the Dane*, by Charles W. Whistler (Nelson). The author has had the wisdom to base his story on careful study of legends and remains, and, at the same time, to pack all his dry information into the preface. The story is written in excellent style, with an occasional gem of well expressed thought. The conversations are carried on in the very simplest modern English—a great improvement on the cheap, would-be archaic style so frequently adopted in books of this nature. The illustrations, by W. H. Margeson, are capital, while the very cover of the book puts one at once into the atmosphere of the times.

In *A Daughter of France*, by Eliza Pollard (Nelson), we have a good example of the author's power of drawing the character of a girl. At the opening of the book, Jacqueline, after experiencing the terrible days of La Rochelle, is called upon to aid the sick and sad women and children on their voyage from France to the new settlement in Nova Scotia. In the lovely Acadia, between the pine forest and the sea, the Huguenots live an ideal life; but troubles come thick upon them, and, throughout all, Jacqueline shows herself the brave heroine that the reader anticipates from the first. The volume is a substantial one, tastefully got up, and fairly illustrated.

Boys who have read "Ivanhoe," and had their appetite whetted for more about Robin Hood, will be delighted with *Wolf's Head*, by the Rev. E. Gilliat (Seeley), a book of fascinating descriptions of the great outlaw's methods. For instance, the story of how a pompous bishop danced a reel to save his skin is told to the life, and the humour of the situation is well brought out. Other incidents, such as the murder of Prince Arthur, give a sadder note to the book; but the whole will give a fund of enjoyment to any boys and girls who know, even slightly, about the days of John. The illustrations are interesting in subject, but a little weak in execution.

The Drummer's Coat, by the Hon. J. W. Fortescue (Macmillan), is a sketch of life in a Devonshire village in the early years of the century. Although young children will be interested in the description of the hero and his sister being lost on the moor, they will find most of the book above their comprehension, while the pathetic incident of the soldier's widow carrying her idiot son to the British ships in the retreat from Corunna will appeal to elder readers only. The local touches in language, superstition, and so on, are excellent.

Greek and Roman Heroes, by H. J. Spenser (Nelson), is a selection from Plutarch's "Lives." Twelve heroes are dealt with in a handy, clearly printed volume, with a few illustrations, quite simple introductions, and, fortunately, no notes. We heartily welcome the book to add to the still meagre list of really satisfactory school readers. We have in this both interesting matter and good literature, and are confident that with an intelligent teacher it will prove a great favourite as an advanced reading-book for either boys or girls. We may add that the marks for pronouncing the proper names add to the value of the book for non-classical readers.

In *Lion-land*, by M. Douglas (Nelson), is a somewhat misleading title for a book devoted to a solid account of Livingstone and Stanley. The author cunningly begins with a capital description of Livingstone's encounter with a lion, and leads his young readers on almost insensibly into geography and history, made interesting by good descriptions and several illustrations. Any book dealing with South Africa is welcome now, and this one will prove exceedingly useful if read aloud by an elder, and the places mentioned are traced on a map. The author has taken great care with names, dates, and facts generally.

A new edition of *The Great Campaigns of Nelson* (Blackie) will be welcome to teachers. Mr. William O'Connor Morris deals in turn with St. Vincent, the Nile, Copenhagen, and Trafalgar, giving the political situations and the facts of the battles in a clear, succinct, and interesting way. The plans, maps, and index all add to the value of the work for the teacher, who will find in the handbook excellent material for a short course of extra lessons to elder pupils. A boy with a passion for sea-life will thoroughly enjoy the book by himself.

We have a tale of the days of the early Tudors from the pen of Miss Everett-Green, *The Heir of Hascombe Hall* (Nelson). If the plot of the story is not new, it is none the less interesting for boys of ten or twelve, who will readily fall in with the idea that the foster brother is the real heir, until the *dénouement* undeceives them. The affection of the two boy heroes for one another is the best feature of the book. The historical element is hardly successful. Although good descriptions of manners and customs are given here and there, the atmosphere of the times does not pervade the book; while the escapades of the young Prince Henry, with his nickname "Madcap Hal," are apt to lead young readers to confuse him with the son of Henry IV. On the whole, the book is somewhat too large for the story, and would have been more satisfactory if more historical scenes and characters had been introduced.

The Girl Captives, by Bessie Marchant (Blackie), is a story of the Indian frontier, and purports to give a realistic picture of the cruelty of the natives and the sufferings of some girls who, separated from their parents, fall into their hands. From beginning to end it is a series of misfortunes from flood, fever, famine, and human stupidity, with frequent deaths, culminating in a chapter devoted to a description of the "court of the doomed," where the heroine nurses a fever-stricken baby, amid lizards, toads, and decaying human bones. Taken as a study of life in India, the book has, no doubt, a substratum of reality, but it is well to warn parents that it is not a wise present for a sensitive girl.

TALES OF ADVENTURE.

All Hands on Deck! by W. Charles Metcalfe (Blackie), is a capital sea story for the holidays, suited to boys who love thrilling adventures, dislike wordy explanations and information, and are young enough to be unperturbed by improbability, and not distressed by horrors. The presence of a girl throughout the book, whose life is frequently in danger, adds much piquancy to the tragic scenes, and the six illustrations by William Rainey are exactly suited to the tale, both in choice of subject and in treatment of it.

Of somewhat the same style is Dr. Gordon Stables's *Kidnapped by Cannibals* (Blackie). There is, however, more solid reading in this book, and we are carried on more quietly from incident to incident. Beginning with a brief and freshly told account of Scotch school life, we have the young hero running away to sea. The delights of a mutiny and the open boat episode follow, while the bulk of the book is devoted to adventures among cannibals—a field for endless excitements. This book is also capably illustrated by J. Finnemore.

Suited for younger boys still is a pretty little tale by Isabel Hornibrook, *Captain Curley's Boy* (Blackie). The character of the boy hero is developed fairly naturally, and in the main incident of the book, a tornado, or "wreck on land," his bravery in rescuing a little girl is well told, without being overdrawn. There is a pleasant ending to the book in the reunion of the hero with his father, who had been seeking him for years, and had given him up for lost.

A Captain of Irregulars, by Herbert Hayens (Nelson), consists of a series of adventures in Spanish South America during the early years

of this century. The book is entirely composed of conversation and short descriptive paragraphs, but, in spite of this, it is a little monotonous, and too long a book for the average boy of fifteen. However, the general get-up and the good illustrations by Sydney Paget make it a fairly attractive volume, and to those boys who know something of the country and people it will prove a great acquisition.

Mrs. Edwin Hohler's *The bravest of Them All* (Macmillan) is strongly and freshly written, and, though specially appropriate to little Scotch readers, it will be welcome to all. Four very real brothers and sisters go to stay in Scotland, and have a real fight with some neighbouring boys for the possession of a glen. The feud is kept up for a long time, till the little girl of the story strays on the moor and is found and entertained by the enemy. Peace is finally brought about in an almost tragic way, and gradually, but quite naturally, the young people find that the finest bravery and heroism are not invariably connected with fighting. The illustrations by Charles Brock are excellent, and the book is heartily to be recommended in every way.

GIRLS' STORIES.

One of the best girls' stories of the year is *The Little Browns*, by Mabel E. Wotton, illustrated by H. M. Brock (Blackie). Prof. Brown and his wife, who know more about many things than about the bringing up of children, have a family of delightful children, smart and trustworthy, who seem—as will often happen—to develop the qualities in which their parents are deficient. These little Browns, being left almost alone in the house, entertain a stranger in the belief that he is their expected uncle from Australia. Two of the girls discover (after many amusing passages) that the man is a burglar, in league with the new man-servant; and the rest of the story shows how cleverly they outwit him. Miss Wotton's tale may be warmly commended.

Priscilla, by E. Everett-Green and H. Louise Bedford (Nelson), will be particularly welcome, since it is suited for that difficult age when a girl has left school and is not quite a woman. The book opens with: "I wish I were an old maid, with grey corkscrew curls, with spectacles and a Mrs. Gamp umbrella," and throughout there is no attempt at anything deeper than amusing talk, a narrow escape from an Alpine avalanche, and a healthily told love affair. In spite of the somewhat feeble illustrations, the book is a success, and not by any means the least successful part is the daintily designed and coloured cover.

Intended for the same age, but written in a more sober key, is *Trefoil*, by M. P. Macdonald (Nelson). It is the story of the friendship of three girls, from their last days at school to marriage and death, with home difficulties and travel for the main incidents. The illustrations are somewhat commonplace, and, in their choice of subject, give a still sadder tone to a book that is naturally lacking in fun and brightness. However, as long as the book does not fall into the hands of a morbid or over-conscientious girl, it will do more good than harm.

The Four Miss Whittingtons, by Geraldine Mockler (Blackie), is an account of how four young girls, thrown upon their own resources, with very limited means, manage to carve out careers for themselves in London. There are amusing descriptions given of hunting for lodgings, of looking for situations, of attempts at millinery, of doing without servants, and so on, and some of the touches are very natural and good; but the book is in no sense realistic, and may be somewhat misleading to a girl who is similarly placed. But, taken as a piece of pleasant fiction, it is very satisfactory.

The best outcome of our modern education, the ambitious, unselfish, healthy-minded girl, is again the central figure of a story by Ellinor Davenport Adams. *A Queen among Girls* (Blackie) depicts a girl who has had a brilliant school career, and is looking forward to college life and future fame, giving up everything to befriend her younger brother. The fact that she was at first ashamed of her insignificant and sensitive little brother gives a touch of reality to her character, and the story will appeal strongly to girls of fourteen to sixteen.

Peacocks, by Percy Smith (Blackie), is the name of a farmhouse where three children spend a holiday, enjoying the plants and animals. The main point of the story is the pecuniary difficulty of a brother away at school. He writes, asking his sister to get together ten pounds for him to escape from a scrape. With much pains she writes a story and receives ten pounds for it from a publisher. The moral is a little questionable, but the sisterly feeling at the root of the act is pleasantly brought out.

Mignonette. By Jennie Chappell. (Blackie.)—A lady is asked to take care of a little girl in her father's absence. The little girl has an illness which deprives her of her memory; her guardian, who covets the full possession of her, reports that she is dead, and takes her for her own—in short, steals her. This hardly seems a probable or a healthy theme for a tale; but, such as it is, it is well told, and ends happily, though with still further improbabilities. Many of the smaller illustrations would be better omitted.

Blind Loyalty, by E. L. Haverfield (Nelson), is a sequel to the author's "Our Vow," but makes a complete story of itself. Girls who are interested in all the details of their school-life, the little misunderstandings, slight disgraces, intense friendships, marks, and examinations, that seem so slender to outsiders, will take great delight in this record of such incidents. Perhaps the smaller sentiments are dwelt on a little

over-much, but there is a healthy good-tempered brother who acts as a tonic in the holidays, by teasing his sister and her friends at large.

In *The Parson's Daughter* (Seeley) Mrs. Marshall has selected eight well known pictures by Romney and Gainsborough, and has woven a romance about the people who sat for these portraits. The supposed narrator of the tale is the lovely parson's daughter of Romney's, who, as an old woman, tells her inquisitive little granddaughter the main incidents of her life. Mrs. Siddons, needless to say, takes a prominent part in the tale, which is admirably rounded into a complete whole. An important feature of the book is the reproduction of the pictures referred to. Miss Beatrice Marshall has had the difficult task of writing the concluding chapters, owing to the death of the author in the midst of her work.

FOR CHILDREN AND OTHERS.

To his *Red Book of Animal Stories*, Mr. Andrew Lang has affixed a very useful preface, telling his readers the origin of his stories, which are true, which are untrue, and which are more or less true. For young readers we think the mixture a little unwise; for they never read a preface, and, even if they did, the mental confusion would only be increased. The book will be put to best use by being read aloud, with judicious skipplings and alterations of language by the reader. There is a peculiar gift needed for writing about animals for children, and this gift Mr. Lang has not; but there is an enormous fund of material in the book for supplying parents and teachers with anecdotes to tell insatiable youngsters. Mr. Ford's illustrations are numerous, and, for the most part, artistic and good; but some of them would be quite incomprehensible to children.

Messrs. Blackie & Son have published a series of simple story-books, arranged in three groups, adapted to varying ages. The first group is intended for children to read by themselves as soon as they are capable of reading at all, and includes *Sahib's Birthday*, by L. E. Tiddeman; *Tony's Pets*, by A. B. Romney; *The Secret in the Loft*, by Mabel Mackness; *Two Little Friends*, by Jennie Chappell; and *Andy's Trust*, by Edith King Hall. The second group is destined for children of seven to ten years, and the stories are longer and slightly more involved in plot. It includes *Put to the Proof*, by Mrs. Henry Clarke; *Teddy's Ship*, by A. B. Romney; *Imra's Zither*, by Edith King Hall; *Ruth Erford's April Days*, by Helen Cromie; and *The Island of Refuge*, by Mabel Mackness. For children from nine to twelve years, but still quite childlike in subject and method, is the third group, including *The Skipper*, by E. Cuthell; *What Mother Said*, by L. E. Tiddeman; *Little Miss Vanity*, by Mrs. Henry Clarke; *Two Girls and a Dog*, by Jennie Chappell; *The Choir School*, by Frederick Harrison; and *Miss Mary's Little Maid*, by Ellinor Davenport Adams. The coloured frontispieces throughout the series will be an attraction. The other illustrations are not so good, with the exception of those by Margaret Thompson in the last-named book.

Little Village Folk, by A. B. Romney (Blackie), is a collection of short stories and studies of Irish children. Although the language used and the general style is more fitted for elder folk who delight in child life, the little ones will be interested in some of the stories and illustrations. An acquaintance with Irish peasant talk is needed for a thorough appreciation of the book.

Some of the full-page coloured illustrations in *The Cat and the Mouse*, designed by Alice Woodward (Blackie), are both artistic and effective, especially the cat and the baker; some of the others, however, lack both clearness and beauty. The nursery rhyme is well set out and ornamented with black and white designs, again unequal in their merits.

Far more commonplace, but a certain delight for little ones of ages from five to eight, is *In Doors and Out* (Blackie). It is the usual collection of short stories, anecdotes of animals, and poetry. The printing is excellent, and the illustrations are numerous and varied, and, in some cases, considerably above the average.

The Story of the Seven Young Goslings, by Laurence Housman (Blackie), is a capital story poem for little children, in the jingling rhyme so dear to their ears. We wish we could praise the illustrations by Mabel Dearmer as unreservedly. They are out of the common; they are artistic in colouring; they are humorous and clever; but they are not, with one or two exceptions, adapted for children. It must be said, however, that the whole forms a charming little volume.

A Book of Birds, by Carton Moore Park (Blackie), is one of those puzzling books which are, to all appearances, intended for children, yet evidently have been designed to please the artist and those who sympathize with him. Judging by the corresponding "Book of Beasts" of last year, these illustrations, exquisite though they are, tend to frighten rather than please little children. But all lovers of both art and birds will enjoy the book.

The Elephant's Apology. By Alice T. Morris. (Blackie.)—A collection of slight, but prettily told, tales of children and animals, suited to quite young readers. Some of the illustrations by Alice Woodward are very good, and, on the whole, the paper, type, and general get-up of the book are too good for the little tales, which would read better in a humbler setting.

Tommy Smith's Animals, by Edmund Selous (Methuen), is a capital

little book for young boys. It has a clear purpose, well carried out. Tommy is a little boy who delights in teasing animals, hunting, wounding, and killing them. The animals consult how they may punish him, but the owl suggests they shall teach him instead. So one by one, frog, rat, squirrel, and all, as Tommy approaches with murderous intent, they open up a conversation with him, telling him of their life, till he gradually becomes too interested to wish to hurt them.

The Princess of Hearts. By Sheila E. Braine. (Blackie.)—The sister of the Knave of Hearts, hitherto neglected in all historical records, is the heroine of this fairy tale. What a powerful book "Alice" must have been to have produced such an army of imitators! Although we weary of them, it is no reason why children should not enjoy them. The present volume contains very little in the way of a tale, but is full of short incidents, copiously illustrated by Alice Woodward, and will probably prove delightful for children of ten and under.

A Land of Heroes, by W. Lorcan O'Byrne (Blackie), is a collection of some fifty stories from early Irish history. The main object of the book is to implant in quite young children an interest in Ireland. Very little has been done in this direction hitherto, beyond myths and folk-tales, and the present work is more of a serious attempt to reproduce, if not facts, at least historical atmosphere, gathered from Gaelic manuscripts. The style is good and quite simple, the proper names are anglicized (while a list in the original spelling is appended for those who wish it), and the six illustrations by John Bacon are clear and interesting.

Bobby's Surprises. By E. L. Haverfield. (Nelson.)—It is difficult to say whether the hero of this pretty little story is the boy or his cat. Bobby spends his pocket money on a kitten for his invalid sister; the kitten runs away and has many adventures to itself, finally appearing, of course, with a travelling showman as a full-grown cat, able to recognize its young master. Such improbabilities do not matter for young children; but there are a good many morbid touches about the lonely little boy that might be better omitted.

This and That (Macmillan) are the names given to one another by a little girl and boy, described in Mrs. Molesworth's well known pleasant style. The adventures of the little people are chiefly confined to their home, changing their character according to whether they happen in the drawing-room or the attic. We think the book will appeal more to grown-up child lovers than to the children themselves, who rarely appreciate realistic child talk and spelling. This volume is daintily got up, and illustrated by Hugh Thomson.

A Pair of Them, by Jane H. Spettigue (Blackie), belongs to a class of book that is always popular with young boys and girls. There is no attempt at a plot, but a series of somewhat isolated incidents are described. Two boys are living with their uncle (by the way, why is it always an uncle; is it that parental authority may not be endangered?) and are duly provided with a large rambling house, two ponies, a cross housekeeper, a boat, and a dangerous bit of sea-coast. Some of the escapades are well imagined, but might have been worked up a little more, as the endings occasionally fall a little flat.

We have a new and revised edition of Sir Robert Ball's *Starland* (Cassell), with numerous illustrations. The simple language in which the book is written, the homely comparisons with plum puddings, footballs, and other familiar objects, together with the large amount of information packed in so small a compass, render it a most suitable prize for a young boy with a budding interest in the heavenly bodies.

We hope that *Old-Fashioned Children's Books*, by Andrew Tuer (Simpkin, Marshall, & Co.), will fall into the hands of all illustrators of books for children. Very few pictures that we have nowadays come up, in directness of aim and strength of drawing, to these old cuts, collected for the most part from the favourite children's books of a hundred years ago. They have also a quaint, pointed humour about them which satisfies children in a way that the hazy subtlety of modern illustrations never does. This work, like its forerunner, "Forgotten Children's Books," will be highly prized by collectors and students of such literary by-paths—the numerous reproductions of old title-pages being for the collector's purpose extremely useful. Although we expect our young children would vote a good deal of the reading dull and mawkish, yet even as a present-day children's book we think it would succeed in elbowing out of favour many a more ambitious work expressly addressed to the young in this psychological age.

The Book of Penny Toys, written and illustrated by Mabel Dearmer (Macmillan), is a substantial picture-book with little rhymes accompanying each coloured plate, suited to the youngest people who have a book at all. The vivid, yet tasteful, colouring is certain to please. We are not sure that the subjects are so satisfactory, for, unless a child has actually met with the toy depicted, he will make very little of the page; "Pierrette" and "Cockyolly" are striking instances; while, on the other hand, the woolly lamb and the stuffed dog are quite familiar and delightful.

Amongst annual bound volumes of illustrated periodicals we have received *Cassell's Saturday Journal*, a big store-house of miscellaneous entertainment, domestic and useful in its character; and *The New Penny Magazine*—stories, pictures, anecdotes, essays, a harmless collection for young folk.

CORRESPONDENCE.

THE CHURCH SCHOOLS' BOARD OF EDUCATION.

To the Editor of the Educational Times.

DEAR SIR,—I beg to submit to you various suggestions with reference to Local Authorities and other points bearing upon the future of our voluntary schools, and the relation between primary and secondary education. These suggestions received the unanimous approval of our Council at its last meeting on November 9, and I venture to bespeak for them your attentive consideration. My plea must be that our Council has done during the four years of its existence substantial work for the improvement of voluntary schools in the district.

Sixty-four schools are under the care of the Council, and during the last five years it has been instrumental in raising nearly £52,000 for Church schools. Its last report, issued a few days ago, shows that the Church of England schools in the archdeaconry are raising nearly £10,000 per annum in voluntary contributions. These voluntary contributions are increasing yearly, and have not suffered in any way from the receipt of aid grant, but have been stimulated. The average attendance in the schools numbers 26,153, and this number is increasing at the rate of over 500 per annum.

It may fairly be claimed, then, that the Council represents the views of a large body of Churchmen who take an active and intelligent part in primary education.

The principle of our scheme is the formation of Local Authorities so constituted that (1) each Authority shall deal with an area homogeneous in character and fairly connected in its system of railway communication. (2) That each Authority shall have a wide educational outlook and contain in itself a well graded system of education from primary to University education. (3) That each Authority shall be so constituted as to command the respect of all educational bodies within the area, the non-local public schools, as well as the endowed grammar school, and shall be above suspicion of religious or political partiality.

We also desire to draw special attention to our objections to the county as the area of the new Local Authorities, and to our proposals for equalizing the resources of all primary schools and giving representatives of the public more voice in the management of them, while safeguarding the harmonious control of each separate denominational school and the character of its religious instruction.—Believe me to be, yours very faithfully,

E. A. COVENTRY, *Chairman.*

[We quote from the scheme referred to by the Bishop of Coventry in our Summary of the Month.—EDITOR.]

THE QUICK MEMORIAL.

To the Editor of the Educational Times.

SIR,—Before closing the Quick Memorial Fund, may we make a last appeal on its behalf? The Memorial is to take the form of a Quick Library at the Teachers' Guild, where, thanks largely to a generous gift of books by Mrs. Quick, a valuable pedagogic nucleus already exists. It was originally proposed to invest the money subscribed, and apply the interest only to the purchase of books; but, as the English subscriptions do not amount to much more than £120, the sum realized will hardly be worth investing unless we receive considerable additions from subscribers in America (the returns from which have not yet reached us) or from new subscribers at home.

Since the movement for the Memorial was set on foot, Quick's "Life and Remains" has been published by the Pitt Press, and it may be that the reading of this book may lead some who have not seen the original circular to welcome the opportunity of marking their appreciation of the significance of such a life-work in the cause of educational reform and progress.

We would especially appeal to those teachers who can only afford small subscriptions not to hesitate to send them in, for, anxious as the signatories are to increase the value of the Memorial in terms of money, they are more anxious still to increase it in terms of men and women.

Either of us will be glad to give further information or to receive subscriptions.—Yours faithfully,

JOHN RUSSELL, University College School, Gower Street, W.C.
FOSTER WATSON, University College of Wales, Aberystwyth.

[This letter reached us too late for insertion last month.—EDITOR.]

MR. ROUSE'S "GREEK VERSE DEMONSTRATIONS."

To the Editor of the Educational Times.

DEAR SIR,—Your reviewer has misunderstood the quotation on page 17 of my "Greek Verse Demonstrations." The line was quoted to illustrate the lengthening of δ before $\chi\phi$.

I regret that I did not emend the latter part of the line, which shall be done in any future edition. No one has any right to emend the first part, since this lengthening is attested in other instances.—Yours faithfully,
Rugby.

W. H. D. ROUSE.

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FORECASTS AND COMMENTS.

December 1, 1899.

THE Christmas Certificate Examination of the Fixtures. College of Preceptors will begin at the various centres on Tuesday, December 5. The same date is fixed for the Junior Forms Examination. The next examination of teachers for the Diplomas of the College will begin on January 2, 1900.

* * *

THE Preliminary Examination for Scholarships under the London School Board will be held on December 4 and 5, 1899. This year there will be 63 scholarships and exhibitions—38 for boys and 25 for girls. This number includes 10 places for boys in the Christ's Hospital School, London (Blue Coat School), and 5 places in their girls' school, Hertford, and 19 places for boys and 16 for girls whose parents have resided for a year in certain London parishes.

* * *

MR. HUGH STANNUS will lecture on Roman Art at the South Kensington Museum on December 4 and 11. Ten lectures, after Christmas, will deal with Christian Art, the subjects being as follows:—Byzantine Art, January 22; Mahometan Art, January 29; Medieval Art, February 5, 12, and 19; Renaissance Art, February 26, March 5, 12, 19, and 26. Tickets of admission may be obtained from the Director of the Museum.

* * *

MR. CHARLES VERNON BOYS, F.R.S., is to deliver the annual course of Christmas lectures, specially adapted to young people, at the Royal Institution this year. He has chosen as his subject: "Fluids in Motion and at Rest." The lectures, which will be six in number, will commence on Thursday, December 28, at three o'clock. The remaining lectures will be delivered on December 30, and on January 2, 4, 6, and 9, 1900.

* * *

A DETAILED syllabus has been drawn up for the guidance of candidates in the new examination, founded by the Sanitary Institute, in practical hygiene for teachers in secondary and elementary schools. Part I. deals with personal hygiene, individual and social, including the necessary physiology; Part II. with the hygiene of schools and private dwellings; and Part III. with hygiene in education. A series of draft questions has been prepared indicating the lines upon which it is likely that the examination will proceed. The dates of the examination for London candidates will be February 8, 9, and 10, 1900. No certificate will be granted to any candidate who is under twenty years of age. Further particulars and application forms may be obtained from the Secretary of the Sanitary Institute, Margaret Street, Regent Street, W.

* * *

PROVISIONAL arrangements have been made for the University Extension Summer Meeting to be held at Cambridge in August of next year. The main subject of the meeting will be "Life and Thought in England in the Nineteenth Century," and the lectures will group themselves under the following heads:—National Development (including the Rise and Growth of the Democracy, the Growth of Commerce, Social Life, and the Expansion of the Empire); Scientific Progress (with special reference to the discoveries of the century in Chemistry, Mechanics, and Physics, and the Influence of the Theory of Evolution on Thought and Research); History (including Historical Method);

Literature, Music, and the Fine Arts; Biographical Studies of Statesmen, Poets, and other eminent Representatives; and Education in its various aspects.

As we announced last month, the English Education Exhibition, preliminary to the transfer of educational exhibits to Paris, has been fixed for the first fortnight of 1900. In connexion with this exhibition there is to be a series of conferences and lectures, in which the College has been invited, and has consented, to co-operate. Under these circumstances the Council has resolved to suspend its Winter Meeting for the year.

THE Sheffield University College has not succeeded in making arrangements for the occupation of the site of Wesley College, and it is now proposed to acquire a strip of land adjoining the Botanical Gardens on which to erect a new block of buildings.

AN appeal for funds is being made on behalf of Bishop Otter College, Chichester—a Church of England training college for schoolmistresses.

WE regret to note the sudden death of the Rev. R. Alliott, M.A., Headmaster of Bishop's Stortford Grammar School, and a member of the Council of the College of Preceptors, on whose retirement from active work we commented in October. Mr. Alliott died on October 28, at the age of sixty.

THE University Court of the Victoria University has just decided upon a step which will enable boys who are leaving the grammar schools to take an examination which shall also open the door to the University. That is to say, one examination will now suffice instead of two, and time and effort will be economized. There will therefore be in the future a Victoria University Leaving Examination on the lines of those already established by Oxford and Cambridge, and serving a similar purpose. The scheme has not been agreed upon without careful and prolonged consideration, as it has been debated, first, by the headmasters separately; second, by the University authorities; and, lastly, by a Joint Committee of the two.

MR. ORGAN, Chairman of the London Technical Education Board, made an important statement at a recent meeting of the London County Council. He said that the Board had been in correspondence with the Commissioners of London University suggesting the creation of a Faculty of Commerce and a Faculty of Engineering. The Commissioners had agreed to that, and in consequence the Board had passed resolutions allocating to each faculty £2,500 a year for its maintenance. Mr. Organ added that every opportunity would be given to those attending evening classes to become internal students of the University.

A BILL has been introduced in the Legislature of Queensland to create a University in that colony, and to endow it with an annual grant of £5,000. The educational facilities which Queensland offers are very thorough, and the establishment of a University will round off the system. Beyond the primary schools, there are grammar schools, technical and art schools, and an agricultural college, all under the State, which grants scholarships and bursaries.

ANOTHER University! The Bombay Government have issued a resolution on the subject of the teaching University to be established in Bombay on the model of the German *Seminarien*. Mr. Tata had offered 30 lakhs towards the scheme, but that sum is insufficient, and a committee will be appointed to collect funds. In accepting the scheme, the Government request the Bombay authorities to nominate officers to arrange for the transfer of the property and to endow the University.

THE common-school system (says the *Athenæum*) is coming more and more into vogue in British secondary day schools. The Charity Commissioners' scheme for the re-establishment of Leigh Grammar School provides for the education of "boys and girls as day scholars only."

THE Progressives on the London School Board object to being called unpatriotic because the Education Department, under a Conservative régime, in the words of a Conservative paper, "deliberately attempt to banish from the Board schools of London the history and geography of the British Empire." Mr. Graham Wallas, Chairman of the School Management Committee, writes to the paper which brought the formidable charge to say that the present Progressive majority has already succeeded in requiring these subjects to be taught in all the higher-grade schools, and will, he hopes, succeed in doing the like in the ordinary schools. "The restrictions of the Education Code and the apathy of the Education Department" are, however, serious obstacles.

LORD REAY must not be claimed as a Progressive, but Mr. Graham Wallas quotes a significant remark from his last annual address, to show that the present policy of the Board is not to be specially identified with the one-sided materialism of the Code:—

The subjects which no curriculum can ignore are: English language and composition, history, and geography. These subjects should be taught in all schools. They cannot be dispensed with, and they are the common inheritance of all classes of Her Majesty's subjects in Europe, in Asia, in America, in Africa, in Australia.

ONE of the soundest geologists of the last half-century has passed away in Sir J. W. Dawson, late Principal of McGill University, who was knighted in 1886 after presiding over the British Association at Montreal. He was a native of Nova Scotia, but received his scientific training at Edinburgh.

MR. C. CARUS-WILSON has been lecturing at the Horbury Rooms, W., during the past month to about four hundred scholars from secondary schools in the neighbourhood. The subjects dealt with comprised the following:—"The Wonders of Rain"; "Ice and Glaciers"; "The Mighty Ocean"; "Volcanoes and Geysers." The lectures were treated popularly, yet exhaustively, and were illustrated by effective lantern slides. The chair was taken by Mr. Scott Keltie and the Rev. J. O. Bevan. A further series is projected for February, to treat of coal, coral, and similar matters.

THE Committee of the London College of Music send us their revised syllabus of Local Examinations for the year 1900, in which several new features are being introduced, including a primary section in pianoforte playing, county prizes, and gold and silver medal awards in Diploma Sections.

MR. W. N. SHAW, F.R.S., Senior Tutor of Emmanuel College, Cambridge, has been appointed Director of the Meteorological Office, in succession to Mr. R. H. Scott, who will resign at the end of the year.

AT Trinity College, Dublin, Mr. W. Sinclair Baxter has been appointed Reid Professor of Penal Legislation, in succession to Professor Thompson. The appointment to the Reid Professorship, in accordance with the conditions under which the Chair was founded, is made by public examination, and the appointment is for five years.

DR. MAHAFFY has declared his intention of resigning his Professorship of Ancient History at Dublin next year.

THE Headmastership of the Nonconformist Grammar School,

Bishop's Stortford, vacant by the death of the Rev. R. Alliott, M.A., has been filled by the appointment of Mr. F. S. Young, M.A., formerly scholar of Queen's College, Oxford. Mr. Young is a former pupil of the school, and since taking his degree has been a master at Mill Hill School. He enters on his duties in January, 1900.

* * *

THE REV. F. A. HIBBERT, assistant-master and Secretary of Denstone College, has been appointed Headmaster of St. Cuthbert's College, Worksop.

* * *

THE REV. C. E. LUCETTE, Headmaster of Morgan's School, Bridgwater, has been selected as Headmaster of Chard Grammar School, in succession to the Rev. C. Wimberley.

* * *

At the Royal Holloway College, Miss Hayes-Robinson has been appointed Lecturer in Modern History; Miss Buchanan, B.Sc. Lond., Lecturer in Zoology; and Miss Rowell, Assistant Lecturer in Mathematics.

* * *

THE following notice has been issued with regard to the Professorship of Music at Oxford University:—

The salary of the Professor is £130 per annum, together with examination fees. According to a Statute approved by the Queen in Council, May 18, 1897: "The Professor of Music shall, once at least in each term, lecture on the theory and history of music in some place to be appointed by the Vice-Chancellor, and the lectures shall be illustrated, as need requires, by vocal or instrumental performances. It shall be the duty of the Choragus to prepare illustrations for the Professor's lectures, and to assist him generally in the discharge of the duties of his office. The Choragus, who shall be a Doctor of Music or an Honorary Doctor of Music of the University, shall be nominated, subject to the approval of Convocation, by the Professor, and shall hold office at the will of the Professor." The Professor is also an *ex-officio* examiner in the examinations for degrees in music.

* * *

Literary Gossip. PROFESSOR JEBB is always valiant for the literary *norma* of education. A few days ago he bearded the young lions (amongst them being Sir Philip Magnus and Dr. W. Garnett) in the Borough Polytechnic; and here is the pith of what he said:—

Those who had lived to middle life well knew that the lessons learned in that stern school could be interpreted by literature. The study of literature was of practical value in the immediate necessities of life. It was very important that a man should be able to understand people unlike himself, to be able to place himself at a point of view which was not his own, and to make equitable allowances for the shortcomings in others. He should be able to exercise that higher tact and that trust sagacity which sprang from intelligent good feeling. One of the frequent causes of failure in life was an inability to work with other people, and an intelligent study of literature tended to remedy these difficulties, and was of the greatest practical value in life.

* * *

ON the other hand, Sir John Lubbock thinks that our education, even now, is "much too bookish." He said the other day, at Nelson, in Lancashire, that children were educated as if they were all going to be schoolmasters and school-mistresses.

Neglect of Nature in schools ran through the whole system, from the elementary schools up to most of the Universities. We ought not to allow children to grow up ignorant of the history of their country, or of the beauties of Nature by which they were surrounded. They would be much more likely to stay in country districts, and not crowd so much into towns; they would be much more likely to continue their education; they would be much happier and much better citizens if they learnt something of the world in which it was their privilege to live. No one ought to be granted a University degree who was absolutely ignorant of science. He who knew nothing of Nature was but a half-educated man after all.

What we want is a blend of Sir John Lubbock and Professor Jebb.

* * *

THE British and Foreign School Society have made a good choice for the Principalship of the Borough Road Training

College, Isleworth, in Mr. Arthur Burrell, of Bradford Grammar School. Mr. Burrell is a former scholar of Wadham College, Oxford, and has been distinguished for marked success as a strong and enthusiastic teacher. He is a recognized authority on reading and speaking and voice cultivation, on which subject she has written a good deal, contributing the chapter on that subject to Mr. Barnett's "Teaching and Organization," and more recently writing a well known general treatise. He has contributed also to general literature, a translation of the "Imitatio" by him being now in its thirteenth edition.

* * *

MR. JOHN MURRAY has just published a very interesting book of travels, under the title of "A Glimpse of Guatemala," which deals with the ancient monuments of Central America. The writers are Mr. and Mrs. Alfred Percival Maudslay, the former of whom has made seven different visits to Central America. This volume is, in great part, the story of the most recent journey, told by Mrs. Maudslay. Since the year 1841, when Stevens and Catherwood astonished the English-speaking world with the story of their wanderings through Central America, and their description of the ancient ruins there, the country has been neglected by English travellers and writers. The new volume is all the more attractive on this account.

* * *

OXFORD'S contributions to the Paris Exhibition will include reproductions of interesting documents—Charters from Merton; a page of the Founder's first draft of his Statutes (with a drawing of the undesirable "extraneous" being ejected) from New College; Wesley's letter resigning his Fellowship at Lincoln. The same college supplies a facsimile of the Sub-Rector's scourge, perhaps the only surviving relic of the days when flogging was customary in Oxford colleges.

* * *

MR. NEWBOLT'S touching lines in the *Spectator* of November 18 may well have struck a chord of sympathy in every public secondary school:—

Our game was his but yesteryear;
We wished him back; we could not know
The self-same hour we missed him here
He led the line that broke the foe. . . .
"To-morrow well may bring," we said,
"As fair a fight, as clear a sun."
Dear lad, before the word was sped,
For evermore thy goal was won.

There is probably none of the great London day schools which has not paid its tribute, in this sense, within the past two months to the dragon of war.

* * *

MESSRS. MACMILLAN announce a musical volume under the title of "Choral Songs by various Writers and Composers in honour of Her Majesty Queen Victoria." It will include thirteen pieces by distinguished living composers, and will be edited by Sir Walter Barrett, with a preface by Mr. Arthur C. Benson. The same firm will shortly publish a volume of essays by Mr. Frederic Harrison, entitled "Tennyson, Ruskin, Mill, and other Literary Estimates." Some of these are reprinted from the *Nineteenth Century*, but the principal essay, that on Tennyson, will be published for the first time.

* * *

THE Clarendon Press and Dr. Hodgkin are alike to be congratulated on the completion of his great work, *Italy and Her Invaders*. It has already become a classic, and of its merits there is no need to speak here; but (we quote the *Oxford Magazine*) there is something pathetic in the author's remark that it has occupied the "leisure of twenty-five years." "If the leisure of a banker produces eight great volumes, what ought the working hours of a professor to produce? This problem may be commended to the students of the higher mathematics. Meantime the conclusion seems true, as of old, that the 'gleaning of the grapes of Ephraim is better than the vintage of Abiezer.'"

THE BOARD OF EDUCATION ACT AND ITS BEARING ON PRIVATE SCHOOLS.

MR. WILSON took the Chair at the Evening Meeting of Members on Wednesday, November 19, when the Rev. J. O. BEVAN read a Paper, of which the following are the salient passages:—

1. WHAT THE ACT IS.

I assume that you are familiar with its provisions, and I may, therefore, be spared a particular description. To a few persons the be-all and the end-all of the inquiry would be: How far will it affect me and my school? How far will it help me to squeeze my rival out of existence? Again, since many teachers are firmly impressed with the perfection of their premises and of their teaching—often on very imperfect evidence—they will immediately conclude that they are likely to be untouched or but slightly affected. They will, therefore, fall back and bid the world do its worst and go on without them. Now it is an undoubted fact that, unless heads of schools themselves put the Act in motion, they may, supposing their premises are sufficient and sanitary, escape its most stringent provisions; but let us for a moment look beneath the surface, and try to realize the condition of affairs which has rendered such an Act necessary and possible.

2. WHAT IT INDICATES.

This query gives rise to most serious reflections, and I would beg leave to ask private teachers earnestly to lay to heart the signs of the times which have brought us together this evening to debate the position in which the Act has placed us. Neither as educationists nor as citizens can we afford to shut our eyes to the march of events. The disposition to do so has been a source of weakness, as it will be a source of weakness in the future. No observant person can fail to see that within the past few years strong Imperial instincts have been evoked and new trade competitors brought into the field, inasmuch that new conceptions, new ideals of education have come into being, and that, as a consequence, new subjects have been suggested for our curriculum, and new fields of service opened out to the teacher; further, that the public conscience and the public necessity alike have laid upon those popularly elected bodies which have been lately constituted or have had their functions enlarged educational duties, in some cases, not originally appertaining to them. Consequently the relations of the private-school interest to the public generally have been somewhat rudely disturbed. As a partial result, dating from the introduction of the School Board system, hundreds of private schools have ceased to exist; and in Wales, too, during the last ten years, owing to the foundation of more than ninety public intermediate schools, the private-school interest and system have been crushed well nigh out of existence.

All this marks the presumption that public enterprise and public management are rising into greater prominence than heretofore; and, although it may be said that the educational boom has also affected private schools, and led—in England, at all events—to a like advance in numbers and efficiency, I think such a statement in respect of numbers, at least, would be difficult to prove.

Unless, therefore, a strong and united policy be adopted, and serious steps be taken in the direction of consolidation, private schools will be increasingly at a disadvantage.

Furthermore, it must be remembered that there are large numbers of private teachers—women especially—who may have cause for anxiety in face of the Act, and who deserve that their position should be taken into account, and that to them a helping hand should be extended. It may, too, be an additional reason for reflection on the part of teachers who are both independent and indifferent that a selfish policy on the part of those in a more secure position would lead to such a state of isolation and disorganization as would react injuriously on every private school throughout the kingdom.

I have remarked that there may be a number of teachers who are so assured of their own qualifications and of the sufficiency of their establishment as to suggest to them that they might leave the Act severely alone; but this would indeed be a suicidal policy, for the Act will sharpen the public expectancy, and lead it to construe an abstention from full inspection, examination, and registration as a confession of weakness, so that, in sheer self-defence, every teacher ultimately will have to place himself and his school under public registration and scrutiny.

The Local Authorities will be potent and may be aggressive. To them will be granted definite and far-reaching powers and responsibilities to enable them to deal with local, and perhaps non-local, schools, apart from influences they may bring to bear upon elementary education and on secondary schools of all descriptions—endowed, technical, and commercial. In the case of schools withholding information as to number of scholars, curriculum, &c., it will be competent for the Authority to refuse to include such schools in the list of agencies supplying secondary education to the locality. There would follow upon this the possibility of the establishment of a rival school on the part of such Authorities. This may seem an extreme case, but we have to take such cases into account, remembering, too, that an appeal to the Central Board would be both troublesome and expensive.

3. WHAT THE ACT PORTENDS AND WILL LEAD TO.

Not at once, naturally, but in the space of the next few years, when inspection has become general, it will come to pass that private schools will have been divided into three classes—good, indifferent, and bad.

Those in the first category we can pass over at once. Teachers attached to them are affected by the general considerations I have adduced; but, apart from these, they can prosecute their work in their own way.

Those in the third class must go—there is no help for it. Old buildings, inefficient teachers, and antiquated methods, are out of place in the present day, if, indeed, they should ever have been tolerated. We may pause for a moment to lament the necessity for their extinction and to drop a sympathetic tear over their grave, but we are irresistibly spurred on by the times. We owe it to the Fatherland of to-day—to the men and women of the future—as well as to the majority of efficient private teachers, that the profession should be purged, completely and at once, of a source of weakness to private schools and of danger to the children concerned. It is a mistaken policy to defend them, for, in that case, the public may confound the good with the bad. Cases of personal hardship will naturally occur, and it might be a good investment on the part of an association of private schools to provide retiring pensions for the incompetent. Their case is similar to others which may be quoted in the history of progress—in such cases a sacrifice must somewhere be found. . . .

WEAK SCHOOLS.

The chief object of my paper is to take account of those schools just on the margin, which form the second division; a number fairly large—not thoroughly bad, but yet not good enough to be classed as efficient—but which, again, would become efficient if a fostering care were exercised, *e.g.*, repairs executed, enlargements made, requisites of furniture and apparatus provided, improvements in staff and curriculum effected. Such reforms would cost money—initially, perhaps one, two, or even three hundred pounds. The requirements would be duly set forth by the inspector. His declaration would be well-nigh absolute; a warning would be given that these requirements must be met in the course of a few months, as an essential condition that a certificate of efficiency be granted and the school qualified to be placed on the official schedule.

DIFFERENT STANDARDS OF EFFICIENCY.

In speaking of efficiency, I must not be thought to refer only to one standard, and that the highest, in classics, mathematics, or science. Doubtless a school will be judged, not according to one consideration, but to many—such as size, local circumstances, the statements made in its prospectus, and the like. Discretion will require to be exercised by the inspector with regard to his final judgment as determined by these considerations; so that, when a school comes up to reasonable requirements, a certificate would naturally be granted, duly notifying the circumstances of the particular case and the degree of efficiency attained in respect of the standard aimed at.

DIFFICULTIES IN MEETING REQUIREMENTS OF THE ACT.

In the instance before us what, then, could be done? The money would have to be found or the alternative faced of the closing of the school. In a few cases the resources of the principal or his friends would enable him to tide over the difficulty and to place himself in line with schools in the first division; but in other cases, where these resources were lacking or unrealizable, what action could be taken? Should an application for a grant or loan be made to the Local Authority?

Now, it is not certain that this Authority, at first, would be

furnished with funds which would enable it to do more than the executive work laid upon it. Furthermore, it is inconceivable that such Authority should grant money to private teachers to remodel drainage or enlarge class-rooms. The reasons are obvious; but, for purposes of clearness, they may be stated here. They are such as these: a principal may close or transfer his school at will; he may become bankrupt; he may die. It is not public policy to grant sums under conditions so doubtful, where, also, the advantage would be reaped by a private individual in increased fees or an augmentation in the number of scholars.

STATEMENT OF PROBLEM—SUGGESTED TREND IN PUBLIC SCHOOL DIRECTION.

The problem, then, is to secure to efficient schools or schools aiming at efficiency (a) an assured place in public estimation; (b) a consolidated position in face of a public Authority; (c) a backing on the part of some association competent to furnish moral and material support.

I shall, doubtless, rouse opposition; but, in face of the tendencies of the day, I am led to entertain the conviction that the security and permanence of private schools will consist more and more in their taking to themselves, so far as their constitution and management will admit, certain of those elements which approximately constitute the essence and strength of public schools. I think this approximation may be effected without the loss of that special character and tradition which now appertain to them, and constitute, in fact, their *raison d'être*.

FORMATION OF SCHOOL COMMITTEES.

To this end, first, I suggest the formation of a committee, analogous in its more satisfactory features to the governing body of a public school. . . .

FOUNDATION OF SCHOLARSHIPS.

I advocate, too, the foundation of scholarships in connexion with the school—not only with the object of making it known, but also as an endeavour to secure clever children, and so to stimulate both teachers and pupils. . . .

AFFILIATION TO COLLEGE OF PRECEPTORS.

My next proposition deals with the elaboration of a scheme for affiliating a particular school to the University or to an institution similar to the College of Preceptors. Some years ago King's College, Strand, endeavoured to work out such a scheme, but subsequently abandoned the attempt; the present trend of affairs is, however, favourable to the renewal of efforts in this direction. Doubtless, the working of the Act will lead to an ever-increasing accession of inspectorial work by the Universities; and, in respect of the schools which year by year may be certified by them, a condition of things will grow up akin to affiliation. But our chief concern in this place is with the College of Preceptors. There is no doubt but that this College will be recognized by the Central Board as an inspecting and examining body under the Act, and in what immediately follows I am referring to public as well as to private schools, for the work of the College is carried on amongst both classes of schools, and, happily, the representatives of both classes are associated in its management. Provision is made in the Charter for the formation of a connexion between a school and the College; *vide* By-Laws, section X., paragraph 1: "Schools belonging to members, the pupils in which shall be examined by the College examiners at least once in two years, and such schools only, shall be entitled 'in union with the College of Preceptors.'" Formerly, in the Calendar, the names of the principals of such schools were distinguished by an asterisk.

I would suggest that the College should seize the inviting opportunity presented at this moment by enlarging the scope of its inspection and examination so as to include everything—even sanitary inspection—which might be anticipated to satisfy the general requirements of the Act; and I would further propose that, if any school were thus periodically granted a certificate of efficiency by the College, and that if, in addition, the Head and a certain proportion of the assistants qualified themselves as registered teachers, also under the Act, the College then should formally be empowered to affiliate the school.

What particular advantages this carried in its train would need settlement; but it goes without saying that such a union would not fail to be of immense strength to any school in respect both of the general public and also of any local body. I suggest that this course is possible under our Charter. The College enjoys the full confidence of the heads of schools, and, one would

think, would have but little difficulty in thus arranging for an extension of its work, which the chance of its inclusion within the new teaching University for London as one of the constituent colleges would do much to further. It may be possible to raise the question at the Council at an early opportunity.

FEDERATION.

Further, I advocate a federation of all private schools, non-local as well as local, within the area of each Local Authority. I lay great stress upon this recommendation in respect of the identity of area.

Doubtless there will be many a fight with this Local Authority. If schools elect to stand apart, they will be attacked in detail; there will be no common action, no cohesion—the worst results will follow. As in a classical instance, they must hang together, or they will hang separately. . . .

This federation would be a substantial body; it would be a legal unification, permanent and incorporated; it would be able to raise money for its own purposes and to stand before the Local Authority and the public on a recognized and commercial basis; it could promise proper usage and expenditure on the part of the school, and an indemnification of the Authority against loss. Through its officers it would be able to hand over to any of its members money derived from its own coffers or from the Local Authority; to arrange the terms of loan, of conditions of use, of repayment, and to accept such securities as the borrower could offer, *viz.*, a personal bond, or friendly guarantee, transfer of life assurance, lease of premises, and the like.

HELP THAT EVEN NOW MIGHT BE FURNISHED BY TECHNICAL BOARDS.

The simplest way in which Technical Boards or similar bodies could help a school where science is taught—and the number of such schools is, fortunately, rapidly increasing—would be by contributing a yearly sum towards the purchase of apparatus, the provision of chemicals or other materials for physical demonstration and research, or the salary of the science teacher. This boon might be called for at once, without reference to any federation. In this case there is not much risk of the money being misapplied. It might be paid terminally, and periodical inspection might be trusted to secure that a full return was given for the expenditure incurred. . . .

HOLDING OF SCHOLARSHIPS IN PRIVATE SCHOOLS.

In this place I may state the conviction that private teachers should not rest satisfied until it was declared permissible that scholarships payable out of public funds should be held at their schools on the same—or on similar—terms as at public schools. . . .

CENTRAL BODY.

Over and above the different federations I have shadowed forth, there would appear to be need for a central body, or association, or syndicate—call it what you will—acting in the metropolis, which is the natural centre for operations intended to co-ordinate forces acting in different localities, as well as to influence Parliament, the Press, and public opinion. This syndicate should be composed of leading members of the profession and sympathizers with private effort—men of wide and statesmanlike views, of energy, of public spirit and business capacity, and, above all, of means, who would be prepared, probably through the medium of a limited liability company, to raise a fund for furthering the cause generally, and for making an effort, by the erection of new schools, to fill up *lacunæ* which may have been proved to exist.

The time is at hand when the community will be able to take stock of its wants and of the sources and extent of the supply. All existing schools will have been catalogued and inspected; those which are weighed in the balances and found wanting will have been closed, and an educational chart of the whole country prepared.

MANNER IN WHICH ADDITIONAL ACCOMMODATION WILL BE SUPPLIED.

Here and there indications will be apparent of a lack of accommodation. What may be done? Shall public effort or private initiative be relied upon to supply that which is lacking? That considerable additions to our sources of supply will be called for may be regarded as certain; partly by reason of the present deficiency, partly because of the normal growth of the population and of the increased proportion of the children we hope to bring within the sphere of secondary education. The example of Wales—before

quoted—would appear to be conclusive under this head. In that Principality—where the conditions are not universally favourable to the spread of secondary education—during the last ten years, ninety-three schools have been built or taken over and equipped for purposes of intermediate and secondary instruction, whilst more than thirteen hundred children have been drawn from private schools to fill their class-rooms.

If private teachers have the courage of their convictions, if they really mean what they have been saying for years past, if they are persuaded that the system in which they are engaged possesses distinct advantages which are evident to the parents of this country, and that, on general grounds, private effort, enterprise, skill, and efficiency should be recognized and should be encouraged to fill the gap in the first instance, they will then have the opportunity presented. . . .

PRIVATE DAY AND BOARDING SCHOOLS COMPANY.

Here, again, what an individual would hesitate to do a syndicate could, in many cases, certainly accomplish. I contemplate the possibility of this body watching the development of events, being made aware of a deficiency in this district or in that; sending its inspector to institute inquiries, and, in specified cases, making up its mind that a school would have a good chance of success; as a consequence, erecting its buildings for a day or boarding school, and then letting them to a private teacher (of whose worth and competence they were assured), who would assume the responsibility of carrying on the school in that locality in accordance with the best traditions of private enterprise.

In this particular, I believe that private teachers, in their corporate capacity, have been backward. If persons interested in a semi-public form of education—I refer to those connected with such bodies as the Public Day Schools Companies or the Woodard Trust—can form associations for the establishment of high schools, through their conviction of the need that existed, why should not sympathizers with private effort have adopted the same course? Indeed, in my judgment, such an attempt should have been made long since, so that the ground might be occupied, and the presumption in favour of public effort checked.

GRANT IN AID EQUIVALENT IN AMOUNT TO COST OF SCHOLARS IN ELEMENTARY SCHOOLS.

Here a case may be touched upon which is likely to occur frequently—viz., one where, in a certain neighbourhood, parents may be unable, or, worse still, unwilling, to pay the fees requisite to defray the cost of a sound secondary education, ranging, according to circumstances, from £6 to £20 a year. It may be assumed that in such a locality a private school could find no place. But I would suggest that a strong body, such as I have shadowed forth, would be able to negotiate with the local Education Board, and say: "We are willing to erect and set going a good school if you are prepared to pay a capitation fee for each child in attendance." The capitation fee might well be fixed at £3 or £4 annually—this sum being mentioned as it is about the cost of a child in an elementary school—measuring a definite proportion of the cost thus saved to the ratepayers if a secondary school took up the necessary work.

I may say, *en passant*, that this reference opens out a wide subject—viz., the financial assistance which the middle class, in the near future, may elect to claim towards the education of its own children. There is no body in the community, especially the professional portion of it, which makes greater sacrifices for the sake of obtaining a good education for those dependent upon it than that I have mentioned, besides paying heavy taxes for the gratuitous education of the children of the working man. The time is, perhaps, coming, under the new régime, when this great middle class, the backbone of the community, will arise and press forward its claim; and the opportunity may, perchance, be found under the circumstances above referred to. . . .

VARIOUS DEPARTMENTS OF ACTIVITY SUGGESTED.

I may incidentally remark that the operations of this syndicate might also profitably be extended to include cognate subjects appertaining to the general interests of private schools—such, e.g., as (a) sanitary inspection; (b) the various kinds of insurances; (c) sick and benefit funds and the like; (d) publishing and provision of books, furniture, apparatus, and household necessities; (e) agency for schools and teachers; (f) legal advice; (g) bureaux of information; (h) foreign exchange agency.

In all such cases a marked saving could be effected by collective action and trading.

ELECTION AND REPRESENTATION ON EDUCATIONAL AUTHORITIES.

Over and above the associations I have shadowed forth, it will be a matter of importance for the private teacher to be represented on the various Committees and Authorities to be constituted under the Act. Public and private teachers alike should combine to this end, and, in face of the common danger, to safeguard common interests and strengthen a common bond. In time past these two divisions of our great army did not feel drawn together—rather the reverse. The tendency to unity of action was fitfully apparent three or four years ago. Unfortunately the flickering has died down of late.

It will be much to the disadvantage of the private teacher if he do not now seek a *rapprochement*; so that, on the Consultative Committee and on the various Local Committees, in any wise and anywhere dealing with educational affairs, a satisfactory representation may be secured. If private schools be not formally represented on the Committee created by the Act or on Local Committees, their position will be shaken, and it will need to be more clearly defined by the Administration in respect both of a Court of First Instance and of a Court of Appeal.

Over and above this, it would appear to be politic that, for the purpose of safeguarding the educational interest, private teachers should deny themselves so far as to be induced in larger numbers to stand for election, in the regular way, on Town Councils, County Councils, and School Boards, as well as on those new bodies whose advent we are anticipating. It will be the teacher's own fault if, in this capacity, his advocacy of the special interest he is called upon to defend fail in its effect. How he would be able to reconcile his duty to his constituents with his duty to his scholars it is impossible to decide. This is the stock objection to the proposed course, and it will have to be faced, but instances may be quoted where it is faced successfully.

Mr. G. BROWN said he did not take so pessimistic a view of the position of private schools as that taken by the lecturer; nor did he think that the means he proposed for their protection would be effective. The Local Authorities would want to have schools of their own, and the case of the Swansea School of the Girls' Public Day School Company was an object-lesson as to the treatment which existing schools might expect to receive at the hands of such bodies. He did not see how syndicates could save the good private schools, for the schools supported by the syndicates would themselves be competing with the other schools of the district. The private schools must work out their own salvation, and justify by the results of their teaching the confidence reposed in them by parents. What their teachers should aim at was to secure for them the advantages in the way of aid from public funds which were now, or might subsequently be, enjoyed by public schools. Their claims to such aid were just, and would, if properly presented, be recognized as just, without appeals to sympathy. There was, in regard to primary as well as secondary education, a good deal of false admiration for superb buildings and appliances, as if these were the main factors in education; but by those who would look into the matter with an unprejudiced eye it would be admitted that it was not the building that made the school, but the personal qualities and influence of the head. Secondary education ought to be self-supporting, and the Chancellor of the Exchequer had not obscurely indicated that it must not be expected that Imperial funds would be called upon to supply it under cost price.

Mr. MILLAR INGLIS quite agreed with the lecturer in his main propositions, though he might differ from him in certain details. It should be noted that it was in limited areas that the proposals he had outlined were intended to be applied. Individual teachers would be powerless to resist the encroachments of public bodies; but, if all the teachers in a district would combine, they would be able to command attention for their just claims. The problem was largely a financial one, and could only be effectively dealt with by co-operation.

Mr. ORCHARD remarked that for some time past educational legislation, though not indeed hostile, had not been favourable to private schools. Their place in public estimation was not as high as it should be, and for this those schoolmasters were partly to blame who put the supposed interest of the school before that of the scholar. The present Act was fragmentary and tentative, but there was no indication that a future measure, whether entirely new or merely the completion of the present one, would display greater solicitude for private schools. The disappearance of the private school would be calamitous for national education. The private school and the public school were collaborators. A boy or a girl who was not strong, both physically and mentally, was, as a rule, better at a private school than at a public one. All private schools should be inspected, and, in the public interest, inspection should be made compulsory. In testing efficiency much of course would depend on the character of the inspector. Something

might be done on the lines laid down by the lecturer, care being taken to allow a reasonable elasticity. Expectation of financial help from the public purse was hardly to be looked for. A voluntary federation or association in connexion with the College of Preceptors would be a step, at any rate, towards a solution of present difficulties.

The CHAIRMAN observed that the question they were most concerned with was the way in which the Act was to be administered. In view of the influences that might be brought to bear from different sides on members of Parliament by the various interests that might appear to be threatened, the framers of the Act were afraid to say what was precisely meant by its provisions. Now, therefore, was the time for private schoolmasters to combine, and devise a plan for co-operation for the preservation of the important interests they had at stake. It should be shown that it was for the public interest that the continued existence of efficient private schools should be made possible, that scope should still be afforded for teachers of originality and special aptitude for the work, and that the danger of the imposition of an inelastic system should be obviated. Above all, it was necessary that the functions of inspection of secondary schools should not be entrusted to men who had not had large experience of school organization and the details of school work. The reports of such inspectors should be reasonably full, and give the particulars which would enable those concerned to judge of their fairness. In view of the possibilities that lay in the working of an Act of this nature, it seemed only natural that attention should be turned to the College of Preceptors as a body specially fitted by its history and organization to take part in bringing about the co-operation which the lecturer regarded as so important for the welfare of private schools.

Mr. BEVAN having replied to the remarks of the various speakers, a vote of thanks to the lecturer concluded the proceedings.

UNIVERSITIES.

(From our Correspondents.)

LET the first item of the month be an expression of Oxford. regret for the serious illness of the veteran Prof. Max Müller, of whose condition very grave reports have been made. His many friends will continue to hope for his recovery; but it is to be feared that it will be long before he is able to resume his literary activity.

The political exigencies of Europe—shall we say of France in particular?—have disappointed our expectation of seeing the German Emperor in Oxford this term. The Kaiser had accepted an invitation, for himself, the Kaiserin, and the two young princes, to lunch with the Dean of Christchurch on Wednesday. It was said that a visit would be paid to Cambridge also, and there is no doubt that these arrangements had been, at any rate, contemplated in Berlin. Then came the mysterious "something" which knocked them on the head. What was the finishing touch that made the Emperor cancel all his private engagements or semi-engagements? Was it the sulking of France, or the jealous grumblings of Berlin—or London's threat of an outburst of enthusiasm? In any case we are disappointed.

We seem to have been doing more play than work this term, or, at any rate, the play has made more noise than the work. If one were to judge from the Oxford letters which appear in some of your daily contemporaries, and which bear internal evidence of a light and happy undergraduate inspiration, one would certainly say that an Oxford November was devoted mainly to coxswainless IV's, Rugger and Soccer teams star companies at the Theatre, concerts at the Town Hall, and brisk debates at the Union. These debates, it may be admitted, have been brisk and diverting beyond their wont. It is hard to say whether it is a good sign or not that the Oxford undergraduate has been less characteristically Jingo over the Transvaal War than it is his wont to be. The House even declined on one occasion to saddle the Liberal party with the responsibility for the war, and it refused, though by a small majority, to say that the war "might and ought to have been avoided."

The Cambridge "Appointments Committee" is looked upon here as another instance of subtle flattery by imitation. We have had such an organization for many years, and it has worked admirably. Sir William Markby's letter to the *Speaker* on the Universities and the Civil Service attracted some attention, and no wonder, considering what a lion's share of appointments we have recently become accustomed to expect. At the Cambridge meeting Lord Rothschild said that "for service in future life there was no such had test as a competitive examination, and no such good test as, although old-fashioned, English training at school or at the University." Sir William wants to know whether Lord Rothschild, when he said this, knew that, in the competitive examination for Civil Service appointments held this

year, out of 132 successful candidates there was only one who had not been to a University, and only one who had been privately educated. "Considering that the higher grades of the Civil Service in all parts of the Empire have for years been recruited by open competition; considering also that those services are, in the opinion of competent judges, in a very high state of efficiency, I wonder what other system of selection Lord Rothschild was thinking of when he made this remark." Oxford men have no particular reason to be out of love with competition.

The scholarship awards do not seem to vary the positions of the public schools in their annual race for the "record." The London day schools are still well to the front. It is much the same with our own Colleges in respect of the University prizes and "ribbons." The All Souls' fellowships have fallen to P. Baker, of Balliol (for Law), and Malcolm, of New College (for History). A. H. G. Steel, of Balliol, takes the Eldon Law Scholarship.

MORE tinkering with examinations! Such is Cambridge. an exclamation generally heard in the land, and a no less august institution than the Mathematical Tripos is the victim this time. The Special Board for Mathematics have given us a new scheme, and it may be as well to summarize the intended changes, and to give the reasons brought forward by the authors of the project.

The defects of the present system, as stated by the Board, are as follows:—(1) The range of subjects in Part I. is excessive, and the result is that many are able to prepare only a portion of the subjects contained in the schedule. (2) The papers are made difficult so as to provide full opportunities for discriminating between the best candidates; they consequently tend to become unsuitable as a real test for many of the others. (3) The better students spend three years in acquiring an analytical facility in solving complicated and artificial questions in a great variety of comparatively elementary subjects—in fact, in mathematical gymnastics. (4) The candidates are not brought into contact with the ideas and methods characteristic of modern advances in mathematics.

The remedy suggested is to lighten the first part of the Tripos so as to make it suitable for men at the end of their second year, while as a subsidiary change it is suggested that the order of merit should be abolished as being a delusive test of the capacity of men at so early a period as their second year of residence; the second part, which it is intended should be taken at the end of the fourth year, is to undergo structural alterations with a view to attract more candidates. If the scheme is adopted, it is just possible that the result will be evil, and the old first part will retain the prestige it has ever possessed in the eyes of the public and the University. The good old title of Senior Wrangler is the one thing that the outside world associates with Cambridge mathematics, and the order of merit is at any rate a rough test of ability; to lump the candidates together in divisions may be convenient for the examiners, but it can hardly be as satisfactory as the present arrangement. It is an acknowledged fact that the first three Wranglers may differ enormously in merit, and any system which reduces the first half-dozen or dozen candidates to a dead level of equality requires much justification before adoption. The report is signed by fifteen leading mathematicians, but there are many equally eminent persons in the University with equal or superior knowledge of mathematics, as well as of the requirements of candidates, who have not yet declared themselves.

Building operations have at last begun on the Downing College site; the Woodwardian Museum is shortly to be commenced, and in another ten years what once was an outlying suburb of the University will be covered with University buildings, filled with assiduous and aggressive scientists.

A certain amount of feeling has been evoked in Cambridge by various exhibitions of rowdiness at the theatre, culminating in a scene at the conclusion of the musical comedy, when one of the directors had to give a plain and forcible hint to the rowdy members of the audience that, "If they didn't shut up, the theatre would." The disturbances, as a matter of fact, have come from a small, unimportant, and irresponsible clique, and a well timed threat on the part of one of the University papers to publish the names of the offenders has had a salutary effect. The Union had a debate on the subject, and public opinion showed itself so strongly that no difficulty is feared for the future.

A large and influentially attended meeting was held at the Union about the middle of the month to raise funds for the wives, widows, and children of our soldiers. The Master of Trinity, as usual, made a stirring and effective speech. A committee has

been formed, and the leading men of our athletic world go round on the dull duty of canvassing with arduous success. The military spirit at the old Universities is strong, but the authorities, by their absurd and out-of-date regulations, completely check the supply of fit candidates from the best class of our English youth. Surely the War Office might say to the Universities: "We want men, and can trust you to send us your best." Such a request would meet with a ready response, but, instead of that, all is left to one of the most incompetent of our public Departments, the Civil Service Commission, and the result is that crammers flourish, while the ordinary and typical University man finds himself at twenty-three with a degree, and the one profession for which he has a taste absolutely closed against him.

The scheme for forming a Cambridge Appointments Committee has been duly formulated and adopted: at Oxford a similar body exists, but in Cambridge some of the ground is already covered by the scholastic agency worked by Prof. Lewis. It is very doubtful whether any practical good will ever come from this new departure; schoolmasters, clergymen, and lawyers constitute the bulk of our educational output, and it is hardly overstating the case to say that University training is not quite an ideal one for the future man of business. Undoubtedly, we have a large surplus population, men possessed of a degree, and of no special or technical knowledge: any institution which can utilize this large body of men will deserve our thanks.

Our athletic prospects are fairly bright as regards impending contests in the football field against Oxford. The Association team is rapidly improving under their able and genial captain, T. S. Gosling, while the Rugby team has so far not suffered a single defeat, though it has met some of the strongest teams in the country.

Rumours are afloat that it is intended to substitute a new special examination on military subjects, to enable men who have passed the Army Literary Examination to take their degree by doing the same work as that required for the military examination of Militia candidates.

MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held at the College, Bloomsbury Square, on November 15. Present: Dr. Wormell, Vice-President, in the chair; Rev. J. O. Bovan, Mr. Brown, Mr. Charles, Mr. Eve, Rev. Dr. Hiron, Rev. R. Lee, Mr. Milne, Mr. Montgomery, Mr. Pinches, Rev. Dr. Robson, Dr. R. P. Scott, Rev. J. Stewart, and Rev. J. Twentymayn.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the number of candidates entered for the Christmas Examination for Certificates was about the same as the number entered for the corresponding examination in 1898, while there was an increase in the number of entries for the Junior Forms Examination.

The diploma of Licentiate was granted to Mr. A. Anstey, who had passed the required examination.

Saturday, January 20, was fixed as the date of the next General Meeting of the members of the College.

The following were elected members of the College:—

- Mr. A. W. D. Boughey, St. John's Collegiate School, Jersey.
- Mr. L. R. M. Feltham, A.C.P., 7 Hova Villas, Hove, Brighton.
- Rev. W. Ireland, M.A. Camb., Lucton School, Herefordshire.
- Mr. F. W. Jordan, L.C.P., 10 Ardconnel Terrace, Inverness.
- Mr. R. W. Pearson, A.C.P., 1 Belle Vue Lawn, Cheltenham.

The following books had been presented to the Library since the last meeting of the Council:—

- By Mr. J. F. MOON.—Moore's Life of Byron (2 vols.).
- By E. ARSOLD.—Lactian's Elements of Euclid, I.-VI.; Oman's England in the Nineteenth Century; Owen's Selections from Tennyson's Poems; Symes' English History; Webb's Africa as seen by its Explorers; York's Magnetism and Electricity.
- By G. BELL & SONS.—Bottling's Horace, Odes, Book I.
- By BLACKIE & SONS.—Classic Ornament (Series I., II., III., and IV.); "Newton" Object-Lesson Handbook, No. 2; Practical Problems in Arithmetic for Course B (Standards V., VI., and VII.); Supplementary Arithmetics (Higher Rules); Frew's Object Lessons in Geography, Part I.; Lyster's Mathematical Facts and Formulae; Ryland's Pope's Rape of the Lock.
- By C. J. CLAY & SONS.—Cambridge Greek Testament (The Pastoral Epistles); Cambridge Bible for Schools (The Proverbs and the Books of Chronicles); Plather's Macaulay's Milton; Rackham's Æschylus' Prometheus Vinctus; Roise's Greek Lambic Verse; Shuckburgh's Caesar's Gallic War, Book VI.; Sidgwick's Vergil's Æneid, Books II. and VI.; Spencer's Primer of French Verse.
- By MACMILLAN & CO.—Barb's Verne's Le Tour du Monde; Edser's Heat for Advanced Students; Gregory and Simmons' Experimental Science, Physiography (Section I.); Harrison and Baxandall's Practical Plane and Solid Geometry for Advanced Students; Parrish and Forsyth's Chemistry for Organized Schools of Science; Peacock and Bell's Passages for Greek Translation for Lower Forms; Riley's Building Construction for Beginners; Skeel's Coppee's Cones Chorus.
- Calendars of University College, Liverpool; City of London College; Royal College of Surgeons of England; St. Thomas's Hospital Medical School.

REVIEWS.

A PLEA FOR RATIONAL EDUCATION.

Over-Pressure. By S. De Brath and F. Beatty, of Grande Rocque School, Guernsey. (Philip & Son.)

The authors might have conveyed a clearer indication of their intentions by extending their title by the addition of the explanatory phrase: "A further Plea for Rational Education." The overstrain which they desire to prevent is due to careless or irrational treatment, and is, therefore, entirely preventable.

The word "overpressure" recalls to mind the controversy of ten years ago, and we may well take the verdict of the Royal Commission which investigated the complaints of that time, as a settlement of many of the old contentions and as a preparation for the more reasonable and well founded cautions of the work before us. The Commission had before it the question as it concerned elementary schools only. It heard the inspectors, and found them unanimous in thinking there was but little overpressure; but both inspectors and teachers agreed that many children attending school were not fit for study—some because they were insufficiently fed, and others because they were sickly. Teachers and managers, however, allege that the system of "payment by results" tended to produce overpressure, and the Commission reported their opinion that "so long as money value is attached to each success in the individual examination of the children attending any elementary school, and so long as the teachers are dependent on the grant for part of their income, there is great risk that teachers, in considering their own reputation and emoluments, may endanger the health and welfare of the children." As was to be expected, this report hastened the abolition of the mischievous and dangerous system. In the elementary schools, "payment by results," "cramming," and "overpressure" seem to have gone overboard together; but the authors of the work before us demonstrate the existence of overstrain in secondary schools, chiefly from two causes—first, the neglect of the years from eight to fourteen, followed by a period devoted to cramming, competing, and generally overworking to make up the lost ground; second, the adoption of irrational curricula, which exhaust the nervous energy faster than it can be recuperated. The authors, therefore, plead that each stage of growth shall have its appropriate treatment, and, in particular, that teaching specially adapted to the age from eight to twelve shall be available for all. "The fact that these years are not utilized accounts for many failures and many breakdowns in later efforts made under the spur of severe competition to redeem lost time." What is the result? The medical officer at Woolwich stated, a year or two back, that a considerable number of the cadets were not of good physique, were intellectually overworked, and were anæmic in appearance. Similar consequences of overstrain are found in all professional lines amongst those preparing for competitions. "Pale, undersized boys and girls abound, wrinkled foreheads, headaches, tonsillar growths, nervous twitches, unsymmetrical development, and breakdowns are so frequent that they have lost their importance to the many who notice only the abnormal." There is so much truth in this statement that it behoves all teachers to listen attentively to any suggestions for alleviating the evils. At the same time it is easy to exaggerate in such a matter, and probably there is some exaggeration by our authors when they base on these facts charges of degeneracy. They picture our grandfathers as living "to a good old age, continuing hale and hearty till late in life, although they permitted themselves a freedom which we are unable to bear." There is, say our authors, a diminished vigour and a distinct diminution in massiveness. What proof do they give of this? They point to the jaded condition of professional men; but this condition may arise from the fact that in these days of quick travelling and accelerated speed of communication they accomplish much more in the same time than did our forefathers. They say, further:

When, a short time ago, the bones of some of those who fell at Waterloo were moved to a new resting place, it was noted that nearly all were skeletons of men six feet high. The superiority of British to Continental physique has now practically disappeared. . . . The general smallness of men and women in our towns is patent to any observer who remembers that a healthy Englishman should stand 5 ft. 10 in., weigh 12 st., and measure 40 in. round the chest.

The logical defects here are two—first, exceptional men, like the Guards, are taken for a general standard; and, secondly, an average is instituted, and then those below the average are con-

demned as if they had not been taken into account in forming the average. In any average that is struck amongst things not uniform, it is necessary that some should be below the average. It is also a vexed question as to whether there has been a deterioration in massiveness. The Hon. Grantley Berkeley once took half a dozen officers over England to try on the old suits of armour accumulated in museums and ancestral halls, and found none large enough. His conclusions, however, like our authors', could not be generally accepted because his standards were arbitrarily selected. Yet this comparison between men of our day and those of former times does not affect our authors' plea; for, granted the defects described by medical authorities, it is but wisdom and common sense to labour to alleviate or remove them, whatever may have been the conditions of the times that have passed away.

The earlier chapters of the work describe the nervous system and the laws of the expenditure, transformation, restoration, and maintenance of nervous energy. "The amount of energy daily supplied to a child in regular health and nutrition is a fairly constant quantity, and, being normally used up between growth, exercise, and head-work, an overdraft on it must necessarily be manifest somewhere." That is to say, an overdraft under one head must lead to a deficiency under another. This is really the whole theory of overstrain.

The later chapters deal with curricula and "mental economics," thirty pages being devoted to science, thirty to history teaching, and forty to other essentials of a modern syllabus. The final chapter treats of "the great examination question." We have no further space in which to criticize these chapters, although we cannot agree with all their contentions with regard to either history or science. We are, however, quite in agreement with the authors on the necessity for such a correlation of studies as will give to each age suitable exercise and discipline, and also we agree that the adoption of their suggestions would do much to remedy overstrain and to realize three demands which at present are antagonistic or conflicting—the demand of parents and headmasters for a lighter curriculum, the demand of the public for more scientific knowledge, and the demand of professional bodies for a higher general standard and sounder training.

THE DIDACTIC AND THE SATIRIC.

(1) "Periods of European Literature." Edited by Prof. Saintsbury.—*The Augustan Ages*. By Oliver Elton. (Blackwood & Sons.) (2) "The Warwick Library of English Literature." Edited by Prof. Herford, Litt.D.—*English Satires*. With an Introduction by Oliphant Smeaton. (Blackie & Son.)

(1) The revival of learning, the Renaissance of art and letters, the renewal of the critical spirit, and the re-creation of what we may agree to speak of as Augustan ages, are four great phenomena in the development of civilization which may be regarded as chronological in their order, logically evolved, and very largely simultaneous in different countries. The new Augustan ages began, roughly speaking, in the third quarter of the seventeenth century. Chronology, as Mr. Elton reminds us, may be misleading by itself, and it would be difficult to fix the limits when literature in any country of Western Europe ceased to be Augustan. We can time it approximately in France with the death of Louis XIV.; in England with the passing of Swift and Pope. But schools and fashions prolong the domination of principles. As there were brave men before Agamemnon, so there were brave poets and prose writers of classical mould after Pope and Swift. Indeed, it is only in a somewhat narrow sense that we can give the name of Augustan to the prose of Addison and deny it to several greater prose writers of the nineteenth century.

Three-fourths of Mr. Elton's volume are naturally given to French and English literature. The remaining chapters deal with German, Dutch, and Scandinavian writers, with Italy, Spain, and Portugal. The surveys are in all cases particularly interesting, and Mr. Elton has devoted special care to prose styles as vehicles of philosophic and ethical thought. Here is a fine passage on French and English pulpit oratory early in the eighteenth century:—

Massillon began as a professor of rhetoric; he has no deep instruction in divinity, he is too intent on the pleasure that he receives from his own antitheses and balanced clauses, and the decadence of classicism is also sharply felt in the poverty of his co-ordinating powers and of his intellectual basis. But he has too much sincerity and too much passionate sensibility to be, as he is often called, a declaimer, and he keeps alive the tradition of magnificence. The history of pulpit

oratory in France and England will show many affinities during this period. In both lands the best preachers addressed the Court and society, and took from, or shared with, their audience the liking for ethical rather than doctrinal discoursing. In both there is the constant use of worldly experience for spiritual illustration, the dislike of false wit and effusive excess, the taste for structure and clearness, and all the other tastes that follow from the tacit appeal that is made on every hand to reason and intelligence. But the English pulpit had a deeper original fund of fantasy and poetry—a fund, therefore, not so soon exhausted.

(2) Mr. Elton makes no room for specimens. Mr. Smeaton, on the other hand, gives us a collection of seventy-one satires, mostly complete pieces, and all complete in themselves, with an introduction of forty pages on satire as a literary genre, in Greek, Latin, and English. This is an attractive essay, which whets the appetite for the examples that follow. Chaucer and Langland are represented in these examples as satirists before the rise of English satire.

They typify at the outset the two classes into which Dryden divided English satirists—the followers of Horace's way and the followers of Juvenal's—the men of the world, who assail the enemies of common sense with the weapons of humour and sarcasm; and the prophets, who assail vice and crime with passionate indignation and invective scorn. Since Dryden's time neither line has died out [both modes are inherent in human thought], and it is still possible, with all reserves, to recognize the two strains of thought through the whole course of English literature: the one represented in Chaucer, Donne, Marvell, Addison, Arbuthnot, Swift, Young, Goldsmith, Canning, Thackeray, and Tennyson; the others in Langland, Skelton, Lyndsay, Nash, Marston, Dryden, Pope, Churchill, Johnson, Junius, Burns, and Browning.

We do not stop to criticize the classification, which does not satisfy us at all points.

The selection of pieces leaves little to be desired. Mr. Smeaton has given us an admirable anthology—unless we ought to call it a kentology—of satire, from which we miss few of the finest English samples. The book opens at Dryden's famous satire on the Dutch, printed in 1662, a few lines of which we repunctuate and reproduce:—

The dotage of some Englishmen is such
To fawn on those who ruin them, the Dutch.
They shall have all, rather than make a war
With those who of the same religion are—
The Straits, the Guinea-trade, the herrings, too;
Nay, to keep friendship, they shall pickle you.
What injuries soe'er upon us fall,
Yet still the same religion answers all.
Religion wheedled us to civil war,
Drew English blood, and Dutchmen's now would spare.
Be gull'd no longer, for you'll find it true,
They have no more religion, faith! than you.
Interest's the god they worship in their State.

There is every variety of form and style in the satires here printed—or, at any rate, there are all the forms and styles which are worth illustrating for the general reader. The book is very well calculated to give the literary student a clear *conspectus* of English satire.

THE TRADITIONAL HAMLET.

The Tragedy of Hamlet. Edited by Edward Dowden. (Methuen.)

An announcement was made in some paper the other day that we were shortly to see on the stage a representation of "Hamlet" in its entirety. To render this possible it was proposed that the play should commence at 3.30 p.m., if we remember rightly. It is a curious fact that "Hamlet," a play which has exercised so great a fascination over so many of the best actors in dramatic history (and, it may be added, over many great, and, we venture to think, misguided, actresses), is, as a whole work, barely capable of presentation on the stage. Why is this so? In his new edition of this tragedy Prof. Dowden says:

Critics, I think, have sometimes erred in not keeping vividly before their imagination the nature of Shakespeare's task. They often speak as if the poet started with some central idea of which Hamlet was to be the exponent. . . . I prefer to think of Shakespeare as setting to work with the intention of rehandling the subject of an old play, so as to give it fresh interest on the stage; as following the subject given to him, and as following the instinctive leadings of his genius. The traditional Hamlet was distinguished by intellectual subtlety, by riddling speech, by a power of ingeniously baffling his pursuers, and, at the same time, by a love of truth. . . . Shakespeare was attracted by the intellectual subtlety of Hamlet, and was inevitably led by his genius to refine this subtlety, and to diversify its manifestations. He was caught in the

web of his own imaginings, and became so absorbed in his work that he forgot to keep it within the limits suitable for theatrical representation; the tragedy has, perhaps, never been presented in its entirety on the English stage in consequence of its inordinate length. The swift and subtle wit that had its play at the Mermaid Tavern was now incarnated in one of the creatures of Shakespeare's imagination.

"Hamlet" stands somewhere between the Greek tragedy and the psychological novel of to-day. That it is more (unconsciously) Greek than any other Shakespearian play will not, we imagine, be denied; though it would be difficult to give any detailed reasons for the statement. To the "psychological" novel this play has more important resemblances than that of mere length. A new Hamlet would find his environment suitable—or rather unsuitable, for it is in adverse surroundings that such a character becomes manifest—in the works of more than one Russian writer of the dying century. Of all Shakespeare's characters Hamlet is the one which presents the most difficulties. We have seen the philosophical Hamlet, the comic Hamlet, the mad, the mock-mad Hamlet, the Hamlet fat or thin, argued even to the crossing of swords and a very palpable hit. Even the episode of Hamlet's love for Ophelia admits of many interpretations. Here is Prof. Dowden's:—

Hamlet's love for Ophelia is the wonder and delight in a celestial vision; she is hardly a creature of earth, and he has poured into her ear all the holy vows of heaven. The ruin of an ideal leaves him cruelly unjust to the creature of flesh and blood. Never throughout the play is there one simple and sincere word uttered by lover to lover. The only true meeting of Hamlet and Ophelia is the speechless interview in which he reads her soul, despairs, and takes a silent and final farewell.

But, after all, the editor's idea in presenting this new edition of "The Tragedy of Hamlet" is not so much to throw fresh light on Shakespeare's intention in writing, or rather rewriting, the play as to furnish a trustworthy text, giving the important variants of the quartos and folios, and explaining the *crucis* in footnotes. Of the many suggestions on difficult passages we do not intend to speak here. Prof. Dowden must always command respect, if he does not always carry conviction. He appears sometimes too fanciful in his conjectures; but he says, with reason, that, "if ingenuities are anywhere reasonable, it is in conjecturing the meaning of Hamlet's riddling speeches." The ingenious commentator deserves gratitude, if nothing more; there are always plenty to restrain his excessive daring from enduring too long in history. Prof. Dowden's brief account of the "legendary Hamlet" is ample and useful, and his conclusions as to the "Hamlet" of 1603 appear to us sound. It may be noted here that he is not in favour of the attribution to Kyd of that version of the tragedy, mainly on account of the style, which seems to him later than Kyd's. The speech beginning

The rugged Pyrrhus—he whose sable arms

stands out from the rest of the play even in this form "by virtue of its reproduction of a style which was out of date at the opening of the seventeenth century."

We gather that Messrs. Methuen intend to publish the rest of Shakespeare's plays in an edition uniform with this volume. The series could not have commenced more excellently, and we are glad to see that a "library" rather than another "pocket" edition has been projected. The feat of publishing a whole play, with introduction and notes, in the small format is a difficult one, and we do not see that much is gained by its performance. *Méya βιβλίον μέγα κακόν* is a pretty saying, but the approach to perfection does not necessarily lead to Pickering size. Moreover, the present volume is not a large one.

HYMNS ANCIENT AND ESSAYS MODERN.

Homeric Hymns: a new Prose Translation; and Essays, Literary and Mythological. By Andrew Lang. (Geo. Allen.)

Whether—like "Butcher and Lang," *par nobile fratrum*, or "Lambert and Butler," *Arcades ambo*—Mr. Lang's "Hymns" are destined to become a household necessity may fairly be doubted. The "Homeric Hymns" are little read, and less understood. The text of them, despite the labours of many critics—among whom Alfred Goodwin is not mentioned by Mr. Lang—is full of corruption past healing. No work on the subject, however fairly fashioned, and however richly appurled, can appeal to a "reading public." The motley collection contains an interest, no doubt—it includes, indeed, some gems, such, for instance, as are the "hymns" to Dionysus and to Aphrodite—but it cannot as a whole be said to concern even the ordinary classical student. To

comparative mythologists, on the contrary—"a chosen few"—the poems afford a fine field for the exercise of their frolicsome fancy; and we are not in the least surprised to read that Mr. Lang has long had a desire to translate them. To their interpretation he has applied the anthropological method, and in the suggestive essays that he has prefixed to the translation Demeter and Zeus are found hobnobbing with Papang and Mama.

Of the translation itself we need say no more than that it is in the well known manner, the Wardour Street style, that won so many readers for the versions of the "Odyssey" and "Iliad" in which Mr. Lang bore a part. There are some queer words here—flowers from an unfamiliar land, such as Mr. Lang delights in; "Aumbries" and "pled" we do not greatly care for; but "Etin" and "shieling" cry aloud for Mr. Samuel Butler, of whose style Mr. Lang has an amusing parody in his introduction.

In the preliminary essays only the longer hymns are dealt with in detail. Mr. Lang occupies himself with some highly interesting speculations on the purpose of the poems, and the origin or beginnings of the gods therein celebrated. As for the gods and their cult, "I have tried," says the author, "to elucidate them as results of evolution from the remote prehistoric past of Greece, which, as it seems, must in many points have been identical with the historic present of the lowest contemporary races." So Mr. Lang falls to comparing the legends of peoples much more backward than the Greeks. Thus the gods have their counterparts in savage myth; and the oldest of them sprang—so Mr. Lang seems to think—from the soil of universal primitive feeling; grew "of themselves"; and even the accretions that gathered round the primitive legends have their explanation in the universal tendency of man to unite gay with grave, to indulge in buffoonery and burlesque, to "sport with his noblest intuitions." Whatever be the date and whatever the origin of the hymns, it is clear that, for the most part, they belong to a time when discordant elements, some savage, some barbaric in origin, had become inextricably mingled together in the mythology of the greater gods. It is this blending of the grotesque, the Aristophanic, with the serious and mystical that is so bewildering in Greek religion, unless some such theory as that which Mr. Lang here puts forward be accepted. Has the reader ever reflected how it came that no man attempted to defend the mutilation of the "Hermæ" on the ground that Hermes was a thief and a rogue? Yet thief and rogue he is in the great hymn. Or why is it that the devotees returning from the Great Mysteries at harvest time, fresh from "the shuddering, the horror, and the marvellous light," indulged in noisy badinage as they crossed the bridge?

It only remains to add that this volume is attractively illustrated from works of art selected by Mr. Cecil Smith, of the British Museum. At least to those whom it immediately concerns the book will prove a source of real pleasure and instruction.

HOMELY CHEMISTRY.

Progressive Lessons in Science. By A. Abbott, M.A., and A. Key, M.A. (Blackie.)

The title of this book is vague, and would not lead one to suspect that it was specially intended for students of domestic and agricultural economy; nor, granted the knowledge of this, that the only science dealt with was chemistry. Such, however, is the case. The volume is in two parts. The first, by Mr. Abbott, is a guide to the practical study of elementary chemistry, well planned, but not differing in any essential feature from a number of similar works recently published. The first three chapters, for example, deal respectively with manipulation and apparatus, solution, &c., and the air and oxidation; the last three with the atomic theory, equivalents, and Avogadro's law. In between comes, as usual, the study of common compounds and elements, and generalizations on the phenomena they exhibit.

Mr. Key's part is more original, and constitutes nearly two-thirds of the book. His purpose is to teach the distribution of important elements in animal, vegetable, and mineral substances, and we may illustrate his method by his first case—iron. Instructions are given for a series of simple experiments which show that, if nitric acid alone be added to certain solutions, no colour is produced, but that when an iron nail has been partly dissolved in the acid its addition to these solutions does produce certain colours, which are therefore tests for the presence of iron. By means of these tests iron is proved to be present in blood, grass, tobacco, good soil, and wine, successively. Thus, by reiterated experiment, the fact is impressed on the student that iron is essential to animal and vegetable life. The same thing is

done with phosphorus (in this case the element is traced from the soil back to its source in the rock), nitrogen, sodium, potassium, chlorine, calcium, carbon, sulphur, and hydrogen. Each of these is proved to be present in a number of substances like those mentioned above. The repetition of the same test time after time may fail in its object by becoming tedious, and we would suggest that the teacher should add a few experiments to show that some things do not contain the particular element under study. After all this has been done, we get a repetition of much of it under the head of "Typical Food-stuffs"—milk, eggs, &c., being shown to contain all the essential elements. Now, although it is well to have this reiteration in the practical laboratory work, we do not see that it is of advantage in the printed book. By avoiding much of this repetition, space might have been found for experiments that would illustrate the differences between the important classes of organic compounds—carbohydrates, fats, and proteids—instead of stopping short at the elements. Still, while we regret that the author has not given us more, we fully appreciate the value of what he has given us, and recommend his course of practical work to those whose need of a knowledge of chemistry lies in its application to the study of animal and vegetable products.

GENERAL NOTICES.

CLASSICS.

New Testament Greek, by G. Rodwell (Methuen), is an elementary book intended for those who are anxious to improve their knowledge of the Word of God, but have not studied Greek before. The book, therefore, does not claim to be exhaustive, and it does not concern the exact scholar. We may, however, say that Mr. Rodwell, who has taught the subject and gives the results of experience, has in our judgment supplied a manual that will enable any fairly intelligent person to read the Greek Testament in the original in about a year. The scheme adopted is such that the learner is able not only to teach himself, but also—and this is a great thing—to realize his own progress. The exercises given are interesting to do, and nothing is set down that is not absolutely essential. Mr. Rodwell has used Winer and Blass, but does not seem to be acquainted with Simcox. The little book can be heartily recommended to those whom it concerns. Detailed criticism in such a case seems to be uncalled for. It is enough to say that the method employed appears to us to be sound.

Horace, Odes I., by C. G. Botting (Bell), is the latest volume of the new "Illustrated Classics." The best compliment that we can pay Mr. Botting is to say that, even after Mr. Page, his little edition is not superfluous. The examination candidate will find his task much lightened by the list of proper names and grammatical appendices; but for the more serious student there could scarcely be a more taking edition, whether as regards the matter or the appearance of the volume. The illustrations, we are glad to notice, are all from genuine sources; the paper and type are excellent; and the notes give everything that can be required. Mr. Botting's verse rendering of Ode xi. has sufficient merit to make it worth quoting, as a sample of the editor's quality:

"Ask not, we may not know, Leuconoe,
the end decreed by God for me, for thee:
and question not Chaldaea's ancient seers;
far better to endure with coming years
what shall be, whether many winters more
or this the last that Heaven has in store,
beneath whose tempests on the rocks in vain
beats the wild force of the Etruscan main.
Our life is short: be wise: strain clear the wine,
no more for these far distant hopes repine.
While yet we speak, lo! envious time slips past:
snatch the day's pleasure: this may be the last."

In disputed passages the editor is content to give a reasonable view without entering into the regions of controversy. It should be added, however, that he has a useful appendix on the interpretation of the notorious twenty-eighth ode.

Vergil, Aeneid VI., by A. Sidgwick (Cambridge University Press), is a continuation of the reissue of the editor's well known Vergil as part of the "Series for Schools and Training Colleges." The present writer has presumably had under his notice only that part of this series that is intended for schools; for he is still unable to discover any of the distinctive features that may be supposed to fit these books specially to the needs of training colleges. If training colleges exist, as doubtless they do exist, for the improvement in the science of teaching, we can only say that the Cambridge Press is apparently convinced that, as far as the teaching of Latin is concerned, no change

was called for in our methods. Would Germany, would America, endorse that opinion? However, call Mr. Sidgwick's book what you will, it is a good one.

Passages for Greek Translation for Lower Forms, by G. H. Peacock and E. W. Bell (Macmillan), is a series of snippets that begins with sentences, and ends with brief selections. Some of the words are translated, and the idea of the editors is that the book shall serve partly as a *delectus*, partly as an "unseen" book. For both purposes the passages are, in general, too brief, and the selection is not particularly happy. On the whole, we cannot recommend the volume in preference to others with which we are acquainted.

Latin Course, First Year, by W. Wallace Dunlop (W. & R. Chambers), is described as a "new and enlarged edition." The book was not worth reissuing. It requires a thorough revision at the hands of a teacher who understands modern methods. This is the old style of thing that is gradually becoming obsolete even in England, and in German schools has vanished, never to return.

Latin Tests, Higher-Grade and Honours, by J. McEwen (Nelson), consists of reprints of some of the papers set for the Scottish Leaving Certificate, and in the examinations of the Scottish Universities Joint Board, with original examination papers constructed on the same lines. Each paper contains a piece of Latin verse, one or more "unseens," and grammatical and other questions. Both the passages and the questions appear to be well selected. It seems a pity that all these items should be crowded into a single three-hour paper; the prose, especially, is likely to suffer. But that is the fault of the examining authorities, not of the editor.

Companion Exercises to Forty-two Latin Prose Rules, by A. P. S. Newman (Whittaker), is hardly up to the standard of scholarship and pure Latinity which characterize the best elementary Latin exercise books, nor does it show signs of that unity of system which, by constant repetition, makes it almost impossible for boys to forget some of the most important idioms. In some cases the sentences are positively misleading. Take, for instance, "Scipio enjoyed a great victory, and gained possession of the city." This makes nonsense. To enjoy (*frui*) the victory was just the way not to gain possession of the city. A Latin writer has "Hannibal, cum victoria posset uti, *frui* maluit." Again, "I fear death for Cicero" is a very questionable example of the dative of the remoter object. The vocabulary requires revision. In the exercises we have, for instance, "a Greekified pedant" (a doubtful piece of English, for which Smith and Hall are responsible) and "If he is in the service, he is colonel of cavalry." Not one of the four words, "Greekified," "pedant," "service," "colonel," is to be found in the vocabulary.

Cæsar and Pompey in Greece, edited by E. H. Atherton (Ginn), contains selections from the Third Book of Cæsar's "Civil War," with notes and vocabulary. It has also maps and plans and a good many illustrations of Roman arms, &c. The notes are sensible and useful; perhaps for the schoolboys for whom it is intended a few more grammatical explanations would be desirable. The printing and general get-up of the book are particularly attractive.

MATHEMATICS.

Elementary Illustrations of the Differential and Integral Calculus. By Augustus de Morgan. (Kegan Paul.)

No work on the calculus ever succeeded in placing the magic of this powerful instrument in the hands of more non-University students than did De Morgan's "Treatise," first published in the "Library of Useful Knowledge." This work has become rare, while the demand for De Morgan's methods has increased with the expansion of science. The "Illustrations" formed a distinct and complete section, and they are here reproduced substantially as in the original form, but with such paraphrasing, sub-headings, and index as careful editing can supply.

Newton's Laws of Motion. By P. G. Tait, M.A., Sec. R.S.E. (Black.)

Prof. Tait is one of the trio who completely transformed the subject of theoretical dynamics half an age ago, the others being Sir William Thomson (Lord Kelvin) and Prof. Clerk Maxwell, and yet Prof. Tait's lectures on this subject are as fresh and as suggestive for the students of his classes as they ever were. The little book before us really treats of the whole subject of kinematics and dynamics. It is about the size of Clerk Maxwell's "Matter and Motion." Although it is as concentrated as Liebig's extract of meat, it is smooth and easy reading. It will save students the necessity of taking notes, and this, perhaps, is the author's main purpose, for he says: "There is, perhaps, no more striking example of the development of misdirected zeal into pernicious habit than that which is lavishly furnished by the practice of taking notes. Of course I do not refer to mere jottings. I refer to the attempt made, often by the most eager and diligent students, to record *part*—usually a small part—of a chain of reasoning, while necessarily depriving themselves of what may be their only chance of listening to a connected exposition of the whole. . . . I have, therefore, prepared a short and pointed summary of the more important features of what I have called the basis of the subject."

Billiards Mathematically Treated. By G. W. Hemming, Q.C.
(Macmillan.)

The problems of the motions and impacts of billiard-balls, involving as they do so many conditions of direction, friction, elasticity, tension, and structure, are, on the whole, so complicated that few have attempted to solve them but by limiting the investigation to a few definite points. Mr. Hemming here makes a useful contribution to the theory of the billiard-table. The result of his investigation is thus very fairly and aptly described:—"No one of the conclusions to which science has led us, and perhaps no one to which science could lead us, has not been arrived at by rule-of-thumb by players who have not professed any scientific knowledge at all. It is interesting, however, to note that the conclusions from our scientific inquiry are absolutely in harmony with the established rules of practice. For comparatively untrained players they have, moreover, some practical value. A rule-of-thumb is as good as a scientific law to a man who has played often and well enough to regard the rule-of-thumb as a necessary law of Nature. Amateurs of less experience than this may find it much easier to obey a law the reason of which they have grasped than to follow a rule merely because a highly developed billiard-marker has told them to do so." There are two points to which attention may be drawn: first, the experiments necessary to determine the constants of the formulæ and the fundamental laws; and, second, the mathematical conclusions then deducible from the formulæ. The experiments are often ingenious and useful apart from the theory. For instance, the experimental proof that there is friction between the balls in impact is easily made, and is very instructive. A ball *B* is placed on the balk-line, and the other ball, *A*, is played so as to drive *B* along the balk-line. It does not return along the balk-line because the friction between *A* and *B* puts "side" on to *B*. The effects of "drag" upon a ball are also well traced out experimentally, and the series of trials of the effect of "side" on a ball running up a cushion are equally well devised. Of the conclusions derived from formulæ a good illustration is afforded by the examination as to when it is better to play "through" than "fine" in order to follow at a small angle. The amateur who is mathematical will receive the teaching on such points with far more confidence than he would receive the mere *ipse dixit* of the best player going.

Practical Plane and Solid Geometry for Advanced Students. By Joseph Harrison and G. A. Baxandall, both of the Royal College of Science. (Macmillan.)

To the advanced science student practical geometry and descriptive geometry are more than exercises or disciplines—they are powerful instruments of calculation, and when treated as they are in this textbook they become instruments of investigation. The artificial restrictions of Euclid are all laid aside, and the use of all mechanical devices which are effective and economical is both permitted and taught. The treatment of conics and special curves is particularly interesting, and, in the part on solids, the same may be said of shadows.

Elementary Practical Mathematics. By Frank Castle, M.I.M.E., Royal College of Science, South Kensington. (Macmillan.)

The development of the polytechnics for the continuation and extension of elementary education has produced the need of a substitute for a mathematical training on the orthodox lines, and this is a work intended to satisfy that need. The conclusions of arithmetic, algebra, mensuration, trigonometry, dynamics, and much lying in the interstices of this network are here brought out by practical measurements, plotting, the use of instruments, and graphic methods. The Department of Science and Art has recognized the want, and has issued a syllabus of practical mathematics which is catered for by this textbook. The extent of the ground covered can only be gauged by those who have attempted to follow the course.

Arithmetic, Theoretical and Practical. By John Sturgeon Mackay, M.A., LL.D., Head Mathematical Master in the Edinburgh Academy. (W. & R. Chambers.)

This is a very complete text-book in arithmetic extending to 450 pages. It presents some novelties of method specially intended to reveal clearly to the learner the principles and reasons of his operations. This is particularly the case with subtraction, multiplication, division, proportion, and involution.

"Prof. Meiklejohn's Series."—*A Short Arithmetic* By G. A. Christian, B.A., and A. H. Baker, B.A. With Answers and without Answers. (Holden.)

A book of well graduated examples, and just as much theory as will explain the methods of their solution. There are few novelties of method introduced, but the work is very clearly and accurately printed.

Arithmetic. By A. Veitch Lohian, M.A., B.Sc., Mathematical Lecturer, Training College, Glasgow. (Blackwood.)

This is a good arithmetic of the old sort, and, except in avoiding the theory of proportion, there is nothing particularly advanced or modern in the treatment. The examples and examination papers are carefully selected.

Handbook of Optics for Students of Ophthalmology. By William Norwood Suter, B.A., M.D. (The Macmillan Co.)

The portion of the science of optics here presented covers all the

phenomena of refraction and reflection which have practical utility in connexion with the human eye, its defects, and their remedies. The chief merit of the work lies in the selection of just so much of the theory of optics as is required in ophthalmology.

SCIENCE.

Chemistry for Organized Schools of Science. By S. Parrish, B.Sc., A.R.C.S. With Introduction by D. Forsyth, M.A., D.Sc. (Macmillan.)

The course of practical work set out in this book is well designed, the instructions are clear and sufficient, and the explanations of chemical phenomena and terms as good as could be wished. It represents the work of a two years' course. The student is trained in the use of the balance from the beginning, and in the first year investigates for himself, in order, the effects of heating on metals; solutions; the composition of water; acids, bases, and salts; and the simpler compounds of carbon. The atomic theory is (wisely, we think) left to the second year, along with the study of the properties of gases, the commoner elements and their compounds, and simple volumetric analysis.

A Course of Experimental Chemistry (Elementary). By T. A. W. Hill, B.Sc. (C. Arthur Pearson.)

This book sets forth a course of practical instruction in accordance with the new methods of teaching chemistry that have made their way so strikingly during the last five years. The balance is introduced at the very beginning, and after the elements of manipulation of apparatus have been taught him the student is set to work on solution and distillation. The calcining of metals follows, and he is led on to examine the reactions of all the common non-metallic elements. The treatment is thoroughly practical throughout.

A Handbook of Physics and Chemistry. By H. E. Corbin, B.Sc., and A. M. Stewart, B.Sc. (Churchill.)

This work is designed for candidates for the First Examination of the Conjoint Board of the Colleges of Physicians and Surgeons, as well as the examinations of the Pharmaceutical Society and Veterinary College. The student is told that he must supplement his reading by practical work in the laboratory, and the plan of the work does indeed treat practical work as supplementary to reading, not as the basis on which general knowledge should be built up. The fault lies with the early education of medical students, not with the authors, who have done their best, and produced an accurate but dull volume.

Botany for Beginners. By E. Evans. (Macmillan.)

When we began to read the opening paragraph of this book, we were afraid we should quarrel with it, for one of the statements was that "all living things are built up of the same kind of material, viz., protoplasm," a statement that would naturally lead a beginner to suppose that a man's hair and nails or a tree's wood and bark were protoplasm, which they are not. But the opening paragraph is not typical of the book, which well maintains the standard of its predecessors in the same series. Like them, it combines instructions and suggestions for practical work with a systematic account of the generalizations of the subject. Flowering plants only are dealt with, and morphology and physiology both receive due treatment. Microscopical structure occupies a subordinate place. Chapters at the end are devoted to the natural orders and the methods of describing plants. The book is abundantly illustrated.

A Practical Introduction to the Study of Botany: Flowering Plants. By J. Bretland Farmer, M.A. (Longmans.)

Only a few years ago laboratory work in botany usually meant the cutting and examination of microscopic sections, and little else; and we believe there are many students who have taken courses and passed examinations in "Practical Botany" whose knowledge of the arrangement of leaves on stems or of the processes of assimilation and transpiration are confined to text-book statements and diagrams. This state of things is, fortunately, changing; and, in the present work, which is planned evidently for laboratory use, we find the naked-eye examination of structure and experimental physiology given their fair share of space. We can cordially recommend this book to teachers of botany, who, even if they do not follow its course systematically, will find plenty of suggestions for observational and experimental work. It is divided into four parts—(1) General Morphology, (2) Internal Anatomy and Minute Structure, (3) Physiology, and (4) Natural Orders. The illustrations are clear, and include some good photographs of micro-sections.

Experimental Science: Physiography. Section I. By R. A. Gregory and A. T. Simmons, B.Sc. (Macmillan.)

These well known authors have given us another of their excellent elementary books, in which ingenuity in the designing of experiments with the simplest apparatus is one of the best features. The present volume covers the ground of the first section of elementary physiography, and explains the main principles of physics and chemistry with a clearness and a wealth of experimental illustration that would

be difficult to improve upon. As a trifling criticism, we must object to their inculcating such complete belief in the usefulness of the lactometer, since the diminution of density in milk caused by addition of water can be easily made up for by the previous abstraction of cream.

The Elements of Physics. By H. Crew, Ph.D. (Macmillan.)

This introduction to physics is intended for use in American high schools. It deals with the elements of mechanics, wave motion, sound, heat, magnetism, electricity, and light. The treatment is largely mathematical, few instructions for actual experiments being given. Presumably it would, in use, be supplemented by a laboratory manual. The good American plan is followed of interspersing among the statements made questions addressed to the reader to stimulate his thought. The book is extremely well printed, and the diagrams, though simple, are very clear.

Manual of Experimental Physics. By F. R. Nichols, C. H. Smith, and C. M. Turton. (Boston: Ginn & Co.)

The authors are instructors of physics in the Chicago high schools. The course of practical work here set out covers the elements of all branches of physics. It does not differ in any essential degree from the courses now adopted in most English "schools of science"; but the characteristic American system of "question rather than statement" is followed far more thoroughly than in any similar English work.

MODERN LANGUAGES.

A Primer of French Verse. Edited by Frederic Spencer, M.A. (Cambridge University Press.)

The subject of French prosody is often entirely neglected in our schools, and indeed it differs so much from English "metric" that it requires a considerable effort to appreciate its niceties and its subtleties. The subject is not often treated in school-books; and the treatment is, as a rule, dry, if not actually repulsive from the number of snippets of verse torn out of their context. Prof. Spencer has evidently realized this defect, for in the book before us the various rules are exemplified by entire poems, or, at any rate, by extracts sufficiently long to be of interest. The poems are all the more welcome, because most of them are not to be found in the *morceaux choisis* type of book. The rules are well expressed, and it may confidently be said that a pupil who has read this book with care will acquire an insight into French prosody such as no other "primer" would give him, and will feel that this is a book to which he can always turn again with pleasure.

F. Coppée, Contes choisis. Edited by Margaret F. Skeat. (Macmillan.)

Miss Skeat is to be congratulated on what we believe is her second venture in educational literature. She has chosen her stories well, and given infinite pains to rendering the notes complete, and the vocabulary helpful. In a short introduction the essential facts about Coppée's life and works are clearly given. The texts themselves, it need hardly be remarked, are only suitable for advanced classes, owing to the colloquial flavour of the language; but for these they will be found very valuable, especially as the pupils will incidentally acquire some knowledge of French life and ways, and of the topography of Paris (there is a serviceable map of the part of Paris referred to in several of the tales). There is little in the notes that calls for comment. With regard to the statement in the note on page 8, line 18, it would be interesting to know whether Coppée is a careful proof-reader; the printer might be responsible for the disregard of the rule. "Semi-aspération" is not a happy expression—what does it really imply? It might have been mentioned in the note on page 17, line 18, that the English for *puits d'air* (or *d'aérage*) is "air-shaft," and that both are originally mining terms. The note on *poil à gratter* should be given earlier; it occurs first on page 38, line 12. The vocabulary is an excellent piece of work. It is not quite clear on what principle words have been excluded from it: for instance, it does not contain *blanc* (page 56, line 24), *les pectoraux* (page 42, line 11), *trique* (page 44, line 17). The last appendix treats of the formation of verbs. A "word and phrase book" and a key have also been published.

Jules Verne, Le Tour du Monde. Edited by L. A. Barbé. (Macmillan.)

This is a volume in the same series, and also deserves praise. The tale is well known, and will be eagerly read, for there is enough action to satisfy the most high-spirited boy. He will be grateful that the editor has written brief notes and supplied a vocabulary, from which he can get all the help he is likely to require.

Rémi en Angleterre, by Hector Malot, edited by E. L. Naftel (Hachette), is an episode from "*Sans Famille*," other parts of which have become popular as school-books. It has notes and a vocabulary. It can scarcely be cited as an example of judicious editing. The vocabulary is quite unnecessary, as boys and girls capable of reading such a book are certain to possess at least a small French dictionary. The notes show but little sense of proportion: nearly a page of the twenty-five is taken up with an abridgment of guide-book notices of

Lyon and Rouen. In those which deal with words and construction there is not much to stimulate thought.

German Daily Life, by R. Kron, Ph.D. (Dent), is a distinctly useful book; though the somewhat extravagant claims advanced on its behalf in the English introduction scarcely prepossess one in its favour. It is constructed on similar lines to "*Le Petit Parisien*" of the same author. The object is at once to supply a tolerably complete vocabulary for German conversation, and to give some insight into German institutions, manners, and customs. Instead of being thrown into the form of conversations, the plan adopted, for example, in the series of "*Echos der neueren Sprachen*," the book consists of chapters on the ordinary topics of interest, as meals, dress, shopping, education, amusements, &c., which are, it is only just to say, as readable as is consistent with bringing in a tolerably exhaustive vocabulary. It is well up to date: taximeters, automobiles, the Röntgen rays, and even the "Oceanic" find a place in its pages. The chapter on education gives a clear account of the German school system, but only from the bureaucratic point of view. English schoolboys would welcome some notice of the inner life of schools, especially as several pages are given to the customs of German students. A very useful chapter is that on simple arithmetical operations. Among amusements the bicycle is fully described, and there are adequate directions for playing *skat*; but chess is parodied by the remarkable statement that checkmate is secured by taking all your adversary's pieces. The book is not, of course, intended for beginners, but is meant to be used in the higher classes, partly as a reading-book (not, we hope, to the exclusion of literature), and partly to furnish material for conversation lessons. It will also be useful to the many young people who spend a few months in Germany after leaving school. There is a supplementary chapter containing a vocabulary of familiar expressions bordering on slang. Such a list should be used with great care, and rather to interpret what one hears than to enrich one's own vocabulary.

MISCELLANEOUS.

Classic Ornament: Photographic Reproductions of South Kensington Casts. Series I.-IV. (Blackie & Son.)

Here is a capital instance of the manner in which the Science and Art Department continues to direct the artistic culture of the great majority of British art students by means of its printed codes of requirements—aided, of course, by the treasures of the national museums. One of the requirements of the Department is "freehand drawing and ornament in outline from photographs of casts." The four books of photographic plates to which we draw attention are designed to aid the teacher and student on the lines indicated above. They make an admirable collection of copies on sheets of good paper 10½ by 7¼ in., and the price is very moderate. We need not remind our readers of the exceptional value of the South Kensington casts, which are moulded on some of the finest examples of Italian and other carvings in wood and stone.

The United States and their Industries. By the Rev. W. P. Greswell. (Philip & Son.)

This is the second of a series of little volumes initiated with "*The British Colonies and their Industries*." Mr. Greswell is a good writer, and he has done much to encourage the recent "patriotic" treatment of British industry and institutions. The present volume is a concise and skilful account of the economic and commercial development of the United States.

The Structure of the Brain: How to Understand and Cultivate Intellectual Power. By Albert Wilson, M.D. (Elliot Stock.)

Dr. Wilson here compresses what he said in a less popular form in his volume on "*The Brain Machine*." The result is a handbook on mental characteristics and diseases which may be serviceable to judicious parents or schoolmasters. Physiology is an easy wand to charm with, and some physiological facts (as to temperament and heredity, for instance) may be so stated as to become needlessly alarming. Dr. Wilson deals, in the main, with accepted facts.

English History. By E. S. Symes. (Edward Arnold.)

Miss Symes has given us a good little story of England in less than three hundred pages—a simple, straightforward narrative for young readers, varied with numerous extracts from old writers sufficiently modernized. The text is pleasantly written, and there is a selection from Lodge's portraits, and a number of clear little maps.

Africa as seen by its Explorers. Edited by E. J. Webb, B.A. (Edward Arnold.)

We are gradually ceasing to talk about the exploration of Africa. We have fought over it, and pieced it out, and mapped it until it is becoming quite familiar. Mr. Webb has had the happy idea of making a reading-book out of the tales of the explorers, old and new; and, having received permission to borrow from many copyright works, he has been able to put together a most interesting volume.

The Teaching of Geography in Switzerland and North Italy. By Joan Berenice Reynolds, B.A. (Cambridge University Press.)

Miss Reynolds reprints the report presented by her, as Gilchrist Travelling Student, to the Court of the University of Wales. Her little book deals chiefly with the systematic teaching of geography in Switzerland, and it gives evidence of much studious and accurate observation.

(1) *A Standard Dictionary of the English Language: Students' Edition.* Edited by J. C. Fernald and F. A. March, LL.D. (2) *The Standard Intermediate School Dictionary.* Edited by J. C. Fernald. (Funk & Wagnalls.)

These are two useful abridgements of the big encyclopædic dictionary which goes by the name of Funk and Wagnall's. The smaller of them contains a vast mass of information, which must frequently be useful for reference in a school library. The "Students' Edition" includes 60,000 words, of which it gives the pronunciation, significance, etymology, synonyms, and so forth, with 1,225 pictorial illustrations.

Biblical Introduction.—Old Testament. By Prof. W. H. Bennett, M.A. *New Testament.* By Prof. Walter F. Adeney, M.A. (Methuen.)

This helpful volume is intended for students of the Bible who cannot make much out of the original languages or the technicalities of criticism. The critical position is that associated with Cheyne, Driver, and Ryle. The authors, who are both professors at New College, London, whilst giving us, without hesitation, the result of recent criticism, trust that their book will confirm its readers "in the evangelical recognition of the supreme authority of the Bible as interpreted and applied by the Holy Spirit for the spiritual life."

"The Cambridge Bible for Schools and Colleges." Edited by A. F. Kirkpatrick, D.D.—*The Proverbs.* By the Ven. T. T. Perowne, B.D. *The Books of Chronicles.* By W. E. Barnes, D.D. (Cambridge University Press.)

These are two capital volumes of a very good series. Archdeacon Perowne is particularly interesting on the literary character, authorship, and significance of the "Proverbs."

"The Cambridge Greek Testament for Schools and Colleges." Edited by Canon J. A. Robinson.—*The Pastoral Epistles.* By J. H. Bernard, D.D. (Cambridge University Press.)

Dr. Bernard's introductions and textual notes to the two Epistles to Timothy and the Epistle to Titus leave nothing to be desired. They are learned, literary in tone, and very helpful to the young student.

English Poetry for Schools. Book I., Primary. Selected by G. Cookson, B.A. (Macmillan.)

This little book is intended for use in the Khedivieh School at Cairo, and it has a preface from the Principal of that school. It will serve its purpose, which is to introduce Egyptian students of English to some of our simpler poetry. The selection is well varied—a fact which is mainly due, as Mr. Cookson admits, to the large draft which he has made on the labours of Mr. E. V. Lucas.

Of texts with notes we have to acknowledge three good volumes. *Selections from the Poems of Alfred Lord Tennyson, from 1832 to 1855,* is carefully edited by the Rev. E. C. Everard Owen, M.A. (Edward Arnold). Mr. Owen shows discrimination both in his choice and in his notes. The advent of Tennyson in the schools is matter for un-mixed satisfaction.—*Pope's Rape of the Lock* (Blackie) is very well introduced and annotated by Mr. Frederick Ryland, M.A.—Mr. J. H. Flather, M.A., performs the same task very competently for *John Milton: An Essay by Lord Macaulay* (Cambridge University Press).

Amongst technical handbooks we have *Building Construction for Beginners*, by J. W. Riley (Macmillan), with 623 illustrations—a plain and practical guide of remarkable clearness. *Smiths' Work*, edited by Paul N. Hasluck (Cassell & Co.), is also illustrated by many clear diagrams, and is calculated to be very serviceable. Uniform with the last are little volumes by the same editor and publisher on *Mounting and Framing Pictures*, which will give many hints to practical young framers; and *Building Model Boats*.

Mr. Murché's *Teachers' Manual of Object-Lessons in Elementary Science and Geography Combined* (Macmillan) reaches the third standard. The value of object-lessons as applied to elementary geographical teaching is very well illustrated in this volume. Part II. of *The Newton Object-Lesson Handbook* (Blackie & Son) deals with thirty subjects of natural history. It is a companion to the second standard of the "Newton Science Reader," and is conveniently interleaved with ruled writing paper. Mr. David Frew supplies the first part of a new series of *Object-Lessons in Geography* (Blackie), which is well graduated, with simple plans, models, experiments, and summaries.

Of new maps and charts, we have received from Messrs. Gill & Son three excellent "cartographic" roller maps of Scotland, Ireland, and India. They are remarkably clear, partly owing to the omission of the

names of smaller towns, &c., but mainly by the admirable management of type and colour. For general use, especially in the junior forms, these maps could not well be beaten.—From Messrs. Nelson and Sons we have the *Royal Wall Atlas*, an introductory series for Standards I. and II. There are nine sheets on one roller—general, domestic, and geographical diagrams and pictures, with "plans" and "terms," a physical relief map of England, and a scheme of the "form and size of the earth." From the same publishers we have a set of *Elementary French and German Object-Lesson Wall Sheets*, very serviceable as a supplement to the usual language lessons.—Messrs. Philip send us a series of *Map Building Sheets*, Set I., *The British Isles*, with four maps, in red outline on blackboard paper, with coloured chalks for practical handwork.—Messrs. W. & A. K. Johnston produce another large school wall map of South Africa (50 x 42 in.), very timely at this moment. It is just the thing for school and library, or for present use at home. We have seen no better map for the illustration of the Transvaal War.—From Messrs. Bacon we have two more of their *Familiar Folks*—the boot-black and the chimney-sweep—mounted, coloured, and glazed.

WE HAVE ALSO RECEIVED the following publications and new editions:—

Stories on the Apostles' Creed, the Lord's Prayer, and the Duty Towards My Neighbour, by the Rev. E. J. Sturdee (Sunday School Institute).

Old Tales from Greece, by Alice Zimmern (T. Fisher Unwin)—a second edition of Miss Zimmern's excellent little collection of stories.

English Grammar Alternative Course. Standards IV.-VII. (Macmillan).

Hints on Tone and Pronunciation for the Use of Children's Singing Classes and Church Choirs, by Arthur H. Peppin, B.A. (James Nisbet & Co.).

A Key to the Use of Stave Modulator for both Tonic-Sol-Fa and Staff Teachers, by John Taylor (Philip & Son).

Longmans' Complete Arithmetic, Mental and Practical, Course B, Book 3, with Answers (Longmans).

"The Marlborough Series of Foreign Commercial Correspondence": *French and English, Spanish and English*, edited and revised by C. A. Thimm (Marlborough)—revised editions of two practical volumes.

MATHEMATICS.

14 264. (R. TUCKER, M.A.)—P is a point on a parabola, focus S and vertex A. With P as centre and radius PS, a circle is described. The tangent to the parabola cuts this circle in L, M, and AL, AM cut the parabola in Q, R. Find the equations to AL, AM, and to the chord QR.

Solution by H. A. WEBB and G. W. PRESTON, B.A.

The parabola is $y^2 = 4ax$, and P is $(a/m^2, 2a/m)$.

$$LM \text{ is } y = mx + a/m \dots\dots\dots (1),$$

and the circle LMS is

$$(x - a/m^2)^2 + (y - 2a/m)^2 = (a + a/m^2)^2$$

$$\text{or } x^2 + y^2 - 2a(x/m^2 + 2y/m) + a^2(2/m^2 - 1) = 0 \dots\dots\dots (2).$$

The lines joining the origin to the common points of (1) and (2) are found by making (2) homogenous by means of (1). The result is

$$x^2 + y^2 - 2(x/m^2 + 2y/m)(my - m^2x) + (2/m^2 - 1)(y - mx)^2 m^2 = 0,$$

which reduces to

$$x^2(m^2 - 3) - 2xy(m - 1/m) + y^2 = 0 \dots\dots\dots (3).$$

This is the equation of AL, AM.

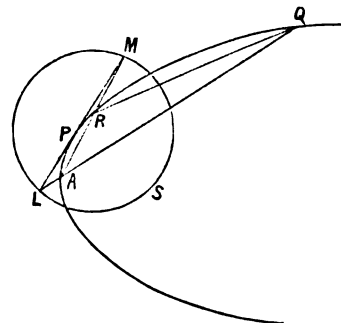
(3) may be written in the form

$$y^2 = 4ax(1/4a)\{2y(m - 1/m) - x(m^2 - 3)\},$$

which is the equation of the lines joining the origin to the common

$$\text{points of } y^2 = 4ax \text{ and } x(m^2 - 3) - 2y(m - 1/m) + 4a = 0 \dots\dots\dots (4).$$

(4) is therefore the equation of QR.



14332. (Professor M. W. CROFTON, F.R.S.)—(1) If $4n - 1$ is a prime, $12 \cdot 2^2 \cdot 3^2 \dots (2n - 1)^2 - 1$ is a multiple of $4n - 1$. (2) If $4n + 1$ is a prime, $12 \cdot 2^2 \cdot 3^2 \dots (2n)^2 + 1$ is a multiple of $4n + 1$. It hence follows that $4n + 1$ is the sum of two squares.

Solution by G. H. HARDY, B.A.; and Lt.-Col. ALLAN CUNNINGHAM, R.E.

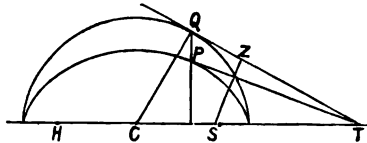
If $2p-1$ be prime, then, by WILSON'S theorem,
 $2p-2!+1 \equiv 0 \pmod{2p-1}$.
 Now $2p-2-s \equiv -(s+1)$, ($s = 0, 1, \dots, p-2$),
 therefore $p.p+1 \dots 2p-2 \equiv (-)^{p-1} p-1!$, $2p-2! \equiv (-)^{p-1} (p-1)!$.
 So, if $p = 2n$, $(2n-1)!^2 - 1 \equiv 0 \pmod{4n-1}$;
 if $p = 2n+1$, $(2n!)^2 + 1 \equiv 0 \pmod{4n+1}$.

Thus a prime of the form $4n+1$ is a divisor of a number which is the sum of two squares, and is therefore, by a known theorem, itself the sum of two squares.

14354. (H. W. CURJEL, M.A.)—If the ordinate of a point P on an ellipse cuts the auxiliary circle in Q, the distance of the focus S from the tangent at Q = SP.

Solution by G. BIRTWISTLE, B.A., B.Sc.; F. H. PRACHELL, B.A.; and others.

Let QT, PT be tangents to circle and ellipse at Q and P respectively. Let H be the other focus, and SZ the perpendicular from S on QT.



$$\frac{ST}{CT} = \frac{SZ}{CQ} = \frac{SZ}{AC}$$

Since PT bisects the exterior angle at P of the triangle SPH,

$$\frac{SP}{HP} = \frac{ST}{HT}; \quad \therefore \text{componendo, } \frac{SP}{AC} = \frac{ST}{CT}; \quad \therefore SZ = SP.$$

14341. (J. A. THIRD, M.A.)—K is a conic circumscribed to the triangle of reference and passing through the centroid; K' is another conic passing through the mid-points of the sides and touching K at the centroid; P is the centre of a conic which touches the sides at points which connect with the opposite vertices through a point on K; Q is the point of concurrence of lines drawn from the vertices to meet the opposite sides at points where these sides are touched by a conic whose centre lies on K'. Show that PQ touches K and K' at the centroid.

Solution by Rev. J. CULLEN.

We have $K \equiv \Sigma l\beta\gamma = 0$ where $\Sigma al = 0$, $K' \equiv \Sigma l'(S-aa)^{-1} = 0$ where $2S = \Sigma aa$ and $\Sigma l' = 0$; also the tangent to K at the centroid is $\Sigma a^2 la = 0$. Hence K' is also of the form $K - \Sigma a^2 la \Sigma pa = 0$, since they touch. Determining p, &c. by the condition that K' passes through the mid-points of the sides, and comparing with the previous form, we find $l' = al$, &c. Now let $a/a' = \dots$ be the point on K of concurrence of the connectors; then the equation of the in-conic is $\Sigma (a/a')^2 = 0$ with $\Sigma l\beta'\gamma' = 0$. Hence P is the point $a/a' (\gamma'\gamma' + b\beta') = \dots$, so that $a(S-aa) = k\beta'\gamma'$, &c.; hence, substituting in $\Sigma l\beta'\gamma' = 0$, we see that P lies on the tangent to K at the centroid. Similarly, from $K' \equiv \Sigma al(S-aa)^{-1} = 0$, we see that Q also lies on this tangent. Therefore &c.

14324. (W. S. COONEY.)—P, Q, R are the centres of the insquares of the triangle ABC, to the sides a, b, c respectively. (1) AQ and AR are isogonal lines to b and c, &c. (2) If triangle be right-angled, given P, Q, and centre of inscribed circle, construct triangle. (3) In (2), if P and Q alone be given, area of minimum right-angled triangle equals $36(PQ)^2$.

Solution by the PROPOSER.

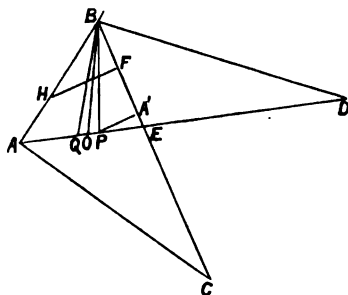
(1) If ABC be any triangle, and P and Q the centres of the insquares to BC and AB, then

$$\cot PBC = \frac{BA'}{PA'} = \frac{BF+FA'}{PA'} = \frac{S \cot B + \frac{1}{2}S}{\frac{1}{2}S}$$

$$(S = \text{side of square HF}) \\ = 1 + 2 \cot B = \cot QBA.$$

Therefore &c.

(2) If ABC be right-angled at A, then P and Q lie on AE, the bisector of $\angle A$, Q being the middle point of AE. If O be the incentre, then, from (1), BO bisects $\angle PBQ$ and $\angle ABC$; and if D be taken so that $QO : OP = QD : DP$, and A and E be taken so that $QA^2 = QE^2 = QO \cdot QD$, then A and E, Q and P are harmonic conjugates of O and D, and the circle on OD as diameter is locus of the points B and C subtending equal angles at AQ and EP; therefore, if this circle be drawn and AB be drawn making $\angle BAE = 45^\circ$, triangle can be



constructed. Q and P then are centres of insquares, since $AQ = \frac{1}{2}AE$ and $\angle ABQ = \angle EBP$.

(3) For any given value of AE the triangle is a minimum when isosceles, but, when ABC is isosceles, $AE = 6PQ$; for, from (1), $\cot PBE$ then $= 1 + 2 \cot 45^\circ = 3$; therefore $PE = \frac{3}{2}BE = \frac{3}{2}AE$; therefore area of minimum right-angled triangle equals $36(PQ)^2$.

14306. (Professor G. B. MATHEWS, F.R.S.)—Prove that, if p, q be odd primes such that p lies between q and 3q, and if p/q' be the penultimate convergent in the expansion of p/q as an ordinary continued fraction, then there is a multiple of pq between (p+q)pq' and (p+q)p'q. Show, also, that p+q is the least even number 2n, such that a multiple of pq lies between 2npq' and 2np'q.

Show, further, that, if 2n be an assigned even integer, and if odd primes p, q can be found such that $p > \frac{1}{2}n$, $q > \frac{1}{2}n$, and a multiple of pq lie between 2npq' and 2np'q when $pq' - p'q = \pm 1$, then $2n = p+q$.

Solution by H. W. CURJEL, M.A.

$$p'q - pq' = \pm 1 = e \text{ (say);}$$

therefore $\{(p+q)pq'\}/pq = pq'/q + q' = p' + q' - e/q$
 and $\{(p+q)p'q\}/pq = p'q/p + p' = p' + q' + e/p$.

Hence a multiple of pq, namely, $pq(p'+q')$, lies between $(p+q)pq'$ and $(p+q)p'q$. Let a multiple of pq lie between $2npq'$ and $2np'q$, where 2n is not a multiple of (p+q).

$$\text{Then } 2npq/pq = \{2n(p'+q')\}/(p+q) + 2ne/\{pq(p+q)\}$$

$$\text{and } 2npq'/pq = \{2n(p'+q')\}/(p+q) - 2ne/\{pq(p+q)\}.$$

$$\text{Hence } 2npq'/pq \text{ and } 2npq/pq = x + (ypq \pm 2n)/(p+q)pq,$$

where x is an integer and $y < p+q$; therefore $ypq < 2n$ or $2n + ypq > (p+q)pq$, i.e., $2n > pq > 2(p+q)$ (except in the case $q = 3$, $p = 5$), for $(p-2)(q-2) > 4$; therefore $p+q$ is the least even number satisfying the given conditions, and the next is $2(p+q)$.

Hence also the last part of the question follows immediately, since $2(p+q) > 2n$.

The case $q = 3$, $p = 5$ can easily be verified independently.

14241. (Rev. T. ROACH, M.A. (Suggested by Quest. 13173).)—Six circles are described, each passing through the same excentre of a triangle, and touching one side of the triangle at one of its extremities. (1) Show that the centres of the six circles lie on the radii I_aD , ... on three circles concentric with the excircle. (2) Show that the product of the radii of three alternate circles = $2R^2r_a$.

Solution by the PROPOSER and LIONEL E. REAY, B.A.

Let K be the centre; then, as in 14208, K lies on I_aD , if circle touches AB in B,

$$I_aK = \frac{I_aB}{2 \cos \frac{1}{2}B} = \frac{r_a}{2 \cos^2 \frac{1}{2}B}.$$

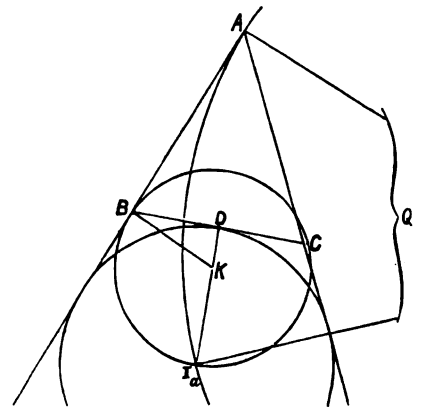
If the circle touches BC in B, it has centre on I_aF and

$$\text{radius} = \frac{r_a}{2 \cos^2 \frac{1}{2}B}.$$

If it touches AC or BC in C, centre lies on I_aD or I_aF

$$\text{and radius} = \frac{r_a}{2 \cos^2 \frac{1}{2}C}.$$

Again, for a circle touching AB in A, if Q be the centre, $AQI_a = A$.



$$\text{Therefore } AI_aQ = 90 - \frac{1}{2}A = AI_aE.$$

Therefore centre lies on I_aE and

$$I_aQ = \frac{AI_a}{2 \sin \frac{1}{2}A} = \frac{r_a}{2 \sin^2 \frac{1}{2}A}.$$

For circle touching AC in A, centre lies on I_aF and

$$\text{radius} = \frac{r_a}{2 \sin^2 \frac{1}{2}A}.$$

Therefore product of alternate three radii

$$= \frac{r_a^3}{8 \sin^2 \frac{1}{2}A \cos^2 \frac{1}{2}B \cos^2 \frac{1}{2}C} = 2R^2r_a.$$

Similarly for circles through I_b and I_c .

14113. (D. BIDDLE.)—From one angle of a parallelogram draw a straight line to each of the opposite sides, such that, with the join of their distal extremities, three equal triangles may be cut off; and prove

that the area of the remaining (central) triangle is to one of the former as $\sqrt{5} : 1$.

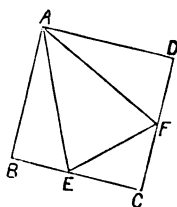
Solution by V. R. THYAGARAGAIYAR and Lt.-Col. ALLAN CUNNINGHAM, R.E.

(1) The problem is easily solved for a square, thus:—

Let AE, AF be the straight lines required, and let $BE/EC = 1/\lambda$.

Then the conditions give $\lambda^2 = \lambda + 1$.

Therefore $\lambda = \frac{1}{2}(1 + \sqrt{5})$, the negative sign being inadmissible. The area of the remaining triangle: the area of one of the equal triangles = $\frac{(\lambda + 1)^2 - \frac{3}{2}(\lambda + 1)}{\lambda^2/2} = \sqrt{5} : 1$.



(2) Project the square orthogonally on any plane not parallel to the plane of the square, and the results for a parallelogram are obtained.

[By way of generalizing, it may be observed that, if lines be drawn from an angle of a parallelogram as above, cutting off two equal triangles, and the join of their distal extremities cut off a triangle m times as great, the relative area of the central triangle is $(m^2 + 4m)^{\frac{1}{2}}$.]

14330. (R. CHARTRES.)—BC is the fixed base of the triangle ABC, G the centroid, and K the symmedian point. Show that the maximum value of the triangle AGK : its mean value :: $\pi : 2$ if A describe a semicircle.

Solution by Rev. J. CULLEN.

$AG = (2K - 3a^2)^{\frac{1}{2}}$, $AK = \{bc(2K - 3a^2)^{\frac{1}{2}}\}/K$, where $K = a^2 + b^2 + c^2$. Also $\sin GAK = 2\Delta(c^2 - b^2)/bc(2K - 3a^2)$.

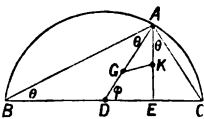
Therefore the area of the triangle AGK = $\Delta(c^2 - b^2)/3K$, if $\angle ABC = \theta$. Then $b = a \cos \theta$, $c = a \sin \theta$.

Therefore area of AGK varies as $\sin 4\theta$, the maximum value of which is 1.

$$\text{Mean value} = - \int_{\frac{\pi}{4}}^{\frac{3\pi}{4}} \sin 4\theta d\theta / \int_{\frac{\pi}{4}}^{\frac{3\pi}{4}} d\theta = 2/\pi.$$

Therefore, &c.

[The PROPOSER solves the Question thus:—“Here the symmedian is the altitude, and K is its mid-point; thus area of AGK = $\frac{1}{3}$ of $\frac{1}{2}$ of ADE, whose maximum value evidently is $\frac{1}{8}a^2$, and mean value $a^2/24\pi$.”]



14319. (Rev. T. MITCHESON, B.A.)—Solve $x^2 + \frac{1}{2}x^2(a^{-1}\beta\gamma + a\beta^{-1}\gamma + a\beta\gamma^{-1}) = \frac{1}{2}a\beta\gamma$.

Solution by CONSTANCE I. MARKS, B.A.

Let ξ_1, ξ_2, ξ_3 be the roots. Then

$$\xi_1 + \xi_2 + \xi_3 = -\frac{1}{2}a\beta\gamma(1/a^2 + 1/\beta^2 + 1/\gamma^2) \dots\dots\dots (i.),$$

$$\xi_1\xi_2 + \xi_1\xi_3 + \xi_2\xi_3 = 0, \quad (\xi_1\xi_2\xi_3) = \frac{1}{2}a\beta\gamma \dots\dots\dots (ii., iii.).$$

From (ii.) $\xi_2 + \xi_3 = -\xi_2\xi_3/\xi_1 = -a\beta\gamma/2\xi_1^2$.

Hence (i.) may be written

$$\xi_1 - a\beta\gamma/2\xi_1^2 + \frac{1}{2}a\beta\gamma(1/a^2 + 1/\beta^2 + 1/\gamma^2) = 0,$$

$$2/a\beta\gamma + (1/a^2 + 1/\beta^2 + 1/\gamma^2) 1/\xi_1 - 1/\xi_1^3 = 0,$$

$$1/\xi_1^3 - (1/a^2 + 1/\beta^2 + 1/\gamma^2) 1/\xi_1 - 2/a\beta\gamma = 0.$$

Put $1/\xi_1 = \eta + \zeta$ and solve by CARDAN'S method. This gives $1/\xi_1$, and therefore ξ_1 any root of the given equation.

QUESTIONS FOR SOLUTION.

14390. (Professor G. B. MATHEWS, F.R.S.)—It is given that

$$j = \frac{(4\xi^3\eta^4 + 1)^3}{\xi^3\eta^4}, \quad j' = \frac{(4\xi^3 + \eta^4)^3}{\xi^3\eta^3},$$

where ξ, η are functions of a parameter t such that

$$\xi + \frac{1}{\xi} = -\frac{t^3 + 17t^2 + 63t - 17}{32}, \quad \eta + \frac{1}{\eta} = \frac{t^2 - 9}{4};$$

it is required to prove that, if we put $x = j + j', y = j/j'$, then as t varies the point (x, y) describes a unicursal curve of order 18; and it is especially desired to find a parameter θ such that x, y can be expressed as rational functions of θ .

14391. (Professor E. LEMOINE.)—Si ABC est le triangle de référence, l la distance du point A' au côté BC, m la distance du point B' au côté CA, n la distance du point C' au côté AB, et que $A_1y = A'_1z, B_1z = B'_1x, C_1x = C'_1y$ soient, en coordonnées normales, les équations de AA', BB', CC', ABC et A'B'C' seront triplement homologues par permutation circulaire (c'est-à-dire que AA', BB', CC'; AB', BC', CA'; AC', BA', CB' concourront en L, en M et en N). Si l'on a $A_1B_1C_1 = A'_1B'_1C'_1$, et $abc A_1B_1C_1(l - h_a)(m - h_b)(n - h_c) + lmn(\delta A'_1 + \epsilon A_1)(\epsilon B'_1 + aB_1)(aC'_1 + bC_1) = 0$,

a, b, c sont les trois côtés et h_a, h_b, h_c les trois hauteurs de ABC. On suppose $0 \geq l \geq a, 0 \geq m \geq b, 0 \geq n \geq c$.

14392. (Professor S. SIRCOM, M.A.)—Obtain the current function for liquid flowing past the cylinder whose right section is $\frac{1}{2}(n-1)^2\{(x^2+y^2)^2 - 2a^2(x^2-y^2) + a^4\}$

along OX in an infinite liquid under no forces, n being greater than 1. [The curve is of the limaçon form with a double point at $y = 0, (n-1)x = (n+3)a$.]

14393. (Professor NEUBERG.)—A un tétraèdre ABCD on circonscrit une sphère, puis on mène en A, B, C, D les plans tangents qui forment un nouveau tétraèdre A'B'C'D'. Les droites AA', BB', CC', DD' sont quatre génératrices d'un même mode d'un hyperboloïde dont on demande l'équation.

14394. (Professor THOMAS SAVAGE.)—Discuss, n being integral and positive, $(1 + 1/x)^n < 2$, but $(1 + 1/x)^{n+1} > 2$.

14395. (Professor COCHEZ.)—Courbe $\tan \omega = \rho + 1/\rho$.

14396. (Professor SANJANA.)—The line (lmn) cuts BC, CA, AB, the sides of the triangle of reference, in A', B', C' respectively; A'Y'Z, B'Z'X, C'X'Y are drawn antiparallel to these sides respectively and meeting the other sides. If the six points X, X', Y, Y', Z, Z' be concyclic, then $la(b^2 - c^2) + mb(c^2 - a^2) + nc(a^2 - b^2) = 0$. With this condition prove that the line moves parallel to itself; and that, if $\theta_1, \theta_2, \theta_3$ be the angles which it makes with the sides respectively,

$$(b^2 - c^2) \cot \theta_1 + (c^2 - a^2) \cot \theta_2 + (a^2 - b^2) \cot \theta_3 = 2\Delta(\cot^2 \omega - 3).$$

[The line is, in fact, parallel to the LEMOINE line of the triangle, and coincident with $a\alpha_1/a + \beta\beta_1/b + \gamma\gamma_1/c = 0$, or $a/a + \beta/\beta + \gamma/\gamma = \lambda$, of Quest. 14338.]

14397. (Professor U. C. GHOSH.)—A ball, projected from any point on the rim of a circular ring resting on a smooth horizontal table, comes back to the point of projection after n impacts with the ring. Determine the inclination of the line along which the ball is projected to the radius of the ring through the point of projection, and show that, if $n = 3$, this angle is $\tan^{-1}(e^{\frac{1}{2}})$, e being the coefficient of restitution.

14398. (D. BIDDLE.)—The sides AB, AC of a plane triangle ABC having been produced, a point P is taken between them, and a straight line is drawn through P and the mid-point of BC, cutting off one of the corners of the triangle. (1) Trace the boundary within which P must be placed so that a second line through it may cut off an equal triangular portion from ABC, at the other end of BC; (2) prove that, if P be restricted to the space between BC and a parallel intercept n times as long, the chance of satisfying the conditions is $2/(n+1)$; and (3) give a geometrical construction for the second line through P in the favourable cases.

14399. (R. TUCKER, M.A.)— a, b, c are the centres of the squares described (externally) on the sides BC, CA, AB of the triangle ABC. Aa, Bb, Cc meet in P; prove that P is the orthocentre of the triangle abc. α, β, γ are the mid-points of bc, ca, ab; prove that Aa, Bb, Cc meet in a point. With the usual notation, prove that

$$2bc^2 + BC^2 = k + 4\Delta = 4\Delta(1 + \cot \omega) \dots\dots\dots (i),$$

$$2\Delta abc = \Delta ABC(2 + \cot \omega) \dots\dots\dots (ii),$$

$$\cot \omega' = (3 + 2 \cot \omega)/(2 + \cot \omega) \dots\dots\dots (iii).$$

[Cf. Quest. 13852, Reprint LXX, p. 105, and MILNE, Quest. 54, p. 178.]

14400. (R. F. DAVIS, M.A.)—Find positive integral values for N, x, y which will render $N^2 - 3x^2, N^2 - 3y^2, N^2 - 3(x+y)^2, N^2 - 3(x-y)^2$ perfect squares. [A special Christmas puzzle.]

14401. (Rev. W. ALLEN WHITWORTH, M.A.)—If a number be taken at random, the chance that it is of the form $\square + \square$ or $\square + \square$ is very nearly $\frac{1}{2}$, the chance that it is of the form $\square + \square + \square$ very slightly exceeds $\frac{1}{3}$, and the chance that it is of the form $\square + \square + \square + \square$ is exactly $\frac{1}{4}$.

14402. (R. C. ARCHIBALD, M.A.)—Show that (1) the locus of the fourth harmonic point to P, S, P', when PSP' is a focal chord of the cardioid $r = 2a(1 - \cos \theta)$, is the cissoid of DIOCLES $r = 2a \sin \theta \tan \theta$; (2) if r and r' are the radii vectors respectively of the cardioid and cissoid for a given θ , $r : r' = \tan \frac{1}{2}\theta : \tan \theta$; (3) referred to $(a, 0)$ as origin, the equation of the cissoid becomes $r/a = (1 + \tan^2 \frac{1}{2}\theta)/(1 - \tan^2 \frac{1}{2}\theta)$. [In Quest. 14372, for "fixed circle" read "axial circle", and add: "The locus of the points where any line whatever (drawn through the focus of the parabolas, and always making a constant angle with their axes) meets the parabolas is a cardioid."]

14403. (R. P. PARANJPE, B.A.)—Investigate the form of the function f defined by the relation $f(z + \omega) = \{Af(z) + B\}/\{Cf(z) + D\}$ where A, B, C, D are any complex quantities whatever. Find how many "periods" like ω there are, and what, if any, are the relations among them. Give at least one example of such a function when A, B, C, D are unrestricted. [N.B.—The above is an attempt to generalize many commonly occurring functions, e.g., (1) $f(z) = z, C = 0, D = 1 - A, B = \omega$.

(2) $f(z)$ = an ordinary elliptic function $C = 0$, $B = 0$, and $A = D$.
 (3) $f(z)$ = an elliptic function of the second kind, or "fonction à multiplicateurs constants," $C = 0$, $B = 0$. (4) not only the elliptic functions, but also some of the functions when the "period" is what is usually the semi-period: thus, $\wp(u + \omega) - e_1 = \{e_1 - e_2\}(e_1 - e_3) / (\wp u - e_1)$, where 2ω and $2\omega'$ are the periods of $\wp(u)$; again, $\text{sn}(u + ik') = 1/k \text{sn} u$. (5) $f(z) = e^z$; here $C = 0$, $B = 0$, $A = De^z$, and so on.

14404. (G. H. HARDY, B.A.)—Evaluate

$$\int_0^\infty \sin px \Theta(x) dx,$$

where Θ is any one of the four functions

$$\frac{x - 2n\pi}{x^2 + \theta^2}, \quad \frac{x - (2n+1)\pi}{x^2 + \theta^2}, \quad \frac{x - 2n\pi}{x^2 - \theta^2}, \quad \frac{x - (2n+1)\pi}{x^2 - \theta^2};$$

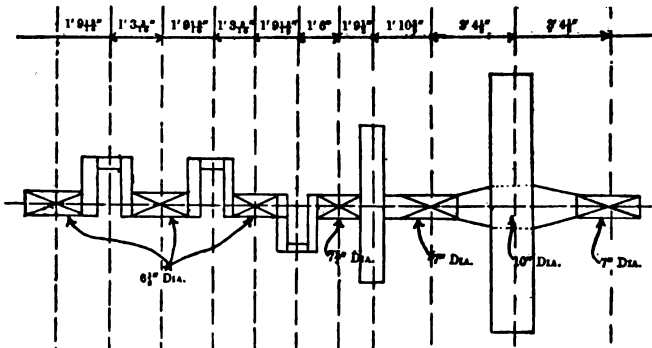
the positive integer n being chosen in each case so that the numerator always lies between $\pm\pi$. Thus, *e.g.*,

$$\int_0^\infty \sin px \frac{x - (2n+1)\pi}{x^2 + \theta^2} dx = \frac{\pi}{\theta} \sin h p\theta \log(1 + e^{-\theta}).$$

When the denominator is $x^2 - \theta^2$, the principal value is to be taken.

14405. (H. MACCOLL, B.A.)—To make sense of the implication, "If it is x that A and B are y , it is y that A and B are x ," one of the three words, *true, certain, probable*, is taken at random and substituted for x ; then one of the same three words is taken at random and substituted for y . What is the chance that the implication, thus rendered intelligible, will be a *formal certainty*? (I find *two-thirds*; but my reasoning involves one or two controvertible points, and I should be glad to see other solutions.)

14406. (H. J. WOODALL, A.R.C.S.)—A FERRANTI fly-wheel alternator is coupled to a WILLANS engine (of 670 H.P.), the combination having a high speed (*i.e.*, about 270 revolutions). These engines have three cranks 120° apart. The engines have each a fly-wheel on the main shaft, and the power is transmitted through a coupling to the alternator, which is built up on the rim of a fly-wheel. There were thus at first two



fly-wheels on the engine. When the set was in motion, it was found that there was a great deal of end play on the shaft, that is, the shaft moved longitudinally on the bearings both to and fro when the engine was running. A man on the staff suggested the addition of another fly-wheel of a certain weight, and declared that then it would be all right; and so it proved. Explain the sequence of events. [WILLANS & ROBINSON say that the crank shaft may be regarded as a coiled spring.]

14407. (Rev. T. MITCHESON, B.A.)—If a, β, γ be the distances of the incentre from the angular points of a triangle, the diameter of the incircle

$$= a\beta\gamma \frac{(a^{-1} \cos \frac{1}{2}A + \beta^{-1} \cos \frac{1}{2}B + \gamma^{-1} \cos \frac{1}{2}C)}{a \cos \frac{1}{2}A + \beta \cos \frac{1}{2}B + \gamma \cos \frac{1}{2}C}.$$

14408. (E. W. REES, B.A.)—If the feet of the perpendiculars from K, G , the symmedian point and centre of gravity of the triangle ABC , on the sides BC, CA, AB respectively be $\bar{X}\bar{X}', \bar{Y}\bar{Y}', \bar{Z}\bar{Z}'$, prove that the radius of the circle circumscribing the hexagon $\bar{X}\bar{X}'\bar{Y}\bar{Y}'\bar{Z}\bar{Z}'$ is $\frac{2}{3} \{ (m_1 m_2 m_3) / (a^2 + b^2 + c^2) \}$, where m_1, m_2, m_3 are the medians of the triangle ABC .

14409. (F. H. PEACHELL, B.A.)—In a newspaper competition, in which a prize of £ x is offered, every correct coupon obtains an equal share of the prize, and a competitor may send in as many coupons as he likes. A person enters for this competition, and it is found that there are y correct coupons besides his own. What number of coupons (all correct) should he have sent in in order that his net profit may be the greatest possible, supposing each coupon to cost him z pence? Find also the amount of this profit.

14410. (Rev. T. WIGGINS, B.A.)—Inscribe in a given triangle the triangle of least perimeter.

14411. ("ALPHA.")—If U be any function of x , and n be a positive integer, and $D = (d/dx)$, prove that

$$\frac{1}{D} x^n U = x^n \frac{1}{D} U - nx^{n-1} \frac{1}{D^2} U + n(n-1)x^{n-2} \frac{1}{D^3} U - \dots + (-1)^n n! \frac{1}{D^{n+1}} U,$$

provided that the operations on the right-hand side are performed so that for any positive integral values of r and s

$$D^r \left(\frac{1}{D^{r+s}} U \right) = \frac{1}{D^s} U.$$

14412. (H. A. WEBB.)—Three equilateral triangles are described outwards on the sides of any triangle as bases. Prove geometrically that the centres of these three equilateral triangles form the vertices of a fourth equilateral triangle.

14413. (ROBERT W. D. CHRISTIE.)—Find integral values of n to satisfy the equation $T_x = nT_y$, and give general values for x and y . (T a triangular.)

14414. (I. ARNOLD.)—Find the centre of gravity of a loop of the lemniscate of JAMES BERNOULLI whose polar equation is $r^2 = a^2 \cos 2\theta$.

14415. (R. KNOWLES.)— $ABCD$ is a quadrilateral inscribed in a conic so that one of its diagonals AC passes through the pole of the other. Prove that the point of intersection of AD and the tangent at B , that of AB and the tangent at D , and the pole of AC are collinear.

14416. (Professor IGNACIO BEYENS, M.A., Lt.-Col. du Génie.)—Si dans un triangle ABC on mène une droite AD et l'on prolonge $AD_1 = AD$, considérant les droites AB, AC, AD , comme les magnitudes et directions de trois forces, leur résultante est la droite AD' isotomique de AD dans le triangle proposé.

14417. (J. A. THIRD, D.Sc.)—The locus of the centre of a variable inconic K of a triangle is a conic having (imaginary) double contact with the maximum inscribed ellipse on the line Σ as $A = 0$, if the locus of the point of concurrence of the lines joining the points of contact of K with the sides to the opposite vertices is the envelope of a system of similar circumconics.

14418. (C. E. BICKMORE, M.A.)—Prove that, if $2m+1$ be >3 and prime to 3,

$$(x^{2m+3} - y^{2m+3})(x-y) = P^2 - xyQ^2,$$

where

$$P = (x+y)Q + x^m y^m,$$

and

$$Q = (x-y) \times \frac{(x^m - y^m)(x^{m+1} - y^{m+1})}{x^3 - y^3}.$$

14419. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Find three sums of successive cubes which shall be in arithmetical progression.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

6316. (W. J. C. MILLER, B.A.)—Within a circle of unit radius two points are taken at random; find, by a general solution, (1) the average rectangle of the distances of these points from a given tangent; (2) the probability that such a random rectangle will be less than the square on the radius.

6322. (J. E. A. STEGGALL, M.A.)—Solve $x - y = a$, $xx + y = b$ in positive integers, a and b being integers prime to each other, and one odd, the other even.

6329. (Rev. W. A. WHITWORTH, M.A.)— A and B have each a coin. They toss simultaneously, scoring 1 for a head and -1 for a tail. Find the chance that throughout the play (which extends to n tosses of each coin)—(1) A 's score is always positive, (2) A 's score is never less than B 's, (3) the two scores are equal at the n th throw and not before (except initially).

6330. (H. MACCOLL, B.A.)—The chances of two causes X and Y are respectively $\cdot 1$ and $\cdot 2$. The chance that, if the cause X present itself, an event Z will accompany it, whether as a consequence of the cause or not, is $\cdot 6$; and the chance that, if the cause Y present itself, the event Z will accompany it, whether as a consequence or not, is $\cdot 7$. Moreover, the event Z cannot appear in the absence of both the causes X and Y . On the assumption that X and Y are independent, and that Z is more probable when X and Y both occur than when only one of them occurs, show that the chance of the event Z lies between $\cdot 18$ and $\cdot 186$. [This result does not agree with BOOLE'S (*Laws of Thought*, p. 321, especially the foot-note), whose formula would give $\cdot 190697\dots$ for the exact chance.]

6332. (Professor E. B. ELLIOTT, F.R.S.)—A ray of light, polarized at right angles to the principal plane in a uniaxial crystal, is incident internally on a face of the crystal in such a manner that the reflected ray returns along the line of incidence; the plane of incidence is a principal one, α is the angle between the axis and the normal to the face, β that between the axis and the line of incidence, and a and c are the principal elasticities; prove that $a^2 \tan \beta = c^2 \tan \alpha$.

6333. (C. LEUDESDORF, M.A.)—A pair of tangents TP, TQ is drawn from a point T to a conic $S = 0$; if the centre of gravity of the triangle TPQ lie on the conic, prove that the locus of T is the conic $CS + 3\Delta = 0$.

[Quest. 6137 (Dr. HART), re-proposed in the *Educational Times* for October, is identical with Quest. 4881 (Dr. HART), which was solved by Professor SANJANA in the *Reprint*, Vol. LXX., p. 54.]

THE LONDON MATHEMATICAL SOCIETY.

Thursday, November 9, 1899.—Lord Kelvin, G.C.V.O., President, in the Chair. Eighteen members present.

The Treasurer (Dr. J. Larmor) read his report. Its reception, having been moved by Mr. Kempe, and seconded by Prof. W. Burnside, was carried unanimously.

The Secretaries' report was also read, from which it appeared that the present number of members is 247. There had been three losses by the deaths, in the previous session, of Prof. Sophus Lie, Prof. Bartholomew Price, and Mr. S. O. Roberts.

On the motion of Mr. Kempe, a vote of thanks was unanimously carried to Mr. F. W. Russell, who had recently resigned the office of Hon. Librarian. Mr. A. E. Western was appointed his successor.

Lord Kelvin stated that the Council, as announced at the June meeting, had awarded the De Morgan Medal to Prof. Burnside, and requested Major MacMahon to state the grounds of the award. Lord Kelvin having presented the Medal to Prof. Burnside, that gentleman warmly thanked the Council for the honour they had conferred upon him.

The ballot was then taken, and the Scrutators, Messrs. A. E. Western and E. W. Barnes, declared that the following gentlemen, nominated by the Council, had been elected to serve on the Council for the ensuing Session:—President, Lord Kelvin; Vice-Presidents, Prof. Elliott, Lt.-Col. Cunningham, R.E., and Prof. H. Lamb; Treasurer, Dr. J. Larmor; Hon. Secs., Mr. R. Tucker and Prof. Love; other members, Prof. W. Burnside, Dr. Glaisher, Prof. M. J. M. Hill, Dr. Hobson, Mr. Kempe, Dr. Macaulay, Mr. Macdonald, Major MacMahon, R.A., and Mr. Whittaker.

Prof. Burnside communicated a short note by Dr. L. E. Dickson, on "The Abstract Group Isomorphic with the Symmetric Group on K Letters." Major MacMahon spoke on "The Fundamental Solutions of the Indeterminate Relation $\lambda x \mu \geq y$."

The following papers were read in abstract:—

"Certain Correspondences between Spaces of n Dimensions," Dr. E. O. Lovett.

(i.) "On the form of Lines of Force near a Point of Equilibrium"; (ii.) "The Reduction of Conics and Quadrics to their Principal Axes by the Weierstrassian Method of reducing Quadratic Forms"; and (iii.) "On the Reduction of a Linear Substitution to a Canonical Form, with some applications to Linear Differential Equations and Quadratic Forms," Mr. T. J. I'A. Bromwich.

(i.) "On Ampère's Equation $Rr + 2Ss + Tt + U(rt - s^2) = V$ "; and (ii.) "The Theory of Automorphic Functions," Prof. A. C. Dixon.

"Note on Clebsch's Second Method for the Integration of a Pfaffian Equation," Mr. J. Brill.

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